Welcome to GateWay Community College, one of the 10 Maricopa Community Colleges. For nearly 50 years, GateWay has served the community and helped thousands of students, like you, achieve their educational and career goals.

Driven by its Vision, Mission, Goals, and Values, the college is committed to providing high-quality education through comprehensive services and innovative academic programs. Whether you plan to transfer to a university, enter the workforce with newly attained skills, or take classes for personal enrichment, GateWay offers approximately 150 associate degrees and certificates at locations throughout the Valley.

At GateWay Community College, you have even more pathway options in professional and technical education, university transfer, or trade and technical training, with three campuses in the Phoenix area – Washington Campus (40th & Washington streets), Central City Campus (12th Street & Buckeye), Deer Valley Campus (29th Avenue & Bell) – and an additional site in Surprise.

Ensuring that you are prepared to enter the workforce or even start your own business, GateWay offers a variety of experiential learning opportunities through simulation in the Center for Health Careers Education, free healthcare and health screenings provided by students in the HUG Clinic and elsewhere, salon and spa services, a Honda and Toyota training facility, a student business incubator that is jointly managed by GateWay’s Center for Entrepreneurial Innovation, and the Maricopa Small Business Development Center.

From service learning to volunteerism, to getting involved in causes you are passionate about, I encourage you to become engaged at GateWay by joining a club, attending an athletic event or participating in one of the many student life activities held on campus throughout the year.

At GateWay, we truly believe that you are the primary reason we exist. On behalf of the faculty and staff, I want to thank you for choosing GateWay. We feel honored that you have selected GateWay among the many other choices. I assure you that a friendly and knowledgeable faculty and staff stand ready to assist you in your pursuit of higher education.

Go Geckos!

Sincerely,

Steven R. Gonzales, Ed.D.
President
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VISION
GateWay Community College—a College for the Community—working collectively and responsibly to meet the life-long learning needs of our diverse students and community.

MISSION
GateWay Community College provides access to higher education for diverse students and communities. We focus on learning through:

- University Transfer Education
- General Education
- Developmental Education
- Workforce Development
- Student Development Services
- Continuing Education
- Community Education
- Civic Responsibility
- Global Engagement

GOALS

ACCESS
Provide access to high-quality education for all students and strengthen educational pathways through increased educational and business partnerships.

RETENTION
Improve the retention of students through the achievement of their education or training goals

SUCCESS
Increase the number of students who achieve their education or training goals, complete a degree or certificate, transfer to a university, and/or complete a workforce credential.

COMMUNITY ENGAGEMENT
Enhance civic, social, and cultural engagement opportunities by serving as the community’s college.

ENTREPRENEURISM
Expand and leverage resources that enhance the college’s impact in the community through economic and workforce development.

STEWARDSHIP
Strategically leverage, grow, and utilize resources to ensure student success, responsible stewardship, and sustainability.

VALUES
Students are the primary reason we exist. We value our diverse learning community and respect our students for their life experiences, their achievements, and we appreciate their contributions. For these reasons, GateWay is committed to the following values:

LEARNING
as a lifelong endeavor of growth and self-discovery.

DIVERSITY
as a celebration of the unique richness that all individuals bring to our community and to the learning opportunity it provides.

SERVICE
for students, to each other, and to the community.

TEAMWORK
as a commitment to working together toward student success.

INTEGRITY
as an essential element in our learning environment. We strive to be honest, authentic, consistent, and respectful in our words and actions.

ENTREPRENEURIAL SPIRIT
as critical in accomplishing our mission and goals. Through calculated risk-taking, we see possibilities...not limitations.

GateWay Community College is a Maricopa Community College, accredited by the Higher Learning Commission, a Commission of the North Central Association of Colleges and Schools (230 South LaSalle St, Suite 7-500, Chicago, IL 60604-1413, Tel# 1-800-621-7440), and its courses are approved by the Social Security Administration for Veterans Training. This school is authorized under federal law to enroll nonimmigrant alien students. (http://www.ncahlc.org/)

Nondiscrimination Policy
The Maricopa County Community College District does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, citizenship status (including document abuse), age, disability, veteran status, or genetic information in employment or in the application, admission, participation, access, and treatment of persons in instructional or employment programs and activities.

The Maricopa County Community College District is an EEO/AA institution and an equal opportunity employer of protected veterans and individuals with disabilities.
Please take the time to read carefully and reflect on the Achieve Success steps identified below. The objective of this document is to inform students of their personal responsibilities for their own education and to focus faculty and staff on what they should expect of students wishing to maximize their higher education experience.

**Achieve Success**

A **tendance**... Students are expected to attend all classes, to come to class prepared, to be on time, to have all required materials, to complete all homework, and to be prepared to participate in classroom discussions and learning activities. Being absent does not excuse you from your responsibilities regarding material covered, quizzes, exams, homework, experiments or projects.

C **ritical Thinking**... Today's workplace requires employees who can systematically apply knowledge and critical thinking skills. It is not enough to memorize facts or figures; students must be able to use information to further investigate their workplace as well as world events.

H **onesty**... There is no substitute for honesty. Students are responsible for knowing the standards of conduct and student policies found in the GateWay Community College Catalog and Student Handbook, and must adhere to these standards at all times.

I **ntensity**... Attitude is everything! Education is important for personal success today more than ever before. Make education a priority. Success demands persistence and the intense commitment of time and talent.

E **xpectation**... Expect to be taught well, but also accept your personal responsibility to learn. Faculty can expose you to an abundance of information, and they can provide you with opportunities and activities that are conducive to learning. As a student, you must seize opportunities to apply that information to specific situations that confront you in your everyday life.

V **alue**... Value your education. Make it your personal goal to graduate with the knowledge and skills necessary to be one of the best at what you do.

E **nlightenment**... Ask yourself why you are seeking a higher education. Challenge yourself to achieve success at the highest level possible.
ACADEMIC CALENDAR*
2017 - 2018

FALL SEMESTER 2017
Summer Break - No classes for Trade & Technical Training ......................................................... July 3 - July 7, 2017
In-Service Day - No classes for Trade & Technical Training ......................................................... August 14, 2017
New Student Orientation .................................................................................................................. August 16 & 19, 2017
Saturday Registration (9:00 a.m.-1:00 p.m.) .................................................................................. August 19, 2017
Classes Begin (Saturday) – Official Start Date of Semester ......................................................... August 19, 2017
Classes Begin (Day and Evening) .................................................................................................. August 19, 2017
Labor Day Observance – Campus Closed ..................................................................................... September 4, 2017
Graduation and Certificate Application Deadline ........................................................................... November 1, 2017
Veterans Day Observance – Campus Closed ................................................................................. November 10, 2017
Thanksgiving Holiday – Campus Closed ....................................................................................... November 23 - November 26, 2017
Final Exams ....................................................................................................................................... December 11-14, 2017
Grades Due ........................................................................................................................................ December 15, 2017
Mid-Year Recess Begins for Students ............................................................................................. December 15, 2017
Winter Break – Campus Closed ...................................................................................................... December 25, 2017-January 1, 2018

SPRING SEMESTER 2018
Priority Registration Begins ........................................................................................................... October 2, 2017
Open Registration Begins ............................................................................................................. October 9, 2017
Campus Re-Opens ......................................................................................................................... January 2, 2018
In-Service Day - No classes for Trade & Technical Training ......................................................... January 9, 2018
New Student Orientations ............................................................................................................. January 13, 2018
Saturday Registration (9:00 a.m.-1:00 p.m.) .................................................................................. January 13, 2018
Classes Begin (Saturday) – Official Start Date of Semester ......................................................... January 13, 2018
Martin Luther King Day Observance – Campus Closed ............................................................... January 15, 2018
Classes Begin (Day and Evening) .................................................................................................. January 13, 2018
President’s Day Observance – Campus Closed ............................................................................. February 19, 2018
Graduation and Certificate Application Deadline ............................................................................. March 1, 2018
Spring Break – No Classes Scheduled .......................................................................................... March 12-18, 2018
Spring Break – Campus Closed ...................................................................................................... March 15-18, 2018
Final Exams ....................................................................................................................................... May 7-10, 2018
Commencement ............................................................................................................................. May 11, 2018
Grades Due ........................................................................................................................................ May 10, 2018

SUMMER TERM 2018
Priority Registration Begins ........................................................................................................... March 5, 2018
Open Registration Begins ............................................................................................................. March 19, 2018
Memorial Day Observance – Campus Closed .............................................................................. May 28, 2018
Classes Begin ..................................................................................................................................... May 29, 2018
Graduation and Certificate Application Deadline ............................................................................. June 1, 2018
Independence Day Observance – Campus Closed ......................................................................... July 4, 2018
Classes End ...................................................................................................................................... August 2, 2018
Grades Due ....................................................................................................................................... August 7, 2018

Maricopa County Community College District and the 10 colleges are closed on Fridays in the summer, from approximately mid-May to the beginning of August. GateWay Community College’s Central City and Deer Valley campuses are also closed during the first two weeks of July. See college class schedule for specific dates for registration and schedule adjustment. *All dates subject to change.
GateWay Community College is a comprehensive community college with an emphasis on both academic and professional and technical education programs. The college offers the Associate in Applied Science, Associate in Arts, Associate in Business, Associate in General Studies, and Associate in Science degrees, as well as Certificate of Completion and Certificate of Competency in various programs. Courses, certificate and degree programs are available at the following locations:

**CENTRAL CITY CAMPUS (CC)**

1245 East Buckeye Road // Phoenix, AZ // 85034
This campus consists of three main buildings, with a total square footage of 86,911.
[SEE MAP ON INSIDE OF BACK COVER]

**DEER VALLEY CAMPUS (DV)**

2931 West Bell Road // Phoenix, AZ // 85053
This campus consists of one building, with a total square footage of 26,802.
[SEE MAP ON INSIDE OF BACK COVER]

**WASHINGTON CAMPUS (WA)**

108 N. 40th Street // Phoenix, AZ // 85034
This campus consists of eleven buildings, with a total square footage of 400,000.
[SEE MAP ON INSIDE OF BACK COVER]
INSTRUCTIONAL DIVISIONS/DEPARTMENTS

APPRENTICESHIPS
Coordinator: Anna Lopez
(602) 286-8676
ABA - Arizona Builders Alliance
BLT - Building Safety &
Construction Technology
CRP - Carpentry
ELA - Electrician: Apprenticeship
HEO - Heavy Equipment Operations
HFA - Heat and Frost Technology
IRW - Ironworking: Apprenticeship
MEC - Mechanical Apprenticeship
MWR - Millwright: Apprenticeship
PCM - Plastering/Cementing:
Apprenticeship
PFT - Plumbing/Pipefitting:
Apprenticeship
PNT - Painting/Decorating:
Apprenticeship
TDR - Trade Related
TTD - Tractor-Trailer Driving
WLD - Welding

ARTS, HUMANITIES, SOCIAL
AND BEHAVIORAL SCIENCES
Chair: Susan Mills
(602) 286-8487
AES - Aerospace Studies
ARH - Art Humanities
ART - Art
ASB - Anthropology
ASM - Anthropology
COM - Communication
EDU - Education
HIS - History
HUM - Humanities
PHI - Philosophy
POS - Political Science
PSY - Psychology
REC - Recreation
REL - Religious Studies
SOC - Sociology
STO - Storytelling
SWU - Social Work

BUSINESS AND
INFORMATION TECHNOLOGIES
Chair: David Smith
(602) 286-8594
ACC - Accounting
AJS - Administration of Justice Studies
BPC - Business-Personal Computers
CIS - Computer Information Systems
CTR - Court Reporting
ECN - Economics
EPS - Entrepreneurial Studies
GBS - General Business
IBS - International Business
ITS - Information Technology
MGT - Management
MKT - Marketing
MMT - Multimedia Technology
RELA - Real Estate
SBU - Society & Business
TQM - Total Quality Management
CNT - CISCO Networking Technology

COUNSELING
Chair: Frank Zamora
(602) 286-8127
CPD - Counseling/Personal Development
EXS - Exercise Science
HES - Health Science
PED - Physical Activities/Lifetime Fitness
WED - Wellness Education

HEALTH SCIENCES
Chair: Monica Wadsworth-Seibel
(602) 286-8526
DMI - Diagnostic Medical Imaging
DMS - Diagnostic Medical Sonography
EGG - Electroneurodiagnostic (END) Technology
HCC - Health Care Related
HCE - Health Care Education
HCS - Hospital Central Service
HES - Health Science
HRC - Healthcare Regulatory Compliance
HSE - Health Science Education
HSM - Health Services Management
HUC - Health Unit Coordinator
ICE - Imaging - Continuing Education
NUC - Nuclear Medicine Technology
PON - Perioperative Nursing
PSG - Polysomnographic Technology
PTA - Physical Therapist Assisting
RES - Respiratory Care
SGT - Surgical Technology

INDUSTRIAL TECHNOLOGY
Chair: John Kelly
(602) 286-8647
AUT - Automotive Technology
ELC - Electrical Apprentice
ELE - Electrical Technology Apprentice
FAC - Technology Facilities
GTC - General Technology
HVA - Heating, Ventilating, Air Conditioning & Refrigeration
IMC - Interstate Mechanical Contractors Apprentice
JCI - Johnson Controls Institute
MET - Manufacturing Technology
OSH - Occupational Safety and Health Technology
WRT - Water Resources Technology

LITERACY, LANGUAGE AND
LITERATURE
Chair: Lauren Yena
(602) 286-8731
CRE - Critical Reading
ENG - English
CRW - Creative Writing
ENH - English Humanities
ESL - English as a Second Language
RDG - Reading
SPA - Spanish

MATH AND SCIENCES
Chair: Cheryl Berg
(602) 286-8698
BIO - Biology
CHM - Chemistry
FON - Food and Nutrition
GLG - Geology
GLG - Geography
GPH - Physical Geography
MAT - Mathematics
PHY - Physics

NURSING
Director: Margi Schultz
(602) 286-8530
HCR - Health Care Related
HLR - Health Related
NCE - Nursing - Continuing Education
NUR - Nursing
### TRADE & TECHNICAL TRAINING INSTRUCTIONAL DIVISIONS

#### BEAUTY & WELLNESS
Program Managers: Michael Zerilli  
(602) 238-4365  
CEA - Cosmetology, High School  
COS - Cosmetology  
ESH - Aesthetician, High School  
EST - Aesthetician  
PMH - Massage Therapy, High School  
PMP - Massage Therapy

#### HEALTHCARE & BUSINESS
Program Manager: CJ Wurster  
(602) 238-4330  
HLC - Healthcare Core  
EHC - Education Healthcare  
RHC - Related Healthcare  
NAC - Nursing Assistant  
PHC - Pharmacy Tech  
PLC - Phlebotomy

#### TRADES & TECHNOLOGY
Program Manager: Mark Woehl  
(602) 238-4379  
ABO - Auto Body  
CNP - Computer Support  
CSS - Customer Service  
ELR - Electrical  
HVC - HVAC  
MCP - Meat Cutting  
MTO - Precision Machining, CNC  
WTO - Welding Trades
The Maricopa County Community College Occupational Program Matrix identifies all programs currently available within the 10 community colleges and two skill centers of the district. The programs are grouped under broad occupational areas as requested by the colleges. For specific information regarding individual programs, contact the college(s) listed as participating institutions.

**COLLEGE ACRONYM/NAME:**
- CG: Chandler Gilbert Community College
- EM: Estrella Mountain Community College
- GC: Glendale Community College
- GW: GateWay Community College
- MC: Mesa Community College
- PC: Phoenix College
- PV: Paradise Valley Community College
- RS: Rio Salado College
- SC: Scottsdale Community College
- SM: South Mountain Community College

**AGRICULTURE, FOOD AND NATURAL RESOURCES**
- Environmental and Natural Resource Conservation: PC
- Sustainability: SC
- Equine Science: SC
- Landscape Aide: MC
- Landscape Specialist: MC
- Sustainable Agriculture: SC
- Urban Horticulture: MC
- Veterinary Technology/Animal Health: MC

**ARCHITECTURE AND CONSTRUCTION**
- Air Conditioning/Refrigeration/Facilities: GW
- Architecture: GC, MC, PC, PV, RS
- Architectural CADD Level III: EM, MC, PC, PV, SC
- Architectural Technology: SC
- Building Inspection: MC
- Construction: MC
- Computer Aided Design and Drafting CADD Level I: MC
- Computer Aided Drafting: MC, PV
- Commercial Drafting CADD Level II: MC
- Construction Trades: Construction Management: GW
- Construction Trades: Electricity: GW
- Construction Trades: General Construction Worker: GW
- Construction Trades: Heat and Frost Insulation: GW
- Construction Trades: Heavy Equipment Operations: GW
- Construction Trades: Ironworking: GW
- Construction Trades – Mechanical Trades: GW
- Pipefitting: GW
- Construction Trades – Mechanical Trades: Plumbing: GW
- Construction Trades – Mechanical Trades: Sheet Metal: GW
- Construction Trades: Millwrighting: GW
- Construction Trades: Painting and Drywalling: GW
- Construction Trades: Pre-Apprenticeship: GW
- Home Inspection: MC
- Mechanical Drafting: MC
- Plan Review: MC
- Power Plant Technology: EM
- Pre-Contractor Licensing: MC
- Residential and Light Commercial Air Conditioning: GW
- Residential Drafting CADD Level II: EM, MC
- Survey and Civil Drafting - CADD Level II: EM
- Workforce Development: Carpenter Level I: RS
- Workforce Development: Carpenter Level II: RS
- Workforce Development: Furniture: RS
- Construction/Refinishing Level I: RS
- Workforce Development: Furniture: RS
- Construction/Refinishing Level II: RS

**ART, A/V TECHNOLOGY AND COMMUNICATION**
- Adolescent Development: GC, RS
- Adult Development and Aging: GC, RS
- Alcoholism Specialist: MC
- Apparel Construction: PC
- Audio Production Technologies: GC, MC, PC, PV, RS
- Beginning Piano Pedagogy: MC
- Computer Graphic Design: PC
- Costume Design and Production: MC
- Costuming: PC
- Dance Technology: PC
- Digital Media Arts: GC
- Disc Jockey Techniques: MC, SC
- Family Life Education: GC, RS
- Fashion Design: PC
- Fashion Design Level I: PC
- Fashion Design Level II: PC
- Fashion Illustration: PC
- Fashion Merchandising: PC
- Fashion Merchandising & Design: PC
- Graphic Design: Visual Communication: SC
- Image Consultant: MC
- Interior Merchandising: MC, PC, SC
- Interior Design: MC, PC, SC
- Interior Design: Advanced: MC
- Intermediate Piano Pedagogy: MC
- Journalism and New Media Studies: GC, PV, MC, SC
- Music Business: CG, GC, MC, PC, PV, SC, SM
- Parent Education: GC, RS
- Pattern Design Level I: PC
- Pattern Design Level II: CG, GC, PC, PV, SC, SM
- Photography: GC, PC
- Textile and Apparel: Fashion Illustrating Specialist: MC
- Textile and Apparel: Industrial Sewing Technician: MC
- Textile and Apparel: Product Development: MC
- Workforce Development: Graphic Arts Level I: RS
- Workforce Development: Graphic Arts Level II: RS

**BUSINESS, MANAGEMENT AND ADMINISTRATION**
- Accounting: CG, EM, GC, GW, PC, RS, SM
- Accounting Paraprofessional: GC
- Accounting - Specialized Para-Professional: PV
- Administrative Professional: MC, PC, PV
- Administrative Technology: GW
- Automobile Insurance Claims: Customer Service: RS
- Automobile Insurance: Customer Service: RS
- Bookkeeping: SC

**PROFESSIONAL AND TECHNICAL EDUCATION PROGRAM MATRIX 2017-2018**
- Broadband Telecommunications: RS
- Broadband Telecommunications: Account Services: RS
- Broadband Telecommunications: Field Operations: RS
- Broadband Telecommunications: Technical Support: RS
ENVIRONMENTAL TECHNOLOGY
Energy Systems Technology .............................................. RS
Environmental Science Technology ........................................... GW
Geospatial Technologies ......................................................... MC
Occupational Safety and Health Technology .................................. GW
Safety, Health and Environmental Studies ..................................... PV
Water Resources Management .................................................. GW
Water Treatment ................................................................. GW

FINANCE
Bank Account Management: Customer Service ......................... RS
Banking and Finance ............................................................. PC
Certified Residential Appraiser ................................................ MC
Licensed Real Estate Appraiser ................................................. MC
Real Estate ........................................................................ PC
Real Estate: Prelicense ...................................................... MC, SM
Residential Appraisal Trainee ..................................................... MC

GOVERNMENT AND PUBLIC ADMINISTRATION
Public Administration .......................................................... RS
Public Administration: Legal Services ......................................... RS
Tribal Development ............................................................... SC

HEALTH SCIENCE
Advanced Behavioral Health Sciences ........................................ GC, SM
Advanced Emergency Medical Technology (Paramedic) .................. PC, PV
Basic Behavioral Health ........................................................ GC, SM
Clinical Dental Assisting ........................................................ RS
Clinical Research Associate .................................................. GW
Clinical Research Coordinating ............................................... GW
Community Dental Health Coordinator ..................................... RS
Community Emergency Response Team (CERT): Level I ............. PC
Computed Tomography .......................................................... GW
Dental Assisting ...................................................................... PC
Dental Assisting Technology .................................................. RS
Dental Hygiene ......................................................................... MC, PC, RS
Developmental Disabilities Specialist ......................................... GC
Diagnostic Medical Sonography .............................................. GW
Diagnostic Medical Sonography: Vascular Technology ............... GW
Electroneurodiagnostic (END) Technology ................................... GW
Emergency Communications and Deployment ............................ PC
Fast Track Practical Nursing ................................................... GW
Health Information: Long Term Care Settings ............................. PC
Health Information Technology ................................................ PC
Health Services Management .................................................. GW
Health Unit Coordinating/Patient Care Advocate ....................... GW
Healthcare Regulatory Compliance .......................................... GW
Histologic Technology ........................................................... PC
Hospital Central Service Technology ......................................... GW
Laboratory Assisting ............................................................... PC
Magnetic Resonance Imaging .................................................. GW
Medical Assisting ................................................................. PC
Medical Billing and Coding: Physician-Based ............................. PC
Medical Coding: Hospital-Based .............................................. PC
Medical Laboratory Sciences .................................................. PC
Medical Radiography ............................................................. GW
Nuclear Medicine Technology ................................................... GW
Nurse Assisting ........................................................................ PC
Nurse Assisting ........................................................................ PC
Nursing ................................................................................... PC
Nursing ................................................................................... PC
Nursing Refresher ................................................................. GW, MC
Phlebotomy ............................................................................. PC, SM
Physical Therapist Assisting ..................................................... GW
Polysomnographic Technology .................................................. GW
Practical Nursing ................................................................. GC, GW, MC, PC, PV, EM
Radiation Therapy ...................................................................... GW
Recovery Support ...................................................................... SM
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<td>Culinary Fundamentals</td>
<td>SC, SM</td>
</tr>
<tr>
<td>Dietetic Technology</td>
<td>CG, PV</td>
</tr>
<tr>
<td>Food Service Administration</td>
<td>PC</td>
</tr>
<tr>
<td>Hospitality and Tourism/Golf Management</td>
<td>SC</td>
</tr>
<tr>
<td>Hospitality and Tourism/Hotel Management</td>
<td>SC</td>
</tr>
<tr>
<td>Hospitality and Tourism/Restaurant Management</td>
<td>SC</td>
</tr>
<tr>
<td>Hospitality and Tourism/Spa and Wellness</td>
<td>SC</td>
</tr>
<tr>
<td>Center Management</td>
<td>SC</td>
</tr>
<tr>
<td>Hospitality and Tourism/Tourism Development and Management</td>
<td>SC</td>
</tr>
<tr>
<td>Hospitality/Hotel Management</td>
<td>EM</td>
</tr>
<tr>
<td>Sustainable Food Systems</td>
<td>MC, RS</td>
</tr>
</tbody>
</table>

**HUMAN SERVICES**

<table>
<thead>
<tr>
<th>Program Area</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Addictions and Substance Use Disorders</td>
<td>RS</td>
</tr>
<tr>
<td>Addictions and Substance Use Disorders Level I</td>
<td>RS</td>
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<tr>
<td>Addictions and Substance Use Disorders Level II</td>
<td>RS</td>
</tr>
<tr>
<td>Adolescent Studies</td>
<td>PC</td>
</tr>
<tr>
<td>Personal Training</td>
<td>CG, GC, MC, PV, SC</td>
</tr>
<tr>
<td>Family Development</td>
<td>PC</td>
</tr>
<tr>
<td>Family Support</td>
<td>PC</td>
</tr>
<tr>
<td>Group Fitness Instructor</td>
<td>MC</td>
</tr>
<tr>
<td>Interpreter Preparation</td>
<td>PC</td>
</tr>
<tr>
<td>Nutrition for Fitness and Wellness</td>
<td>GC, MC, SC</td>
</tr>
<tr>
<td>Personal Trainer</td>
<td>GC, MC</td>
</tr>
<tr>
<td>Personal Training</td>
<td>CG, GC, MC, PV, SC</td>
</tr>
<tr>
<td>Professional Addictions Counseling</td>
<td>RS</td>
</tr>
<tr>
<td>Recreation Management</td>
<td>MC, SC</td>
</tr>
<tr>
<td>Teaching, Healing, Meditation &amp; Stress Management</td>
<td>PV</td>
</tr>
<tr>
<td>Therapeutic Massage</td>
<td>CG, PC</td>
</tr>
<tr>
<td>Yoga Instruction</td>
<td>SC</td>
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<tr>
<td>Yoga Therapy</td>
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**INFORMATION TECHNOLOGY**

<table>
<thead>
<tr>
<th>Program Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe Creative Suite in Business: Master Suite</td>
<td>GC, MC, PV, SM</td>
</tr>
<tr>
<td>Adobe Creative Suite in Business: Production</td>
<td>GC, MC SM</td>
</tr>
<tr>
<td>Adobe Creative Suite in Business: Print and Web</td>
<td>PC</td>
</tr>
<tr>
<td>Applications Specialist</td>
<td>GC, MC, PV, SC, SM</td>
</tr>
<tr>
<td>Advanced Computer Usage and Applications</td>
<td>RS</td>
</tr>
<tr>
<td>Advanced Web Designer</td>
<td>MC</td>
</tr>
<tr>
<td>Applications in Geospatial Technologies</td>
<td>MC</td>
</tr>
<tr>
<td>Business Office Computer Applications</td>
<td>GC</td>
</tr>
<tr>
<td>Comic and Sequential Art</td>
<td>PC</td>
</tr>
<tr>
<td>Computer and Networking Technology</td>
<td>MC</td>
</tr>
<tr>
<td>Computer Applications: Microsoft Office Specialist</td>
<td>MC</td>
</tr>
<tr>
<td>Computer Applications: Microsoft Office Specialist</td>
<td>MC</td>
</tr>
<tr>
<td>Computer Hardware and Desktop Support</td>
<td>SC</td>
</tr>
<tr>
<td>Computer Information Systems</td>
<td>GC, GW, PC, PV</td>
</tr>
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<td>Computer Information Systems Technologies</td>
<td>SC</td>
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<td>Computer Networking Technology</td>
<td>PV</td>
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<tr>
<td>Computer Programming</td>
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</tr>
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<td>Computer Systems Maintenance</td>
<td>PV</td>
</tr>
<tr>
<td>Computer Technology</td>
<td>RS</td>
</tr>
<tr>
<td>Computer Usage and Applications</td>
<td>RS</td>
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<tr>
<td>Database Development</td>
<td>SC</td>
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<tr>
<td>Desktop Publishing</td>
<td>SM</td>
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<tr>
<td>Digital Arts</td>
<td>MC</td>
</tr>
<tr>
<td>Digital Arts: Digital Illustration</td>
<td>MC</td>
</tr>
<tr>
<td>Digital Arts: Digital Photography</td>
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<tr>
<td>Digital Arts: Graphic Design</td>
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<tr>
<td>Digital Cinema Arts</td>
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<tr>
<td>Digital Design</td>
<td>RS</td>
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<tr>
<td>Digital Photography</td>
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<td>eLearning Design Specialist</td>
<td>RS</td>
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<tr>
<td>Game Technology</td>
<td>MC, GC</td>
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<tr>
<td>Healthcare Technology Systems</td>
<td>GC, PV</td>
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<tr>
<td>Information Security</td>
<td>GC</td>
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<tr>
<td>Information Security Technology</td>
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<tr>
<td>Information Technology</td>
<td>CG</td>
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<tr>
<td>Information Technology: Support</td>
<td>SM</td>
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<tr>
<td>Information Technology: Android/iOS Programming</td>
<td>SM</td>
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<tr>
<td>Information Technology: Cisco Networking</td>
<td>MC, SM</td>
</tr>
<tr>
<td>Information Technology: Computer Systems</td>
<td>SM</td>
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<tr>
<td>Information Technology: Programming and Mobile Development</td>
<td>SM</td>
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<tr>
<td>Information Technology: Web and Graphic Design</td>
<td>EM, SM</td>
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<tr>
<td>IT and Power Systems Security</td>
<td>EM</td>
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<tr>
<td>Linux Associate</td>
<td>CG, EM, MC</td>
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<tr>
<td>Linux Networking Administration</td>
<td>EM, GC, MC</td>
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<tr>
<td>Linux Professional</td>
<td>CG, EM, GC, GW, MC, PV, SC, SM</td>
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<tr>
<td>Media Arts: Computer Art/Illustration</td>
<td>CG, PC</td>
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<tr>
<td>Media Arts: Digital Animation</td>
<td>PC</td>
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<tr>
<td>Media Arts: Digital Imaging</td>
<td>CG, PC</td>
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<tr>
<td>Media Arts: Web Design</td>
<td>PC</td>
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<tr>
<td>Microsoft Certified Information Technology</td>
<td>EM, GW</td>
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<tr>
<td>Microsoft Desktop Support Technology</td>
<td>EM, GC, PV</td>
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<tr>
<td>Microsoft Networking Technology</td>
<td>EM, GC, PV</td>
</tr>
<tr>
<td>Microsoft Server Administration</td>
<td>EM, MC</td>
</tr>
<tr>
<td>Microsoft Technical Specialist</td>
<td>EM, GW, PV</td>
</tr>
<tr>
<td>Mobile Apps Programming</td>
<td>EM, PV, RS, SM</td>
</tr>
<tr>
<td>Motion Picture/Television Production</td>
<td>SC</td>
</tr>
<tr>
<td>Multimedia Technology</td>
<td>MC</td>
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<tr>
<td>Multimedia Technology: Design and System Support</td>
<td>RS</td>
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<tr>
<td>Networking Administration</td>
<td>SC</td>
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<td>Networking Administration</td>
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<td>Networking Administration: CISCO</td>
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<td>MC, SM</td>
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<tr>
<td>Windows Server</td>
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<td>Networking: Design and System Support</td>
<td>RS</td>
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<tr>
<td>Networking Administration: Cisco</td>
<td>CG, EM, GC, GW</td>
</tr>
<tr>
<td>Oracle Database Operations</td>
<td>CG</td>
</tr>
<tr>
<td>Professional Film Production</td>
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<td>Production Television</td>
<td>SC</td>
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<tr>
<td>Programming</td>
<td>RS, EM, SM</td>
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<tr>
<td>Programming and System Analysis</td>
<td>CG, EM, MC, PC, PV, SC, SM</td>
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<tr>
<td>Screenwriting</td>
<td>SC</td>
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<tr>
<td>Software Development</td>
<td>SC</td>
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<tr>
<td>Technical Theatre</td>
<td>PC, SC</td>
</tr>
<tr>
<td>Web Application Development</td>
<td>SM</td>
</tr>
<tr>
<td>Web Design</td>
<td>CG, EM, GC, PC, PV, SM</td>
</tr>
<tr>
<td>Web Design Technologies</td>
<td>SC</td>
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</tbody>
</table>

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Professional Education Program Matrix 2017-2018

MANUFACTURING
- Applied Electrical Technologies ................................................. RS
- Automation Technology .............................................................. MC
- Automation Technology Level I .................................................. MC
- Automation Technology Level II ................................................ MC
- Automation Technology Level III ............................................... MC
- CAD Application ........................................................................ GC
- CAD Fundamental ....................................................................... GC
- CAD Technology ........................................................................ GC
- CAD/CAM/CNC I ......................................................................... MC
- CAD/CAM/CNC II ........................................................................ MC
- CAD/CAM/CNC III ....................................................................... MC
- Electric Utility Design Technology ............................................... CG
- Electric Utility Technology ............................................................ CG
- Electrical Technology ................................................................. GW
- Electromechanical Automation Technology .................................. MC
- Electro/Mechanical Drafting ......................................................... MC
- Electromechanical Manufacturing Technology ................................ MC
- Electronics Engineering Technology .......................................... MC
- Electronics Technology ............................................................... MC
- Industrial Design Technology ..................................................... GW
- Industrial Design Technology: Design Specialist: SolidWorks .......... GW
- Lineman Technology Level I ....................................................... RS
- Lineman Technology Level II ..................................................... RS
- Lineman Technology Level III .................................................... RS
- Lineman Technology Level IV .................................................... RS
- Machining .................................................................................. MC
- Machining II .............................................................................. MC
- Manufacturing Engineering Technology ..................................... MC
- Manufacturing Management ...................................................... MC
- Machining/Welding ...................................................................... GC
- Meter Technology ........................................................................ GC
- Micro Circuit Mask Design .......................................................... MC
- Network Maintenance ................................................................. GC
- Production Technology ............................................................... GW, MC
- Production Technology: CNC Technology .................................. GW
- Production Technology: Quality Assurance .................................. GW
- Welding ....................................................................................... GC
- Workforce Development: Electrical Level I .................................. RS
- Workforce Development: Electrical Level II .................................. RS

MARKETING, SALES AND SERVICE
- Marketing .................................................................................. PC, PV, SC, SM
- Salesmanship ............................................................................... MC

LAW, PUBLIC SAFETY, CORRECTIONS, AND SECURITY
- Administration of Justice .............................................................. EM, GC, GW, PC, PV, RS
- Administration of Justice-Comprehensive .................................... PC
- Administration of Justice-Fundamentals ..................................... PC
- Administration of Justice Studies ............................................... CG, GW, MC, SC
- Advanced Corrections ................................................................ RS
- Basic Corrections ......................................................................... RS
- Corrections .................................................................................. RS
- Correctional Studies ................................................................... CG
- Crime and Accident Scene Photography ...................................... PC, SC
- Crime Scene Investigation ............................................................. PC, SC
- Crime Scene Technology ............................................................... PC, SC
- Detention Services ........................................................................ RS
- Domestic Preparedness and Homeland Security ....................... PC
- Driver Operator .......................................................................... EM, GC, MC, PC, PV
- Emergency Management ............................................................. MC, PV
- Emergency Medical Technology ................................................. CG, GC, MC, PC, PV, SC
- Emergency Response and Operations ........................................ CG, EM, GC, MC, PC, PV, SC
- Evidence Technology ................................................................. EM, PC
- Fingerprint Classification and Identification ............................... PC, SC
- Fire Academy ............................................................................. GC, SC
- Fire Investigation .......................................................................... EM, GC, MC, PC, PV
- Fire Officer Leadership ............................................................... EM, GC, MC, PC, PV
- Fire Science ............................................................................... EM, MC, PV
- Firefighter Operations ............................................................... EM, GC, MC, PC, PV
- Forensic Investigation ................................................................ MC
- Forensic Science: Crime Lab .................................................... GC, SC
- Forensic Technology ................................................................... PC
- Global Citizenship ...................................................................... MC
- Hazardous Materials Response .................................................. PC
- Homeland Security ................................................................. GC, GW
- Judicial Studies ........................................................................... CG, EM, MC, SC
- Juvenile Corrections ..................................................................... RS
- Law Enforcement ........................................................................ SC

PROFESSIONAL AND TECHNICAL EDUCATION PROGRAM MATRIX 2017-2018
- Law Enforcement Investigator .................................................. GC
- Law Enforcement Technology Academy .............................. CG, GC
- Legal Studies .............................................................................. MC
- Paralegal .................................................................................... GC, PV, MC
- Paramedicine ............................................................................. GC, PC, PV, MC
- Police Academy Preparation Level I ......................................... SC
- Police Science ............................................................................. GC, MC, PV
- Public Safety Technology ............................................................. RS
- Tribal Court Advocacy ................................................................. SC
- Victimology ................................................................................. MC

SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS
- Aircraft Maintenance Technology ............................................. CG
- Aircraft Maintenance Technology (Part 147) ............................ CG
- Airframe Maintenance (Part 147) ................................................ CG
- Airframe Technology ................................................................... GW
- Airway Science Technology, Flight Emphasis ......................... CG
- Automation Technology .......................................................... GC, EM, SM
- Automotive Chassis ................................................................. GC
- Automotive Electrical Systems ................................................... MC
- Automotive Engine Performance ............................................. GC
- Automotive Engine Performance Diagnosis & Air Conditioning .................................................. GC, GW, MC
- Automotive Heating, Ventilation and Air Conditioning (HVAC) .................................................. GC
- Automotive Maintenance and Light Repair .............................. GC
- Automotive Performance Technology ........................................ MC
- Automotive Suspension, Steering and Brakes .......................... GW
- Automotive Technology ............................................................. GC, GW
- Brakes, Alignment, Suspension and Steering ............................ MC
- Engine Performance and Diagnosis ......................................... GW, MC
- Transmissions and Power Trains ................................................ MC
- Workforce Development: Automotive Technology Level I ....... RS
- Workforce Development: Automotive Technology Level II ...... RS
**TRADE AND TECHNICAL TRAINING**

**BEAUTY AND WELLNESS**
- Aesthetician
- Cosmetologist
- Hairstylist
- Instructor Training
- Massage Therapy

**HEALTH CARE**
- Nursing Assistant/Patient Care Technician
- Ophthalmic Medical Assistant
- Pharmacy Technician
- Phlebotomy

**TRADES AND TECHNOLOGY**
- Apprentice Meat Cutter
- Auto Body Worker
- CNC Machinist
- Computer Support
- Customer Service
- Electrician Worker
STUDENT SERVICES

ENROLLMENT SERVICES
The Department of Enrollment Services at GateWay Community College strives to provide effective and reliable service in support of the academic mission of this institution. Enrollment Services staff facilitates and supports student admission, enrollment, retention and graduation.

LOCATIONS:
Washington Campus (WA)
Location: Integrated Education Building, Room IE1214
Nursing & Health Program advisors are located in the Center for Health Careers Education
Telephone: (602) 286-8200
Website: WWW.GATEWAYCC.EDU/ENROLLMENT
Email: enroll@gatewaycc.edu

Central City Campus (CC)
Location: A-Building, Room Portal 1 - access from center courtyard
Telephone: (602) 238-4350
Website: WWW.GATEWAYCC.EDU/ENROLLMENT
Email: enroll@gatewaycc.edu

Deer Valley Campus (DV)
Location: Room 34
Telephone: (602) 392-5000
Website: WWW.GATEWAYCC.EDU/DEER-VALLEY-CAMPUS
Email: enroll@gatewaycc.edu

Enrollment Services is designed to serve the needs of students by providing a one-stop service center for admissions, registration, records, financial aid, cashiering and advisement. Enrollment Service assists with a variety of registration and enrollment services and provides computer access for self-service and on-site assistance.

Student ID Cards
Student identification cards are available at Enrollment Services. A picture ID is required before a student ID is issued. The first ID is free; replacement cost is $5. The following is the policy for obtaining an official GateWay student ID:
Student ID’s will only be issued prior to the start of a program or the semester in which the student is registered if payment of tuition and fees or financial aid/deferment is in place.

MY.MARICOPA.EDU
MY.MARICOPA.EDU provides access for students, faculty and staff to the course management systems, the student self-serve functions for all Maricopa Community Colleges, and the Google Apps for email. Through the Student Center, students can register for classes, print class schedules, make a payment, view grades, request transcripts, and update contact and address information.
ADMISSIONS, REGISTRATION AND RECORDS

LOCATION:
Washington Campus // Integrated Education Building, Room IE1214 (Near Enrollment Services)
Central City Campus // A-Building, Room Portal 1, access from center court yard
Deer Valley Campus // Room 134-135

TELEPHONE:
Washington Campus // (602) 286-8200
Central City Campus // (602) 238-4350
Deer Valley Campus // (602) 392-5000

WEBSITE: WWW.GATEWAYCC.EDU/DIRECTORY/ADMISSIONS-RECORDS
EMAIL: enroll@gatewaycc.edu

The Admissions, Registration and Records department performs the following functions: processes the Student Admission Application; determines residency for tuition payment purposes; registers students in classes; maintains student records; processes transcript requests and enrollment verifications; and administers selective admissions. This office is also responsible for monitoring FERPA, complying with parts of the Solomon Amendment, and verifying citizenship and residency for tuition purposes. In addition, this office processes all transcript evaluations, graduation reviews and checkouts.

ADVISING

LOCATION:
Washington Campus // Integrated Education Building, Room IE1214 (Near Enrollment Services)
Central City Campus // B-Building/Room B-405

TELEPHONE: (602) 286-8200

WEBSITE: WWW.GATEWAYCC.EDU/ADVISEMENT
EMAIL: advisor@gatewaycc.edu

Academic Advising provides students with guidance in identifying and developing suitable programs of study, encourages persistence, and helps identify and assess alternatives and consequences of those decisions by helping students:

• Understand the college environment
• Clarify educational and career goals
• Develop educational plans
• Interpret individual assessment information
• Explain college requirements
• Select appropriate courses
• Increase student awareness of educational resources available
• Develop decision-making skills
• Transfer to or from another institution

ASSESSMENT/TESTING CENTERS

LOCATION:
Washington Campus // Integrated Education Building, Room IE1252 (Near Enrollment Services)
Central City Campus // B-Building/Room B-410
Deer Valley Campus // Room 120

TELEPHONE:
Washington Campus // (602) 286-8160
Central City Campus // (602) 238-4316
Deer Valley Campus // (602) 395-5276

WEBSITE: WWW.GATEWAYCC.EDU/TESTING
EMAIL: testing@gatewaycc.edu
At the Washington Campus, the Assessment/Testing Center staff administers English, Reading and Mathematical assessment placement tests, CELSA (English as a second language), GED, HESI A2, HESI PN, credit by exam for health curriculum courses, high stakes testing for Kryterion and NIMS, and individual student make-up exams (per instructor request). Testing Center authorized to test for Pearson Vue.

At the Central City and Deer Valley campuses, the Assessment/Testing staff administer competency-based tests for the Trade and Technical Training programs.

**CASHIER’S SERVICES**

**LOCATION:**
Washington Campus // Integrated Education Building, Room IE (Near Enrollment Services)
Central City Campus // A-Building/Room Portal 1 - access from center court yard
Deer Valley Campus // Room 120

**TELEPHONE:**
Washington Campus // (602) 286-8277
Central City Campus // (602) 238-4347
Deer Valley Campus // (602) 392-5000

**WEBSITE:**
WWW.GATEWAYCC.EDU/PAYMENT-OPTIONS
**EMAIL:** dl-gwc-cas@gatewaycc.edu

GateWay is committed to providing students and employees with financial and cashiering services. Some examples of student services provided are:

- Tuition Payment Processing
- Tuition and Fee Refunds
- Financial Aid Refund
- Payroll Check Disbursement
- Monthly Payment Plan
- Third-party Payment Coordination

**Method of Payment**

Students can pay by cash, check, VISA, DISCOVER CARD, MASTERCARD, or AMERICAN EXPRESS. Payment by check will require proper I.D. An example is a bank guarantee card and an AZ Driver’s License. Payment by credit card can be made by calling (602) 286-8277. Payment also can be made online at: My.maricopa.edu

**Returned Checks**

A fee of $15 will be charged for each returned check.

**Payment Due Dates**

**CREDIT:** In accordance with the Arizona Community College Board adopted Tuition and Fees Schedule, all tuition, fees, assessments and deposits must be paid in full at the time of registration and/or by the due date indicated on your online student account accessible via My.maricopa.edu. No student is properly enrolled unless he/she has completed this requirement.

**CLOCK PROGRAMS:** Students must have funding secured prior to the start date for the full amount of the estimated program cost. All students are required to be financially cleared regardless of funding sources; prior to being enrolled. If you are receiving some form of financial assistance, it is your responsibility to have your tuition and fees paid by your due date to prevent being withdrawn for non-payment of tuition of fees.

**Refund Policy for Program Fees**

Program fees (material, kits, etc. not included in course fees) will be refunded if the student officially withdraws prior to the program start date.
Financial assistance is available to eligible GateWay Community College students in the form of grants, scholarships, employment, tuition payment plans or federal loans. Students may receive assistance from only one funding source, or aid may be offered in a package from multiple sources. The student award depends on eligibility, level of need, packaging policy and availability of funds.

Under federal regulations, students have the primary responsibility for funding their education. For dependent students, their parents share that responsibility. All student awards are based on "need" after consideration of student and (where required) parental contribution. Refer to the Free Application for Federal Student Aid (FAFSA) for the federal definition of dependency.

Eligibility
Students must meet ALL of the following requirements to be eligible for federal student aid: US citizen or eligible non-citizen; admitted as a regular student in an eligible program and enrolled in classes that pertain to that program only; making satisfactory academic progress; have a high school diploma or GED; apply by completing the Free Application for Federal Student Aid (FAFSA), using the student's legal name and valid Social Security Number; show financial “need” per federal regulation (for need-based aid, such as grants and work study); be registered with Selective Service, if required to do so; not be concurrently enrolled in high school; not be in default on any Title IV student loan or owe repayment on any Title IV student grant; not be convicted of certain drug trafficking or possession laws; must provide all documentation requested; and must use any funds received for educational purposes only. There are limits to the amount of grants and loans a student can receive in a year and in their lifetime. Federal student aid can never be received from more than one institution at a time.

Students are required to be enrolled and attending credit hours before financial aid funds (Title IV) can be disbursed. Disbursement of aid will occur when the disbursement process begins for the semester/payment period, or shortly after the start of the first class, whichever comes later. Students awarded a loan for one semester/payment period will receive their loan disbursements in two separate, but even amounts, with the second disbursement coming no sooner than half-way through the semester. If the student's level of enrollment is reduced after financial aid has been disbursed, the award must be recalculated and the student may owe a repayment.

How to Apply
Students are encouraged to apply early. Priority consideration for limited financial aid funds may be given to those completing the application process in full prior to April 1. Continuing students must reapply for each academic year. Students enrolling for the first time during spring or summer should apply as early as possible prior to the beginning of the semester/payment period they plan to attend.

Students requesting financial assistance may begin the application process by completing the Free Application for Federal Student Aid (FAFSA). To expedite processing, for attendance in a credit hour program, designate GateWay Community College (code 008303) in step six, for attendance in a clock hour program, designate GateWay Community College Skill Center (code E00701). Students apply electronically at WWW.FAFSA.ED.GOV. Students who need help applying can receive assistance with their federal aid application in the Enrollment Service area at any of the GateWay Community College sites.

After submitting the FAFSA to the processor, students will receive a Student Aid Report (SAR). If the codes (008303
or E00701) for GateWay Community College are entered on the FAFSA, we also will receive the results electronically. After the application is submitted online, students must monitor their my.maricopa.edu account and their Maricopa gmail account frequently as additional documents may be required to complete their application or resolve any inconsistencies that may arise. Student financial aid applications cannot be reviewed until all requested documents have been received. Review of documents originally submitted sometimes triggers the need for additional information, which in turn could require further documentation or clarification. Therefore, it is important for the student to apply early. It is also important that the student keep Enrollment Services apprised of his/her current phone numbers, email addresses, and mailing addresses as students may also receive US postal mail and or phone communications from the financial aid office. Aid application may be denied if mail is returned due to a bad mailing address.

Grants
Grants are funds that do not have to be repaid, as long as the class is required for the student’s Program of Study and the student finishes the classes for which the grant was received. Students who withdraw or cease to attend may have to repay some or all of the grant.

Federal Pell Grant
Eligibility for Pell Grant must be determined first. Pell awards are based on need, with amounts dependent on congressional appropriations and cost of attendance. The amount of the student’s award in a Credit hour program is determined by their enrollment status (full-time, three-quarter-time, half-time or less than half-time). The amount of the Pell Grant awarded to students enrolled in a Clock hour program, is determined by a proration of the amount in the program divided by the amount(s) number of hours available in the Institution's Award Year(s). As of July 1, 2012, students have a lifetime limitation of 600% Pell Grant which is the equivalent of 12 full-time semesters/payment periods. Reaching the lifetime maximum may affect eligibility for assistance in other federal student aid programs.

Federal Supplemental Educational Opportunity Grants (FSEOG)
FSEOG awards are subject to fund availability, student need, packaging policy, and enrollment status. Per federal regulation, priority is given to students who have exceptional financial need, and for students who are also eligible for Pell Grant. Award amounts may vary according to fund availability, student need, packaging policy and enrollment status.

Leveraging Educational Assistance Partnership (LEAP)
LEAP recipients must be Arizona state residents enrolled at least half-time. Award amounts also vary according to fund availability, student need, packaging policy and enrollment status.

Scholarships
Scholarships generally do not require repayment. Scholarships come from a variety of sources and are awarded based on criteria specific to a particular scholarship. By federal regulation, scholarships must be considered as a resource in determining eligibility for federal student aid. Receipt of a scholarship could cause a reduction in federal funds already awarded. Students are responsible to report any scholarships received.

Students are encouraged to apply for any and all scholarships for which they meet qualifications. Scholarships are posted on the Scholarship Blog which can be found at: http://gatewayccfinancialaid.blogspot.com/. New scholarships become available throughout the year, so students should monitor this site on a regular basis. Free scholarship information and searches are also available at this site. State regulations (HB2008) require that all scholarships awarded and disbursed through the GateWay Community Scholarship Office also be accompanied by documentation of proof of lawful presence in the United States as well as a signed perjury statement provided on the scholarship application or at Enrollment Services. Students who have not submitted the required information will be contacted and cannot be awarded the scholarship until all required documents have been received.

Employment
Students who are looking for employment at GateWay Community College may be offered part-time employment on campus, with work hours structured around the student’s class schedule. Students looking for part-time jobs on campus should begin their search with the job postings found in Career Services.

Federal Work-Study (FWS)
FWS awards are based on fund availability, student need, and enrollment status. Students must apply for positions through Career Services. Students may go through an interviewing process and there is no guarantee that students will be placed, or that they will earn the entire amount of their awards.
Non-Work Study Employment
Some departments on campus may have institutional funds to hire student employees. Positions for these work opportunities may be posted in Career Services.

William D. Ford Federal Direct Loan Program (Direct Loan)
Direct Loans are low-interest loans for students and parents to help pay for the cost of a student's education after high school. The lender is the U.S. Department of Education rather than a bank or other financial institution. With the Direct Loan, eligible students borrow directly from the federal government and have a single contact—their loan servicer—for everything related to the repayment of their loans. Additionally, the student will have online access to their Direct Loan account information at [WWW.NSLDS.ED.GOV/NSLDS_SA/](http://WWW.NSLDS.ED.GOV/NSLDS_SA/). Awarding is subject to student eligibility, including program of study and existing debt level, as well as subject to terms of a default management plan. All student borrowers are required to attend an entrance counseling session as well as an exit interview to ensure full understanding of rights and responsibilities associated with a student loan. The student must still be enrolled in their program and eligible for the loan at the time of disbursement (for Credit programs the student must be enrolled in 6 or more viable credit hours, classes graded with a grade of F, Y, Z, W are no longer viable). An exit interview must also be completed when a student is withdrawn or graduates from a program.

The interest rate on Direct Loans are variable, but will never exceed 8.25%. Accepting all loans offered may negatively affect eligibility for need-based scholarships and federal work study opportunities. Loans always require repayment, students are encouraged to take a loan only after exploring all other funding possibilities. Accepting all loans offered may negatively affect eligibility for need-based scholarships and federal work study opportunities.

**Subsidized Loan** - Eligible students who meet the federal definition of “need” may receive Subsidized loans, whereby the federal government pays interest on the loan until the student enters repayment. No interest is charged as long as the student is enrolled at least half-time and during deferment periods.

**Unsubsidized Loan** - Students who are otherwise eligible for loan, but who do not qualify for the Subsidized loan, may receive Unsubsidized loans. Interest immediately begins accruing on the Unsubsidized loan and the student will be responsible for the interest from the moment the loan is disbursed until it is paid in full.

Effective July 1, 2013 (for all students who receive loans for the first time), the Federal Direct Subsidized Loan has a maximum period of time that they will be eligible for the interest subsidy. This period of time cannot exceed 150% of the published length of the student's program or three years, whichever is less. Additionally, this timeframe is cumulative and will carry over when students change their programs of study. If students continue enrollment after receiving subsidized loans for their maximum eligibility period, they will lose eligibility for additional subsidized loans. Furthermore, their prior subsidized loans will begin accruing interest like the Federal Direct Unsubsidized Loan.

Withdrawal of Financial Aid Students - Financial Aid Refund/Repayment Information (Return of Title IV)
In accordance with federal regulations (34CFR 668.22), a student may be required to repay federal financial aid funds if they completely withdraw or are withdrawn, or fail to earn a passing grade from all classes during a term. A Student Owed Repayment (funds due back to the federal government) if not repaid is considered an Overpayment and will affect a student's ability to receive Financial Aid in the future at any school.

Students are affected by this policy if completely withdrawn from all credits or their program (Clock) before completing 60% of the semester/payment period, or if a withdrawal from a class (or classes) reduces the length of time they will attend during the semester/payment period, and they have received federal financial aid (referred to as Title IV funds) for that same period. Aid must be recalculated and adjusted. Any adjustments to the student's award can be found at my.maricopa.edu under the student's account. Calculation examples are available from the school's Office of Student Financial Assistance. Students are referred to the Maricopa Community Colleges' withdrawal policy concerning the
procedures for withdrawal.

I. Definitions

A. Calculations are based upon the percentage of aid earned. For students who officially withdraw from school or during the semester/payment period, the percentage of aid earned is based upon the number of days completed during that period of time. For students who unofficially withdraw from school, the mid-point of the semester/payment period may be used for calculation purposes.

B. Amount of aid earned by the student is determined by taking the aid disbursed (plus aid that could have been disbursed) and multiplying by the percentage of aid earned.

C. Amount of Title IV aid to be returned is the difference between the total aid disbursed and the amount of aid earned by the student.

D. Amount of unearned Title IV aid due from the school is calculated by taking the total institutional costs multiplied by the percentage of unearned Title IV aid. If loan funds were included in the disbursement, unearned Title IV aid due from the school would first be returned to the loan program(s).

E. Amount of unearned Title IV aid due from the student is calculated by taking the previously calculated Title IV aid to be returned and subtracting the amount of unearned aid returned by the school. Title IV loans are reimbursed first. Since loan repayment is subject to the terms of the promissory note, the student is not required to make immediate repayment. The school will bill the student for amounts requiring immediate repayment. Student may pay in full or make satisfactory repayment arrangements. Failure by the student to repay or make satisfactory repayment arrangements will result in the reporting of the debt to the U.S. Department of Education and the student will be ineligible for further Title IV assistance. Funds owed back to GateWay Community College, by the student, will be reported for collection to the State of Arizona Department of Revenue and may result in the garnishment of the student’s Arizona State income tax returns.

II. Funds must be returned to the source(s) from which they were paid.

A. School return of funds must be distributed in the following order:

1. Unsubsidized Direct Loan
2. Subsidized Direct Loan
3. Federal Pell Grant
4. Federal Supplemental Educational Opportunity Grant (FSEOG)
5. Other Title IV programs
6. Student return of funds must be distributed in the following order:
7. Unsubsidized Direct Loan*
8. Subsidized Direct Loan*
9. Federal Pell Grant

Federal Supplemental Educational Opportunity Grant (FSEOG)
Other Title IV programs

*Loan amounts are returned in accordance with the terms of the promissory note.

Maricopa Community Colleges Standards of Satisfactory Academic Progress (SAP)

Standards of Satisfactory Academic Progress (SAP) for Financial Aid Eligibility Federal regulations (CFR 668.32(f) and 668.34) require a student to move toward the completion of a degree or certificate within an eligible program when receiving financial aid. Specific requirements for academic progress for financial aid recipients are applied differently than Scholastic Standards. Federal regulations state that Academic Progress Standards must include a review of all periods of enrollment, regardless of whether or not aid was received. The student must meet the following minimum standards in order to receive financial aid.

I. Evaluation of Financial Aid Eligibility

A. Standards of Satisfactory Academic Progress (SAP) are applied at the end of every semester/payment period to determine the eligibility for the following academic semester/payment period.

B. The evaluation period will be based on attendance in the immediate prior semester/payment period and will include all classes attempted whether federal aid was received or not.

C. Grades for classes evaluated will include classes attempted at the evaluating school and courses funded through consortium agreement.

D. Students who do not meet SAP requirements will be notified in their Message Center in their my.maricopa.edu account. The student may follow the appeal process or the reinstatement procedures as outlined in V and VI. Students will not have eligibility for any further federal aid until they have successfully completed one of the two reinstatement procedures.
II. Eligibility for Credit Hour Students
A. Students must meet the following criteria:
   1. Students who have attempted at least six credit hours in the last evaluation period must complete with a passing grade 2/3 of all credits attempted within that evaluation period, OR
   2. Students who have NOT attempted at least six credit hours in the last evaluation period must complete with passing grades 2/3 of ALL credits attempted. AND All Credit hour students must meet the following minimum credit hour/cumulative GPA requirement:

<table>
<thead>
<tr>
<th>Credits Attempted*</th>
<th>Min GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-15</td>
<td>1.60</td>
</tr>
<tr>
<td>16-30</td>
<td>1.75</td>
</tr>
<tr>
<td>31-45</td>
<td>1.90</td>
</tr>
<tr>
<td>46 +</td>
<td>2.00</td>
</tr>
</tbody>
</table>

*for which grade points are computed
Note: Grades of F,I,N,W,X,Y,Z, and courses not yet graded are considered attempted but not meeting progress standards for the purposes of financial aid.

III. Eligibility for Clock Hour Students
A. Students must meet the following criteria:
   1. Students must complete with a passing grade (C, P, or better) all coursework attempted within that evaluation period/payment period, and
   2. Students must attend 90% of every class assigned to them during the evaluation period/payment period (some programs may require the student to attend 100% of all hours in their program).
   3. All students must maintain a minimum cumulative GPA of 2.0 (C average) or better.

IV. Maximum Timeframe Eligibility
A. Students who have attempted more than 150% of the credits (Credit hour) required for their program of study, who have attended their program longer than 150% times the length of their program, or who have attempted or completed a prior program are not considered to be making Satisfactory Academic Progress and therefore, are ineligible for financial aid funds. A student may lose eligibility at any time if it is determined that they cannot complete their program within the 150% timeline provided by the federal government.
B. All evaluated transfer credits will be included when determining maximum timeframe eligibility.
C. A student with a Bachelor's degree or higher will be considered to have exhausted maximum timeframe eligibility.
D. A student may appeal as outlined in VII.
E. Reinstatement procedures as outlined in VII and VIII are not applicable to Maximum Timeframe Eligibility.

V. Repeated, Audited, Consortium, Remedial, Summer Courses
A. Financial aid may be used to cover the cost of repeated courses for a better grade one time (Credit hour only). Audited courses, non-credit courses, credit by examination, and any credit for prior learning option (as outlined in the catalog) are excluded when determining eligibility for financial aid.
B. Courses funded through a consortium agreement are included in determining academic progress. All attempted remedial credits will be included when evaluating SAP. (A maximum of 30 credit hours may be funded for remedial coursework.)

VI. Appeal Process
A student who has lost financial aid eligibility due to extenuating circumstances may appeal. Documentation of extenuating circumstances must be provided with the student's appeal.
A. Extenuating circumstances that may be considered include: personal illness or accident, serious illness or death within immediate family, or other circumstances beyond the reasonable control of the student that occurred during the period in question.
B. All appeals must be in writing to the Office of Student Financial Assistance and include appropriate third party documentation.
   1. Examples of documentation could include an obituary notice, divorce decree, or a letter from a physician, attorney, social services agency, parole officer, etc.
   2. Maximum Timeframe Appeals must be completed by both the student and a GateWay Advisor (in this instance, the Advisor will provide the 3rd party documentation).
C. The condition or situation must be resolved that will allow the student the ability to complete course work successfully or an appeal will not be granted.
D. The outcome of an appeal may include approval of a probationary period for reinstatement of federal aid, denial of federal aid with funding from a scholarship source for tuition, fees and books for one semester only, or denial of all forms of funding.
E. A student will be notified by email of the results of the appeal, and of any restrictions or conditions pertaining to their appeal. All decisions are final. Students who have been denied aid for failure to meet SAP while on a Restricted Course list (Maximum Timeframe Exhaustion Appeal) will no longer be eligible for federal student aid at GateWay Community College.

Reinstatement of Financial Aid Eligibility - Credit Hour
A. A student who has lost financial aid eligibility (SAP), and who qualifies for reinstatement, may be reinstated after the student has taken (without federal funds) at least six credit hours in a semester, passed all attempted credit hours, met minimum cumulative GPA requirements of 2.0 (for all academic terms combined), meets minimum SAP standards of 2/3 over all coursework, and falls within 150% of their program's timeline.
B. If the student attempts additional credits, the student will be evaluated on all attempted credit hours within that term.
C. Classes taken at other colleges may be taken into consideration when determining whether aid will be reinstated at GateWay Community College.
D. It is the student's responsibility to notify the Office of Student Financial Assistance when this condition has been met.

VII. Reinstatement of Financial Aid Eligibility - Clock Hour
A. A student who has lost financial aid eligibility (SAP), and who qualifies for reinstatement, may be reinstated after the student has taken (without federal funds) and successfully completed all failed coursework with a grade of C/P or better.
B. It is the student's responsibility to notify the Office of Student Financial Assistance when this condition has been met.

For more information, please contact the Office of Student Financial Assistance at finaid@gatewaycc.edu, or at (602) 286-8300.

VIII. Scholastic Standards
A. Minimum Progress
   1. Trade and Technical Training student progress is measured by the student's ability to accomplish competencies within stated time frames.
   2. Failure to meet all required competencies in a course may result in withdrawal from the program at the end of the course.
   3. To maintain satisfactory academic progress, a student must successfully complete all courses with a P (equivalent to a C or better). A student who declares a clock hour program of study (certificate seeking) must successfully complete courses that constitute the desired program in the order in which they are scheduled. If a student does not make satisfactory academic progress in a current class, the student will be withdrawn from that course and cannot advance to the next course in sequence.
   4. The student will also be terminated from the Program of Study and withdrawn from remaining courses due to failure to meet program completion requirements by not maintaining satisfactory academic progress.
B. Attendance Policy
   1. Students enrolled in clock hour programs must complete a minimum of 90% of the required hours for each course within their program.
   2. Completing over 100% of program hours may have financial implications. Please note, no adjustments to tuition
rates will be made for students who are within the attendance policy.

C. Additional requirements may be required due to one or more of the circumstances stated below:
1. The courses within a program have a stricter attendance policy than the 90% stated herein.
2. An instructor may set a course attendance requirement higher, when make-up of time is not practical due to the nature and/or complexity of the instruction, availability of equipment, program accrediting body requirements, or the inability to replicate the learning environment.
3. The laboratory/externship hours are not always possible to make-up. When an absence results in the inability of the student to develop and demonstrate clinical practice objectives and meet the required hours of the course necessary for credit, the student cannot receive a passing grade and will be withdrawn from the program.
4. Financial Aid eligible programs that are less than 720 hours in length require completion of a minimum of 648 hours.

D. Attendance Standards
1. Students who fail to maintain attendance standards may be withdrawn from the course and the program and will experience a loss of eligibility of funding to include, but not limited to, Federal Student Aid, VA Education Benefits, and third-party agency funding. Refer to the catalog section on Satisfactory Academic Progress regarding continuation of federal financial assistance.
2. Students should refer to their course syllabus for specific attendance requirements.
3. Students are responsible for verifying that their attendance is accurately recorded in the attendance system.
4. If students identify an attendance error they must notify their instructor as soon as possible, and no later than the third business day following the date of the error.
5. Failure to maintain attendance standards may jeopardize a student's ability to remain in the program.

E. Absences
1. Absences begin to accumulate with the first scheduled class meeting. Students may be withdrawn from a class or program for unsatisfactory attendance.
2. Students should refer to their course syllabus for specific attendance requirements.

F. Withdrawal Due to Unsatisfactory Attendance
1. Students who do not maintain the attendance standard at a rate of 90% or higher for an individual course will fail the current course and/or be withdrawn from the program.
2. Students with consecutive absences may fail the current course and be withdrawn from the program.
3. Students who discontinue studies in a course or program may refer to Enrollment Services for specific information regarding withdrawal procedures and appeals.

THIS POLICY IS SUBJECT TO CHANGE.

IX. Re-Enrollment from Withdrawal for Clock Hours
A. Students who wish to return to school must initiate the re-enrollment process through Enrollment Services.
B. Prior to re-enrollment, student academic records will be evaluated to determine appropriate class schedule, based on current catalog requirements.
C. Depending on the program, students may be required to start the program in the beginning and any coursework completed/started would need to be repeated.

X. Transferring to GateWay Community College for Clock Hours
A. A student enrolling in Gateway Community College's Beauty and Wellness Program after having attended other post-secondary institutions can have coursework evaluated for transfer hours.
B. To be eligible for evaluation, coursework must appear on official transcripts and be mailed directly from the source institution to Gateway Community College.
C. Course evaluation will consist of course evaluation, formal assessment and program requirements in alignment with state board requirements.
XI. GENERAL GRADUATION REQUIREMENTS

A. Catalog Under Which a Student Graduates
   1. Students maintaining continuous enrollment may graduate according to the catalog requirements in effect at the time of their enrollment.
   2. Students who have a break in their enrollment will be required to meet the catalog requirements in effect at the time of their re-enrollment or according to the requirements of any single catalog in effect during subsequent terms of continuous enrollment.
   3. Changing your requirement term may have a negative impact on your financial aid eligibility.
   4. All students are required to complete the program requirements as stated in the catalog requirements.
   5. The college reserves the right to make necessary course and program changes in order to meet current educational standards.
   6. Certificates are automatically awarded to clock hour students upon completion of their program.

Student ID Cards
Students are required to wear photo identification at all times on campus. A government issued picture ID is required before a student ID is issued. Student Identification Cards are issued in Enrollment Services for active students. The first ID is at no charge and a replacement ID cost is $5.00.

Licensure Disclaimer
Maricopa Community Colleges courses and programs prepare students for entry into a variety of professions. Many of these professions require that a person hold an occupational license or certificate in order to work in a particular field. Typically, a person must meet certain legal requirements before obtaining such a license or certificate. These requirements are established by county, state or federal agencies and often are based on a person’s character, or whether the person has been convicted of a criminal offense. It is possible for a student who has obtained a degree or certificate from a community college to be denied the right to work in a particular profession after completing the degree or certificate because of concerns over the student’s character or criminal background.

Any student preparing to enter a field for which a professional license or certificate is required is strongly advised to consult with the appropriate government agency that issues such credentials. That agency can provide the student complete information about any requirements the law imposes for working in a particular occupation.

Unemployment Insurance/Training Readjustment Act (TRA)
Students receiving Unemployment Insurance/Training Readjustment Act assistance should submit their unemployment claim forms to Enrollment Services by noon on Friday in order to receive their checks promptly. The completed forms will be delivered to the Department of Economic Security the following Monday.

ATHLETICS

LOCATION: Washington Campus // Main Building, Room MA1134
TELEPHONE: (602) 286-8142
WEBSITE: WWW.GATEWAYCC.EDU/ATHLETICS
EMAIL: athletics@gatewaycc.edu

The Athletic Department provides student-athletes the guidance and resources to pursue their academic and athletic goals. Through the support and direction of their coaches, student-athletes are encouraged to excel in both the classroom and on their respective playing fields. Combining academics and athletics provides student-athletes the opportunity to participate in athletics beyond high school.

Additionally, student-athletes will be given the opportunity to develop leadership and life skills, improve their athletic performance, and in most cases, supplement funding of their college education. GateWay offers the following intercollegiate athletic programs: men's soccer, women's soccer, baseball and softball.
BOOKSTORE (FOLLETT)

LOCATION: Main Building, Room MA1200 Washington Campus //
TELEPHONE: (602) 286-8400 Washington Campus //
WEBSITE: WWW.GATEWAYCCSHOP.COM
FACEBOOK: WWW.FACEBOOK.COM/PAGES/GATEWAY-BOOKSTORE/320297711363810
EMAIL: GATEWAY@BKSTR.COM

Textbooks (purchase, rental, and digital), supplemental reading material, apparel, gifts, and supplies are available at the bookstore for all classes.

Rent-a-Text
GateWay participates in the Follett book rental program. Students may rent new or used textbooks for significant up-front savings. For rental details, stop by the campus bookstore or visit: WWW.RENT-A-TEXT.COM

Refunds
No refunds or exchanges will be made on books or supplies without a current cash register receipt. Refunds or exchanges will be made for a one-week period after the first day of classes for fall, spring and summer semesters. Starting the second week of classes, the bookstore will resume its two-day refund policy.

CAREER CENTER

LOCATION:
Washington Campus // Integrated Education Building, Room IE1234
Central City Campus // B Building, Room B422
Deer Valley Campus // Room 120

TELEPHONE:
Washington Campus // (602) 286-8500
CC & Deer Valley Campus // (602) 238-4380
WEBSITE: WWW.GATEWAYCC.EDU/CAREER-CENTER
EMAIL: careercenter@gatewaycc.edu

The Career Centers are open to students, alumni, and community jobseekers who are deciding on a career, looking for work or both. The Career Centers offer individualized assistance in the following areas:

- Career Planning and Assessment
- Determination of a Major
- Resume Development
- Job Search Resources/Interview Preparation

Students and jobseekers also may benefit from access to job postings and tips to navigate an Internet-based job search. Other services include on-campus employer recruitment and job fairs, and access to Federal Work Study positions for those who qualify. All students are encouraged to visit the Career Center during their first semester at GateWay to start building their professional portfolio. All services are open to the public and free of charge.

Under the Federal Work Study (FWS) program, qualified students are awarded federal funding in order to work at GateWay on a part-time basis while pursuing their education. Other jobs are available for student workers as well. All students are encouraged to drop by the Career Center to take advantage of all these services.

CENTER FOR STUDENT LIFE/LEADERSHIP

LOCATION: Washington Campus // Main Building, Room MA1132
TELEPHONE: Washington Campus // (602) 286-8141
WEBSITE: WWW.GATEWAYCC.EDU/STUDENT-LIFE
EMAIL: studentlife@gatewaycc.edu
The GateWay Community College Center for Student Life/Leadership makes the educational program a rich, exciting, and enjoyable experience.
The office is designed to provide a full schedule of traditional and special events, student leadership workshops, cultural programs, student organization activities, publications, volunteer program, and a variety of free services. The office is designed for all students at GateWay Community College.

One of the prime responsibilities of the Center for Student Life/Leadership is to develop, implement and evaluate educational, cultural and social programs which reflect the needs of a diverse student population; it teaches and trains students to implement and evaluate the same. The center also challenges awareness and encourages students to experience another dimension of student life based on responsibility and commitment.

Associated Students
Every student who is taking a class and has paid the registration fee is a member of the Associated Students of GateWay Community College (ASGWCC).

Student Activities Management (SAM) Council
The Student Activities Management (SAM) Council serves as a communication link between students and the administration, voicing concerns and ideas relative to student success. The SAM Council is the governing body of the Associated Students of GateWay Community College (ASGWCC). The purpose of this organization includes:

- Increasing student involvement in all appropriate facets of college operations
- Enhancing communication and cooperation among all segments of the college community
- Promoting other activities which enhance the academic, social, and cultural growth of students.

InterClub Council Membership
The membership of the InterClub Council will include the SAM Executive council and one student representative from each college-recognized student organization.

Special Events/Activities
Throughout the year at GateWay Community College, the Center for Student Life/Leadership provides special events and activities for the students. Those activities and events include but are not limited to: Pizza with the President, Volunteer projects, multicultural celebrations, blood drives, Commencement, and the Honors and Awards Banquet. The events the SAM Council plans for the students include: Welcome Back Activities, Spring GeckoLand, Alcohol Awareness Week, Sexual Assault Awareness and Holiday Buffet.

Student Representatives on College Committees
Student representatives serve on various campus committees, including the following: Graduation Committee, Honors and Awards Committee, Financial Aid Committee, Strategic Planning Committee, GateWay Community College Tribunal, Service-Learning Committee, and GateWay Community College Cultural Diversity Committee. Students are appointed to serve on each committee by the chairperson. Students are asked for input in matters of student affairs, publications, admissions, marketing and public relations, and retention of current students.

Student Organizations
There are many student organizations that are available at GateWay and are associated with a particular career field. GateWay also has several cultural clubs available for those interested students. GWCC student organizations are as follows:

- Associated Students in Surgical Technology (ASSIST)
- Association of Respiratory Care Students (ARCS)
- Black Student Union (BSU)
- Club Inspiring and Nurturing Students in Total Education (INSITE)
- Club Nuc Med
- Creative Writing Club/Out of Ink
- Gay Straight Alliance (GSA)
- Geckos In Action - Community Builders (GIA)
- Go Green GateWay
- Hispanic Student Organization (HSO)
- Information Technology Student Alliance
- Inter-Tribal Club
- Male Empowerment Network (MEN)
- Math Club
- Parents Learning About Youth (P.L.A.Y.)
Chartered student organizations are a vital part of the educational opportunities offered by Gateway Community College. Through these organizations, students may participate in programs that enhance their occupational training or take part in social activities that reflect special interests including cultural heritage events, community service projects and forums dealing with today's issues.

**Advisors to Student Organizations**
Every GWCC student organization MUST have an advisor and the primary advisor MUST be a faculty member. In order to conduct official business, advisors MUST attend all meetings.

**Student Leadership Programs**
In the Center for Student Life/Leadership, leadership programs are provided throughout the year. There is a retreat held in the summer for all new officers and the department staff. During the fall semester a student organizational workshop is held in which all officers and advisors are urged to attend; a district wide Student Leadership Retreat is provided for all MCCCD student leaders. During the academic year, regional, national, and local student leadership conferences, seminars and workshops are available to keep the student leaders abreast of new programs, services and changes.

**Posting Policy**
In an effort to preserve our walls and the beauty of our buildings, the following posting regulations are in effect:

- Posting is limited to the inside of the buildings.
- Posting on all walls is strictly prohibited.
- Post information on bulletin boards only.
- All posted information must bear the name of the sponsoring organization and display the Student Life stamp.
- You may have your information stamped in the Center for Student Life, located in Room MA1132 of the Main Building.

When posting materials, keep the following in mind:

- Use thumb tacks; no staples please.
- Do not post your material over someone else's information.
- Do not remove or discard any information other than your own.
- The Center for Student Life/Leadership will remove all posted bulletin board information after two weeks of display or the day following the date of the scheduled event. Please adhere to the information above or your material will be removed and taken to the Center for Student Life.
CHILDREN’S LEARNING CENTER

LOCATION:
Washington Campus (Located on the north side of the campus)
108 N. 40th St Phoenix, AZ 85034
Montecito Campus
715 E. Montecito Ave Phoenix, AZ 85014

TELEPHONE:
Washington Campus (602) 286-8130
Montecito Campus (602) 707-2500

WEBSITE: WWW.GATEWAYCC.EDU/CHILDCARE
EMAIL: clc@gatewaycc.edu

We are a state licensed, DES authorized Quality First star rated facility. Enrollment is on a first-come, first served basis.

Ages of Children
Children 24 months through 12 years are accepted for enrollment. All children must be able to take care of their own toileting needs.

Requirements
• Current Immunization Records
• Birth Certificate
• Completed Enrollment Forms

After a complete enrollment packet has been received and accepted, children are eligible for drop-in basis if space allows. To insure that space is available you MUST call first to make reservations. Above requirements must be met.

Fees
There is a $15 non-refundable registration fee due at the time of registration, for each child, each semester (maximum of $30 per family). The hourly fees are:

<table>
<thead>
<tr>
<th>Students</th>
<th>Enrolled in the center for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 + hours</td>
<td>$2.25/hour</td>
</tr>
<tr>
<td>30 – 39 hours</td>
<td>$2.50/hour</td>
</tr>
<tr>
<td>20- 29 hours</td>
<td>$2.75/hour</td>
</tr>
<tr>
<td>Less than 20 hours</td>
<td>$3.00/hour</td>
</tr>
<tr>
<td>Drop in rate</td>
<td>$ 3.50/hour</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Staff</th>
<th>Enrolled in the center for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 + hours</td>
<td>$3.25/hour</td>
</tr>
<tr>
<td>30 – 39 hours</td>
<td>$3.50/hour</td>
</tr>
<tr>
<td>20- 29 hours</td>
<td>$3.75/hour</td>
</tr>
<tr>
<td>Less than 20 hours</td>
<td>$4.00/hour</td>
</tr>
<tr>
<td>Drop in rate*</td>
<td>$ 4.50/hour</td>
</tr>
</tbody>
</table>

*Must call first to ensure space.
COPY/MAIL CENTER (RICOH)

LOCATION:
Washington Campus // Main Building, Room MA1210
Central City Campus // B Building, Room B-008

TELEPHONE:
(Washington Campus 602) 286-8313
Central City & Deer Valley Campus (602) 238-4384

WEBSITE: WWW.GATEWAYCC.EDU/COPY-SERVICES

EMAIL:
Washington Campus // ricoh@gatewaycc.edu
Central City Campus // mscikon@gatewaycc.edu

Fee-based student services include: black and white and color copying, binding, laminating, transparencies, and other specialty work upon request. Please stop by the Copy/Mail Center or call for current price information. The Copy Center accepts cash only.

PAY FOR PRINTING

Q&A for Students
Students will be charged for printing from college computers. Students will receive a $20 credit for the fiscal year (July 1-June 30). This will allow for 200 free pages ($0.10 per page for black-and-white copies).

How do I know how much credit or how many pages I have remaining?
After a print job is requested, the print assistant on the computer will calculate how much your print job will cost and display how much money you have remaining on your account. You will have two options: 1) continue to print, or 2) cancel the print request. Let the assistant finish calculating before you accept the charge to avoid mistakes in printing costs. If the cost of a print request exceeds the balance in your account, you will not be allowed to complete the print job.

How do I pay for printing after I use up my free printing?
Once you have used all your free prints, additional funds can be added to your GateWay MEID Fund Account.

How do I add money to my GateWay MEID Fund Account?
You add money to your account by visiting Enrollment Services on the first floor of the Integrated Education Building. You may add money to your account only during the hours that Enrollment Services is open:

Fall & Spring Semester Hours
Monday - Thursday
8:00 a.m. - 7:00 p.m.
Friday
8:00 a.m. - 5:00 p.m.
Closed Saturday - Sunday

Summer Hours
Monday - Thursday
8:00 a.m. - 6:00 p.m.
Closed Friday - Sunday

Will any unused money in my print account rollover or be refunded?
Unused funds in your print account cannot be rolled over or refunded at the end of the school year. Accounts will be cleared on July 1.

What do I do if the printer malfunctions?
If a school printer malfunctions, notify a staff member immediately. If a staff member cannot fix the problem, the student will be given a credit within 24 hours (the staff member will initiate the credit request). Staff cannot add funds to your account.
How can I reduce my costs or the amount that I print?

- Download information and save it to a USB drive.
- Save your downloaded file to an online storage provider, such as Box.com, 4shared.com, ADrive.com, FreeDrive.com, etc.
- Email information to yourself; print at home or retain the file for reference.
- Email documents to professors or colleagues.
- Print only the pages you need, instead of the entire document.
- Preview what you are printing to ensure you only send the print job one time and are only printing what you need.

Pay-for-Print Benefits

- Increases life of campus printers.
- Ensures working and reliable printers.
- Improves management of printing services.
- Significantly reduces waste (paper and toner).
- All funds are placed back into the program for printer maintenance, paper and toner.

COUNSELING

In the event of an emergency, dial 9-1-1 or Public Safety at (480) 784-0911. The goal of a counselor is to promote the development of effective and adaptive behavior in people. The counseling process enables personal growth and may be carried over into many aspects of life.

LOCATION:
Washington Campus // Main Building, Room MA1300
Central City Campus // B Building, Room B410
Deer Valley Campus // Room 144

TELEPHONE:
(602) 286-8900

WEBSITE: WWW.GATEWAYCC.EDU/COUNSELING

EMAIL: counseling@gatewaycc.edu

Counseling services are available on campus, providing a unique and confidential relationship between a professional and a person in need of help.

Reasons for Counseling

Students seek counseling for a variety of reasons, including:

- Adjusting to a college setting
- Making personal, educational and career choices
- Taking control of one's life: improving life skills
- Reducing stress
- Test anxiety reduction
- Managing time
- Setting goals
- Eliminating self-defeating behavior
- Improving self-esteem
- Coping with crisis
- Dealing with loss

The mission of the Counseling Department is to address students’ personal, academic, and career needs that impact the learning process. Counselors are committed to serving the GateWay community with responsive educational and counseling services in order to improve student retention, academic services and quality of life.
Student Services 2017-2018

Students can also access services which include educational planning, career counseling, career and personal assessment tools, and personal counseling. Counseling can also link students with resources both on and off campus to help students reach their potential. Furthermore, Counseling and Personal Development (CPD) courses are offered each semester with a variety of specific themes designed to help students develop effective life skills. Course descriptions for Counseling and Personal Development (CPD) classes are listed in the class schedule and GateWay Catalog and Student Handbook.

Our Responsibility
It is the counselor's job to make students aware of possible alternative solutions to various situations, encouraging responsibility in taking actions. Services including individual change through counseling, consultation, coordination and classroom instruction.

Counselors collaborate with other staff to help students reach their potential. Consulting with other professionals brings expertise to help staff, students and faculty find positive solutions.

About Our Counselors
The counselors at GateWay are professionals who have been trained to provide counseling services to those in need. In order to be a counselor in the Maricopa Colleges, a counselor must have a minimum of a Master's degree or higher, majoring in counseling and other similar criterion.

SERVICES

Career Counseling
This service enables students to understand their values, interests, skills and experiences in choosing a career path. The career planning process involves matching students to the compatibility of lifestyle and work demands, and assessing personality strengths and skills. Some assessments can be found in the Counseling Department while others are accessible in the Career Center. Please check with a counselor to see what your needs are for the best fit.

Career and Personality Assessment
We provide counseling tools that include career inventories and personality assessments to assist students in making career choices that are compatible with their interests, personality traits, work values and abilities. Please check with a counselor to see what your needs are and which assessments are best for you.

Personal Counseling
Individual counseling is private, confidential and free of charge. Assistance in resolving a crisis or personal issue, which may be interfering with educational success, is offered through counseling. This may include a referral process to a community agency if brief counseling sessions cannot resolve the issues. Counseling is voluntary and students may select the counselor of their choice.

Crisis Counseling
Crisis intervention is available Monday - Friday. Contact the Counseling Department for specific hours. Students may walk in and self refer, or a faculty or staff member may refer a student to counseling during a crisis. All counseling information is private and confidential, and may not be released without a signed release of information form by the student.

Assessments
The following assessments are available through the Counseling department:

Self-Directed Search
You will be given an easy-to-use, self-administered test to help you find the occupations that best suit your interests and skills. The test asks questions about your aspirations, activities, competencies, occupations and self-estimates for skills and abilities. These scores yield a 3-letter summary code, an occupational code that designates the 3 personality types you most closely resemble. With this code, you will use the occupational finder tool to discover occupations that best match your personality types, interests and skills.
Myers-Briggs Type Indicator (MBTI)
A widely used instrument based on C.G. Jung’s (1921-1971) ideas about perceptions and judgment. The effects of each preference, alone, and in combination, can be put to practical use. The inventory is very useful in making important personal and career decisions. Knowing your preferences and learning about other people's preferences can help you understand where your strengths are, what kind of work you might enjoy, and how people with different preferences can relate to each other and be valuable to society.

Resources
The following list of online resources has been compiled in order to assist with various counseling needs:

- 2-1-1 Arizona
- Arizona's Help Center
- Mental Health Net
- Online guide to mental health
- Valley Metro Public Transportation
- Bus planner and public transportation information to get to where you need to go

Contact the Counseling Department for additional assistance or to schedule an appointment.

DISABILITY RESOURCES & SERVICES

LOCATION:
Washington Campus // Integrated Education Building, Room IE1208
Central City Campus // B Building, Room B410
Deer Valley Campus // Room 144

TELEPHONE:
(602) 286-8171

WEBSITE: WWW.GATEWAYCC.EDU/DISABILITY-RESOURCES

EMAIL: disability.services@gatewaycc.edu

The Disability Resources Office works on a case-by-case basis on the provision of reasonable accommodations for students with disabilities who have documentation.

FOOD SERVICE

Washington Campus Geckos Café

LOCATION: Main Building (Southeast corner), Room MA1114
TELEPHONE: (602) 286-8308
WEBSITE: WWW.DINEONCAMPUS.COM
EMAIL: chartwells@gatewaycc.edu

Fall and Spring Semester Hours
Monday - Thursday
7:30 a.m. - 7:30 p.m.
Friday
7:30 a.m. - 2:00 p.m.

Summer Hours
Monday - Thursday
8:00 a.m. - 1:00 p.m.
Closed Friday

A variety of menu items and beverages are available at reasonable prices. Breakfast items include: breakfast burritos, waffles, eggs, bacon, bagels, donuts, etc. Lunch and dinner items include: burgers, fries, soup, sandwiches, salads and daily features. Provide a variety of salads, sandwiches and yogurt parfaits for a fast lunch on the go.
Washington Campus Gecko Express Café

LOCATION: Integrated Education Building, Room IE1140 (Next to Library)
TELEPHONE: (602) 286-8308
WEBSITE: WWW.GATEWAYCC.EDU/DINING
EMAIL: chartwells@gatewaycc.edu

Fall and Spring Semester Hours
Monday - Thursday
7:30 a.m. - 1:30 p.m.

Summer Semester Hours - Closed

A variety of hot and cold coffee and tea beverages are available. Food items include bagels, grab-and-go sandwiches and salads, scones, danishes, and cookies.

Central City Campus The Works Café

LOCATION: B Building, Room Portal 8 (Enter from center courtyard)
TELEPHONE: (602) 286-8308
WEBSITE: WWW.GATEWAYCC.EDU/DINING
EMAIL: chartwells@gatewaycc.edu

Hours
Open during business hours

GLOBAL EDUCATION CENTER

LOCATION: Washington Campus // AF Building, Rooms AF204/206
TELEPHONE: Washington Campus // (602) 286-8063
WEBSITE: WWW.GATEWAYCC.EDU/STUDENT-LIFE
EMAIL: iso@gatewaycc.edu

The Global Education Center includes ESOL/ESL, international student services, and study abroad.

Our Vision
To promote global awareness for our campus and community.

Our Mission
To develop a Global Center through international student services, study abroad, event programming, service excellence, and opportunities for internationalizing the campus with faculty partnerships to encourage global citizenship and student success.

The International Student Office (ISO) offers services for F-1 international students interested in studying at GateWay Community College, currently international students, and American students interested in studying abroad. The ISO also serves as a resource for campus international and intercultural initiatives.

F-1 International Students
The International Student Office provides Admissions services to prospective F-1 students, and the following services to all continuing international students who need assistance with: academic and immigration advising, intercultural adjustment, health insurance, housing information, on and off campus employment opportunities, university transfer, changes of major, I-20 extensions, etc. The office also provides support to the World Explorer’s Club, and organizes cultural activities to enhance the cross-cultural understanding among the domestic and international students for the campus.
Study Abroad
The International Student Office offers a variety of study abroad programs in different worldwide countries. These exciting programs are developed and led by our faculty, and provide a great opportunity to learn and travel at the same time. The ISO assists in selecting programs, the applications process, scholarship and financial aid. All programs require applications to have eligibility requirements.

HONORS PROGRAM

LOCATION: Washington Campus // AF Building, Room AF106
TELEPHONE: Washington Campus // (602) 286-8722
WEBSITE: WWW.GATEWAYCC.EDU/HONORS-PROGRAM
EMAIL: honors@gatewaycc.edu

The Honors program is designed to enhance students’ intellectual growth by offering challenging opportunities for increased contact with leading teachers in all divisions of study. The program includes independent study with faculty mentors, special activities, and the Honors Forum Series which permits students to interact with distinguished lecturers. Each honors course is designated honors under “notes” on the student's official college transcript which indicates excellence and commitment to prospective employers and admissions offices at other post-secondary institutions.

Students Enjoy:
• Individualized instruction through special projects
• Faculty mentors
• Tuition rebates and scholarships
• Cultural and social activities
• Special recognition on transcripts and diplomas

Students with a grade point average of 3.25 and completion of 12 or more credits at the 100 level are invited to apply. Those admitted to the program qualify for Tuition Rebates of up to $500 or certain Scholarships given to honors students in good standing. For full details, consult the Honors Coordinator, Dr. Andrew Lenartz, (602) 286-8374.

LEARNING CENTER

LOCATION: Washington Campus // Integrated Education Building, Room IE2108
TELEPHONE: Washington Campus // (602) 286-8800
WEBSITE: WWW.GATEWAYCC.EDU/LEARNING-CENTER
EMAIL: lcstaff@gatewaycc.edu

The Learning Center provides free academic support services for GateWay Community College students and faculty. Listed below are some of the services offered by the Learning Center.

Tutoring
Tutoring is available for currently enrolled GateWay Community College students by appointment, on a one-to-one basis or in small groups. Drop-in tutoring for math, chemistry, biology, physics and writing is available during designated hours. One-on-one and group tutoring is provided in, but not limited to, the following subject areas:
In addition, online support is available for a variety of academic writing tasks.
Learning and Study Strategies
Consultation and instructional materials are available to assist students in the development and refinement of effective strategies for:

- Accounting
- Anatomy and Physiology
- Biology
- Chemistry
- Cisco
- English/Writing
- English as a Second Language
- Health Sciences
- Industrial Technology
- Math
- Nursing
- Physics
- Psychology
- Reading
- Spanish
- Memory improvement
- Note-taking
- Test preparation
- Test taking
- Textbook reading
- Time management
- Vocabulary development

Computer-Based Learning
Educational software that facilitates learning in various subject areas is available for student use in the Learning Center. This includes textbook-based software, supplemental software, and other e-learning resources.

Open Computer Use
Desktop and laptop computers are available for student use. They are equipped with Microsoft Office software including Word, Excel, Access and PowerPoint. All computers are connected to the Internet. The lab is on the GateWay Pay-for-Print program.

Learning Tools
The following learning tools learning materials are available for student use in the Learning Center:

- DVDs
- Supplemental books
- Anatomical models
- Microscopes & slides
- Dictionaries

Private and Group Study Rooms
The Learning Center houses three private study rooms, and four large group study rooms which can be reserved for two hours at a time.
LIBRARY

From Information to Inspiration:
Connect @ the Library

LOCATION:
Washington Campus // Integrated Education Building, Room IE1115 (Located next to the Gecko Express Cafe)
Central City Campus // B Building , Room B410

TELEPHONE:
Washington Campus // Circulation/Account Information
(602) 286-8454; Reference/Research Assistance (602) 286-8458
Central City Campus // (602) 238-4316

WEBSITE: WWW.GATEWAYCC.EDU/LIBRARY
EMAIL: library@gwmail.maricopa.edu

Note: Hours subject to change and may vary when classes are not in session.

The GateWay Library supports the College’s educational programs and culturally diverse community by providing responsive service and accessible resources in a learner-centered environment.

In-Person Services
• Reference and research assistance
• Locate and check-out books, DVD’s and more
• Course reserves
• Account setup and verification
• Computer access, including WiFi & Pay 4 Print
• Group and individual learning spaces
• Online Services & Support (Available 24/7)
• “Ask a Librarian” Chat reference service: WWW.MARICOPA.EDU/ASKALIBRARIAN
• Web-based Catalog: Find books, DVDs and more
• Full-text databases of magazines, journals, newspapers, encyclopedias, and images* Try One Search!
  • Full-text eBooks*
  • Streaming Media*

*Off-campus access to these services requires login with MEID and My.maricopa.edu password.

Living Accommodations
GateWay Community College does not provide dormitory accommodations. The Center for Student Life/Leadership has provided an information board of various housing locations. For further assistance, contact the Center for Student Life/Leadership at (602) 286-8700.
PUBLIC SAFETY/PARKING

LOCATION:
Washington Campus // Public Safety Building
Central City Campus // A-Building, Room A113
Desk Deer Valley Campus // Room 151 (Ask at Front)

TELEPHONE:
Emergencies 24 hours/day (480) 784-0911
Non-Emergencies (480) 784-0900
Public Safety Business Office (602) 286-8911
WEBSITE: WWW.GATEWAYCC.EDU/PUBLIC-SAFETY
EMAIL: safety@gatewaycc.edu

Hours
Public Safety staff is on-site 24 hours a day, seven days a week at Washington Campus and during operational hours at Central City & Deer Valley.

Washington Campus
Office Hours for Parking Permits and Other Requests
Monday - Friday
6:30 a.m. - 7:00 p.m.
Saturday
6:30 a.m. - 4:00 p.m.

Central City Campus
Office Hours for Parking Permits and Other Requests
Monday - Thursday
8:00 a.m. - 8:00 p.m.

General Information
The GateWay Public Safety Department (PSD) is located in the Public Safety Building which is in operation hours a day, seven days a week. The telephone number is (480) 784-0911. Students may utilize the on-campus extension number 4-0911. The primary role of the department is to provide assistance and protection of people on campus and the protection of district and personal property.

Reporting Crimes and Emergencies
Students, faculty and staff are encouraged to report all criminal activity and emergencies that occur on campus. A report may be filed through a Public Safety officer, in person, by phone or through email at SAFETY@GATEWAYCC.EDU.

In case of emergency, individuals may utilize (480) 784-0911 or 9-1-1 if exceptional circumstances exist. Reports of a non-emergency nature may be reported via the phone or made in person at the Public Safety Office.

Student Responsibility in Crime Prevention
The cooperation and personal support of students is crucial to the success of safety and security programs with regard to the campus community. Students must assume some responsibility for their own safety and the security of their personal property. By taking common sense precautions and adopting an awareness of their surroundings and environment, students can greatly reduce the probability of becoming a victim of a crime. To assist the student in becoming better informed, the Public Safety Department provides the following information:

• Certain types of crimes may pose an on-going threat to the campus community.
• Notification of an immediate or on-going threat may be disseminated through text messaging and email through the use of the emergency notification system commonly referred to as RAVE Notification, public address system or face-to-face. The Public Safety Department may use any or all means available to make the necessary notifications.
• Public Safety publishes an annual report identifying the types of crime that have occurred on campus during the fiscal year. The type of crime reported is defined by the FBI in the Uniform Crime Reporting System. The report is prepared annually and is available on the GateWay web site at WWW.GATEWAYCC.EDU/DISCLOSURE/CRIME.
• The Public Safety Department produces a daily crime report which is available for viewing at the Public Safety office.
Emergency Evacuations
Whenever the evacuation alarm or fire alarm sounds or you are verbally informed to evacuate:
• Remain calm.
• Do not call the Public Safety Department to ascertain if the alarm is false or not. The phone lines will be needed to contact assisting agencies.
• Leave the building through the closest exit.
While leaving:
• Assist disabled persons or others requiring assistance
• Shut all doors behind you as you go. Closed doors tend to slow the spread of fire, smoke and water
• Proceed quickly, but in an orderly manner. Hold onto handrails while on the stairway
• Do not use elevators
• Follow the instructions of instructors and staff
Once outside, proceed to the designated assembly area. Follow the instructions of emergency personnel at the scene.

Safety Escorts
A safety escort is available to students, faculty and staff who wish to be accompanied to any location on campus. Anyone may request an escort in person at the Public Safety Building or by calling (480) 784-0911 (ext. 4-0911). A Public Safety employee will accompany you to your on-campus destination.

Areas of Refuge
Areas of Refuge for disabled persons are located in the following areas:
• In the Main Building, second floor (southwest side) in the vicinity of Room MA2305
• In the Main Building, second floor (southeast side) in the vicinity of Room MA2111
• In the Center for Health Careers Education, west of Room 2153 in the north wing
• In the Center for Health Careers Education on the opposite side of Room CH-2035 in the south wing
• In the Integrated Education Building, second floor (east side) by the elevators near the Learning Center
• In the Integrated Education Building, second floor (west side) in the vicinity of Room IE2214
• In the Integrated Education Building, third floor (east side) by the elevators near the faculty offices
• In the Integrated Education Building, third floor (west side) in the vicinity of Room IE3209

During evacuations, disabled persons should be assisted to these locations for evacuation by Public Safety, police or fire personnel.

Lost and Found Property
The Public Safety Department maintains a lost and found section. Anyone who lose's property on campus may check with Public Safety to determine if an item has been found. Found items brought to the Public Safety Department will be held for 30 days. Items not claimed within this period of time will be disposed of in accordance to established procedures.

Parking Permits
All vehicles that are parked on the college campus must be registered with the Public Safety Department. A parking permit is required for each registered vehicle used by a student. Parking permits are issued at no charge. The issued parking permit is valid for five years and should be placed on the inside of the windshield in the lower left (driver's side) corner. On motorized cycles, the permit shall be affixed where it can be seen without difficulty on the front fender. A state issued handicapped license plate or disabled parking permit is required for parking in designated handicapped parking spaces.

As of January 1, 1989, all out-of-state and out-of-county students must sign an affidavit at the time of registration indicating that their vehicle is in compliance with emissions inspections guidelines.

Assistance with Disabled Motor Vehicles
Reasonable attempts will be made to assist persons are experiencing vehicle problems, such as a dead battery, flat tire or similar issue. Persons experiencing such problems should proceed to the Public Safety Department. A valid driver's license, proof of vehicle ownership and a college vehicle parking permit are required to receive vehicle assistance. Those individuals receiving assistance for a battery boost will also be required to sign a waiver form in the event that damage occurs as a result of the attempted assistance.
Carpool Parking
Car-pool parking spaces are provided for those student who car-pool to campus. A carpool parking permit is required in addition to the parking permit to park in a car-pool parking space. The carpool parking permit is issued free of charge. The car-pool parking permit may be obtained from the Public Safety office.

Vehicle Traffic and Parking Regulations
• All Arizona state laws governing the movement and operation of motor vehicles have been adopted by the MCCCD Governing Board for control of vehicles on college property.
• The maximum speed limit in all college parking lots is 15 mph.
• Driving motor vehicles, motorized cycles, and bicycles on pedestrian paths and sidewalks is prohibited.
• All accidents involving vehicles which occur on college property should be reported to the Public Safety Department.

Smoking
In order to promote a healthy learning and work environment, the Chancellor has directed that the Maricopa County Community College District serve as a total smoke-free and tobacco-free environment, effective July 1, 2012. Smoking (including the use of “e-cigs”) and all uses of tobacco shall be prohibited from all District owned and leased property and facilities, including but not limited to parking lots, rooftops, courtyards, plazas, entrance and exit ways, vehicles, sidewalks, common areas, grounds, athletic facilities and libraries.

Parking
Vehicles parked in a parking space which displays a disabled parking sign, a painted disabled insignia, or both, must display a current disabled parking permit issued by the state of Arizona.
Red curbs are no-parking zones. Parking in Red zones, entrances to buildings, driveways, in front of garbage dumpsters, barricades, fire lanes and fire hydrants is prohibited.
Driving into or parking in an area not designated for use or closed by the use of barricades, chains, or other vehicle control devices is prohibited.
Parking on or blocking pedestrian paths, sidewalks, crosswalks, striped safety zones, and bicycle paths are prohibited.
Vehicles which bear a valid college parking permit may not park in spaces designated for visitor parking.

Students who violate the Traffic and Parking Regulations may be fined and/or disciplined in accordance to the guidelines established by the MCCCD Governing Board.
Examples of the scheduled fines are as follows:
• Displaying an altered or substituted permit.............................................$50
• Failure to register a vehicle and display a parking permit .................$30
• Falsifying information on registration application ............................$50
• Parking in a Fire Lane.................................................................$50
• Violating disabled parking stall or access..............................................$50
• Improperly displaying a parking permit ............................................$15
• Obstructing a properly parked/moving vehicle.................................$15
• Parking beyond posted time limit .......................................................$15
• Parking by a college employee or student in a visitor area ..............$15
• Parking on or blocking a pedestrian path .........................................$15
• Parking outside stall lines...............................................................$15
• Parking in an unauthorized parking area..........................................$25
• Removing barricade or failure to obey vehicle control device ........$15

(All fines are doubled if not paid within 15 working days)

Weapons
The possession or use of firearms or other dangerous weapons is strictly forbidden on campus. All weapons, regardless of type, are prohibited by the MCCCD and/or state and local law. In accordance with state law and MCCCD policy, weapons may be left in a vehicle provided the weapon is out of sight and the vehicle is secured.

Questions?
If you need more information about safety at GateWay Community College, please contact the Public Safety Department at (602) 286-8911. Public Safety personnel will address your questions and concerns in a prompt and courteous manner.
VETERAN SERVICES

LOCATION:
Washington Campus // Main Building, Room MA1220
Central City Campus // A-Building, Room A-101
Deer Valley Campus // Room 151 (Ask at Front Desk)
TELEPHONE: (602) 286-8076
WEBSITE: WWW.GATEWAYCC.EDU/VETERANS-SERVICES
EMAIL: veterans@gatewaycc.edu

Veteran Services provides Military, Veteran, Spouse and Dependent students assistance with navigating the enrollment process and applying for their Department of Veterans Affairs Education Benefits. Veterans Services works closely with federal, regional and state Veterans Affairs offices in administering VA Education Benefits.

The Department of Veterans Affairs requires all persons using VA Education Benefits in pursuit of their education to make Satisfactory Academic Progress (SAP) toward their program of study. Satisfactory academic progress is defined in this catalog under the Financial Aid, Scholastic Standards and Attendance Policy. Students who do not meet SAP may have their VA Education Benefits affected and/or terminated.

The School Certifying Official acts as a liaison between the student and Department of Veterans Affairs, certifying enrollment and maintaining student files.

GateWay Veteran Center

Fall and Spring Semester Hours
Monday - Thursday
8:00 a.m. - 6:00 p.m.
Friday
8:00 a.m. - 2:00 p.m.

Summer Hours
Monday - Thursday
7:00 a.m. - 6:00 p.m.
Friday Closed

Student Responsibilities
• Request all official transcripts from previous college(s) and training(s) attended, including military transcripts
• Ensure ATTENDANCE requirements are met
• Report any or all changes in program of study to the School Certifying Official
• After the start of your program of study, at a minimum quarterly, follow-up and meet with the School Certifying Official
• Students are responsible for reporting any Scholarships received, providing documentation, to School Certifying Official
STUDENT HANDBOOK
The Administrative Regulations are used in managing the day-to-day operations of the Maricopa County Community College District (MCCCD) and are subject to change. Administrative Regulations are amended, adopted, or deleted as necessary and are subject to a formal approval process. Administrative Regulations are referenced by number, which corresponds with the regulations on the MCCCD WEB SITE. (https://chancellor.maricopa.edu/public-stewardship/governance/governance-resources/catalog-common-pages)

Some regulations include reference to Arizona Revised Statutes from the State of Arizona and are noted as “ARS” followed by a reference number.

For printed copies of the regulations for the calendar year you were first admitted and enrolled, visit the Library or Enrollment Services area on your campus or visit GATEWAYCC.EDU/CATALOG for the corresponding student handbook and catalog year as well as the ADMINISTRATIVE REGULATIONS.

STUDENT HANDBOOK

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2.5.5 STUDENT GOVERNANCE
APPENDIX S-13 THE MARICOPA COMMUNITY COLLEGES ALLIED HEALTH OR NURSING PROGRAM
4.18 CONSENSUAL RELATIONSHIPS

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2.2.2 ADMISSION INFORMATION
2.2.3 OTHER ADMISSION INFORMATION
2.2.4 CREDIT FOR PRIOR LEARNING
2.2.6 ACADEMIC ADVISING
2.2.7 STUDENT ASSESSMENT AND COURSE PLACEMENT
2.2.8 REGISTRATION
2.2.9 TUITION AND FEES POLICY
APPENDIX S-4 TUITION AND FEE SCHEDULE
2.2.10 REFUND POLICY
2.2.11 STUDENT FINANCIAL ASSISTANCE
2.2.12 VACCINATIONS
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ASSOCIATE IN ARTS (AA) DEGREE

Description
The Maricopa County Community College District Associate in Arts degree requires 60-64 semester credits for the program of study. The degree includes the following components:

I. General Education:
   Arizona General Education Curriculum for Arts (AGEC-A)
   MCCCD Additional Requirements

II. General Electives

Purpose of the Degree
The Associate in Arts degree is designed for students planning to transfer to four-year colleges and universities. Generally, the components of the degree meet requirements for majors in the Liberal Arts or programs of study other than business or science. Generally, the degree will transfer as a block without loss of credit to Arizona's public universities and other institutions with district-wide articulation agreements.

In most cases, courses used to satisfy the MCCCD Associate in Arts will apply to university graduation requirements of the university major for which the Associate in Arts is designed. Information regarding the articulation of the Associate in Arts with majors at the Arizona public universities can be accessed via the following website: WWW.AZTRANSFER.COM

Academic Policies that Govern the Associate in Arts Degree
• Completion of the Associate in Arts and the AGEC-A provides for exemption from Arizona public university admission requirements for Arizona residents who have a minimum Grade Point Average of 2.0 on a 4.0=A scale and a minimum 2.5 on a 4.0=A scale for non-residents.
• The graduation policies within the general catalog must be satisfied for completion of the Associate in Arts degree.
• A minimum of 60 semester credits in courses numbered 100 and above to be completed with a grade of "C" or better. Credit units transferred from outside of the district need to be at a grade of "C" or better. A grade of "C" equals 2.0 on a 4.0 grading scale or equivalent. On an exception basis, P-grades may be allowed in the AGEC for credit transferred if documentation collected by the community college indicates that the P-grade issued was the only option for the student and the P-grade is a "C" or better. The P-grade exception does not apply to credits awarded by AGEC granting/receiving institutions.
• Credit received through prior learning assessment or credit by evaluation is transferable within the Maricopa Community Colleges but is not necessarily transferable to other colleges and universities. No more than 20 semester credit hours may be applied toward AGEC.
• The General Education Requirements for AGEC-A may be completed in 35 semester credits with the following stipulations:
  • Courses can satisfy a Core Area and one or two Awareness Areas simultaneously
  • A course cannot be used to satisfy more than one Core Area
  • General Education Courses can satisfy multiple areas within the degree simultaneously (AGEC-A Core Area, AGEC Awareness Area, MCCCD Additional Requirements, or lower-division courses applicable to the major).
  • Effective Fall 2000, the course evaluation and/or general education designation as listed in the Arizona Course Equivalency Guide (CEG) within the AZ Transfer, is valid for the term in which the student is awarded credit on the transcript. A course evaluation and/or general education designation may be subject to change. Students do have the option to petition for general education evaluations and/or general education designations upon transfer.
  • Courses completed at one of the Maricopa Community Colleges to meet AGEC-A requirements must be listed in the Course Equivalency Guide within AZ Transfer as an equivalent course, departmental elective credit (XXXXDEC), or general elective credit (Elective) at all Arizona public universities. The course's evaluation and/or general education designation is valid for the term in which the student is awarded credit on the transcript. View specific course information via the following website: HTTPS://ASA.MARICOPA.EDU/DEPARTMENTS/CENTER-FOR-CURRICULUM-TRANSFER-ARTICULATION by clicking on the statewide AGEC link.
  • Maricopa courses and external courses evaluated as Maricopa equivalents or departmental electives (for example, HISELC, MATELC), that are numbered 100 level or higher, and completed with a grade of "C" or higher, may be applied in the elective area, regardless of potential transferability to other institutions. It is recommended, however, that students planning to transfer to a baccalaureate-granting institution meet elective requirements with courses that are transferable and applicable to their intended university degree. For appropriate course selection, students should consult with an advisor.
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- Courses transferred from another regionally accredited institution to one of the Maricopa Community
- Colleges will be evaluated by the college for inclusion in the AGEC-A or Associate in Arts Degree.
- Courses and their modular equivalents will satisfy AGEC-A and Associate in Arts requirements.
- If a course is cross-referenced with one or more other courses, then only one of the cross-referenced courses will be accepted to meet requirements.
- Courses completed at one of the Maricopa Community Colleges to satisfy Common Courses must be transferable as elective or better to the universities that have the shared majors listed on a Common Course Matrix. A shared major is a university degree program that has similar academic preparation to one or more degree programs at other Arizona public universities as listed on the Common Course Matrices. For appropriate course selection, students should consult with an advisor.

Degree Requirements
The 60-64 semester credits required for the Associate in Arts follow. View specific course information via the following website: https://asa.maricopa.edu/departments/center-for-curriculum-transfer-articulation by clicking on the statewide AGEC link. The AGEC A, B, S, and AGEC Matrix identify the courses in alpha-order by prefix as well as the Core Areas and Awareness Areas where the course will apply.

I. MCCCD General Education
The MCCCD General Education includes two areas: MCCCD AGEC-A and MCCCD Additional Requirements.

A. MCCCD AGEC-A

1. Core Areas: .............................................................................................................................................35
   a. First-Year Composition (FYC) ..................................................................................................................6
   b. Literacy and Critical Inquiry [L] ...............................................................................................................3
   c. Mathematical Studies [MA/CS] ..................................................................................................................6

To complete the Mathematical Studies requirement, select one course to satisfy Mathematics [MA] A and a second course from Computer/Statistics/Quantitative Applications [CS].

1. Mathematics [MA] A (3 credits) Note: requires a course in college mathematics (MAT140, MAT142, MAT142) or college algebra (MAT 150, MAT 151, MAT152) or pre calculus (MAT 187) or any other mathematics course designated with the MA general education value and for which college algebra is a pre-requisite AND

2. Computer/Statistics/Quantitative Applications [CS] (3 credits)
   a. Humanities, Arts and Design [HU] ........................................................................................................6
   Students are encouraged to choose course work from more than one discipline for a total of six semester credits.
   b. Social-Behavioral Sciences [SB] ...........................................................................................................6
   Students are encouraged to choose course work from more than one discipline for a total of six semester credits.
   c. Natural Sciences [SQ/SG] .........................................................................................................................8
   To complete the Natural Sciences requirement: Select four (4) semester credits of [SQ] and four (4) semester credits of [SG] for a total of eight (8) semester credits, OR eight (8) semester credits of [SQ]. Students can not take eight (8) semester credits of [SG] to meet the Natural Sciences requirement.

The lecture course(s) selected for Natural Sciences must include or be accompanied by the corresponding laboratory course. The lecture and corresponding laboratory course(s) may carry separate credit. Students should consult with an advisor for appropriate course selection. Students should also access the AZ Course Equivalency Guide (CEG) within the AZ Transfer for information on equivalencies.

2. Awareness Areas:
   Students must satisfy two Awareness Areas: Cultural Diversity in the United States [C] and either Global Awareness [G] or Historical Awareness [H]. However, it is not necessary for students to exceed thirty-five semester credits to complete the Awareness Areas because courses can satisfy a Core Area and one or two Awareness Areas simultaneously. Therefore no additional semester credits are required to satisfy the two Awareness Areas. Cultural Diversity in the United States [C] AND Global Awareness [G] OR Historical Awareness [H]

3. MCCCD Additional Requirements..............................................................................................................0-6
   Students must satisfy Oral Communication and Critical Reading areas. However, it is not necessary for students to exceed the thirty-five semester credits required in order to complete the MCCCD Additional Requirements because courses can satisfy a Core Area and MCCCD Additional Requirements simultaneously. Therefore no additional semester credits are required to satisfy Oral Communication and Critical Reading.
a. Oral Communication
   A total of three (3) semester credits are required for Oral Communication. However, if students select a communication course that satisfies both the Oral Communication area and an area within the Core, then the Oral Communication requirement has been satisfied and additional electives may be taken.
   Select from the following options: COM100 [SB] (3 credits) OR COM100AA & COM100AB & COM100AC [SB] (3 credits) OR COM110 [SB] (3 credits) OR COM110AA & COM110AB & COM110AC [SB] (3 credits) OR COM225 [L] (3 credits) OR COM230 [SB] (3 credits)

b. Critical Reading
   A total of three (3) semester credits are required for the Critical Reading area. However, if students complete CRE 101 and apply it to AGEC-A Core Requirements or if the students demonstrate proficiency through assessment, then the Critical Reading requirement has been satisfied and additional electives may be taken.
   CRE101 [L] OR equivalent as indicated by assessment

II. General Electives
   Select courses to complete a minimum of 60 semester credits but no more than a total of 64 semester credits.
   For students who have decided on a major that articulates with the AA, but who are undecided on the university to which they will transfer, courses satisfying the General Electives area should be selected from the list of Common Courses, Arizona Transfer Pathway Guides, and/or University Transfer Guides in order for the courses to apply in the major upon transfer.
   The list of Common Courses for each major is included in the Arizona Transfer Pathway Guides. University Transfer Guides are also available for the Arizona public universities. These guides, both statewide and institutional, are accessible on the following web site: www.aztransfer.com/
   Maricopa courses and external courses evaluated as Maricopa equivalents or departmental electives (for example, HISELC, MATELC), that are numbered 100 level or higher, and completed with a grade of “C” or higher, may be applied in the elective area, regardless of potential transferability to other institutions. It is recommended, however, that students planning to transfer to a baccalaureate-granting institution meet elective requirements with courses that are transferable and applicable to their intended university degree. For appropriate course selection, students should consult with an advisor.
   For some majors, students must demonstrate 4th semester proficiency at the 202 course level to satisfy the Non-English Language Requirements. Students should consult the Arizona Transfer Pathway Guides and/or the University Transfer Guides to determine this requirement for the major at the university to which they intend to transfer. If required, it is recommended that students choose Maricopa courses as electives to meet this requirement as part of the Associate in Arts degree.
   Students who are undecided on a major or university should consult an advisor. Not all majors have common courses, so it is recommended that students consult with an advisor for a list of common courses or assistance with selecting appropriate electives.

Associate in Arts Total Credits: ...............................................................60-64

ASSOCIATE IN ARTS,
ELEMENTARY EDUCATION DEGREE (AAEE)

Description
The MCCCD Associate in Arts in Elementary Education (AAEE) requires the student to complete a total of 60-63 semester credits in the program of study. The degree has two major components:

I. MCCCD General Education
   Arizona General Education Curriculum for Arts (AGEC-A) Additional MCCCD Requirements

II. Elementary Education Requirements
   Education Foundations

Restricted Electives

Purpose of the Degree
The AAEE is designed for the student who plans to transfer to an Elementary Education, Early Childhood, Multicultural/Multilingual, or Special Education program at an Arizona public higher education institution and/or who plans to become a classroom instructional aide.
Generally, the degree transfers as a block without loss of credit to Arizona’s public universities. In most cases, courses applied to the MCCCD Associate in Arts in Elementary Education also apply to graduation requirements of the university major for which the AAEE was designed.

**Academic Policies that Govern the Associate in Arts Elementary Education Degree**

- Completion of the Associate in Arts and the AGEC-A provides for exemption from Arizona public university admission requirements for Arizona residents who have a minimum Grade Point Average of 2.0 on a 4.0=A scale and a minimum 2.5 on a 4.0=A scale for non-residents.
- The graduation policies within the general catalog must be satisfied for completion of the Associate in Arts degree.
- A minimum of 60 semester credits in courses numbered 100 and above to be completed with a grade of "C" or better. Credit units transferred from outside of the district need to be at a grade of "C" or better. A grade of "C" equals 2.0 on a 4.0 grading scale or equivalent. A grade of "C" equals 2.0 on a 4.0 grading scale or equivalent. On an exception basis, P-grades may be allowed in the AGEC for credit transferred if documentation collected by the community college indicates that the P-grade issued was the only option for the student and the P-grade is a "C" or better. The P-grade exception does not apply to credits awarded by AGEC granting/receiving institutions.
- Credit received through prior learning assessment or credit by evaluation is transferable within the Maricopa Community Colleges but is not necessarily transferable to other colleges and universities. No more than 20 semester credit hours may be applied toward AGEC.
- The General Education Requirements for AGEC-A may be completed in 35 semester credits with the following stipulations:
  - Courses can satisfy a Core Area and one or two Awareness Areas simultaneously
  - A course cannot be used to satisfy more than one Core Area
  - Courses can satisfy an Elementary Education Requirement and one or more Awareness Areas simultaneously.
  - A course cannot satisfy both the Elementary Education Requirement and a Core Area Requirement simultaneously.
- Effective Fall 2000, the course evaluation and/or general education designation as listed in the Arizona Course Equivalency Guide (CEG) within the AZ Transfer, is valid for the term in which the student is awarded credit on the transcript. A course evaluation and/or general education designation may be subject to change. Students do have the option to petition for general education evaluations and/or general education designations upon transfer.
- Courses completed at one of the Maricopa Community Colleges to meet AGEC-A requirements must be listed in the Course Equivalency Guide within AZ Transfer as an equivalent course, departmental elective credit (XXXXDEC), or general elective credit (Elective) at any Arizona public universities. The course's evaluation and/or general education designation is valid for the term in which the student is awarded credit on the transcript. View specific course information via the following website: https://asa.maricopa.edu/departments/center-for-curriculum-transfer-articulation by clicking on the statewide AGEC link.
- Maricopa courses and external courses evaluated as Maricopa equivalents or departmental electives (for example, HISELC, MATELC), that are numbered 100 level or higher, and completed with a grade of “C” or higher, may be applied in the elective area, regardless of potential transferability to other institutions. It is recommended, however, that students planning to transfer to a baccalaureate-granting institution meet elective requirements with courses that are transferable and applicable to their intended university degree. For appropriate course selection, students should consult with an advisor.
- Courses transferred from another regionally accredited institution to one of the Maricopa Community Colleges will be evaluated by the college for inclusion in the AGEC A or the Associate in Arts Elementary Education degree.
- Courses and their modular equivalents will satisfy AGEC-A and Associate in Arts in Elementary Education requirements.
- If a course is cross-referenced with one or more other courses, then only one of the cross-referenced courses will be accepted to meet requirements.
- Courses completed at one of the Maricopa Community Colleges to satisfy Common Courses must be transferable as elective or better to the universities that have the shared majors listed on a Common Course Matrix. A shared major is a university degree program that has similar academic preparation to one or more degree programs at other Arizona public universities as listed on the Common Course Matrices.
- For appropriate course selection, students should consult with an advisor.
- Degree Requirements

I. MCCCD General Education Requirements
   A. A.MCCCD AGEC - A
      1. Core Areas ................................................................. 35-38
a. First-Year Composition (FYC)
   ENG101/102 OR ENG107/108 ................................................................. 6

   1. Requires a course in college mathematics (MAT140, MAT141, MAT142) or college algebra (MAT150, MAT151, MAT152) or pre-calculus (MAT187) or any other mathematics course designed with the MA general education value and for which college algebra is a pre-requisite. (NOTE: MAT256, MAT257, MAT182, and MAT206 are excluded) AND

c. Literacy and Critical Inquiry [L] .............................................................................................................. 3
   Select the following:
   COM225 Public Speaking


d. Humanities, Arts and Design [HU] ........................................................................................................... 6
   1. Select (3) semester credits from the following courses:
      ARH100 Introduction to Art
      ARH101 Prehistoric through Gothic Art
      ARH102 Renaissance through Contemporary Art
      DAH100 Introduction to Dance
      DAH201 World Dance Studies
      DAH250 Dance in Popular Culture
      MHL140 Survey of Music History
      MHL145 American Jazz and Popular Music
      MHL146 Survey of Broadway Musicals
      MHL153 Rock Music and Culture
      THE111 Introduction to Theatre
      THE220 Modern Drama AND
   2. Select (3) semester credits from the following courses:
      EDU/ENH291 Children's Literature
      ENH110 Introduction to Literature
      ENH241 American Literature Before 1860
      ENH242 American Literature After 1860
      HUM250 or HUM251 Ideas and Values in the Humanities

e. Social-Behavioral Sciences [SB] ............................................................................................................. 6
   1. Select 3 semester credits from the following courses:
      HIS103 United States History to 1865
      POS110 American National Government
      GCU/POS113 United States and Arizona Social Studies AND
   2. Select 3 semester credits from the following courses: CFS205 Human Development
      ECH/CFS176 Child Development
      GCU121 World Geography I: Eastern Hemisphere
      GCU122 World Geography II: Western Hemisphere
      ECN211 Macroeconomic Principles
      ECN212 Microeconomic Principles
      HIS104 United States History 1865 to Present
      PSY101 Introduction to Psychology

f. Natural Sciences—Science-Quantitative [SQ] and Science-General [SG] ...................................................... 8
   To complete the Natural Sciences requirement, select a total of 8 semester credits from the following
categories. At least 4 credits must be SQ courses. You can select 4 semester credits of SG and 4 semester
credits of SQ for a total of 8 semester credits. Natural Sciences courses must include or be accompanied by
the corresponding laboratory course. When the lecture and corresponding laboratory are awarded separate
credit, both will be counted as equivalent to one course in that discipline.
   1. Life Sciences - Select 4 semester credits of SQ or SG from BIO AND
   2. Physical Sciences or Earth/Space Sciences - Select 4 semester credits of SQ or SG credits from the
      following prefixes:
      AGS
      ASM
      AST
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CHM
GPH
GLG
PHS
PHY

Note: Students are advised to check with the university they plan to attend as requirements for lab sciences may vary.

The MCCCD AAEE requires coursework in two Awareness Areas: Cultural Diversity in the U.S. [C] AND Historical Awareness [H] OR Global Awareness [G]

Courses can satisfy a Core Area Requirement and one or more Awareness Areas, or can satisfy an Elementary Education Requirement and one or more Awareness Areas simultaneously. Therefore, no additional semester credits are required to satisfy the two Awareness Areas.

2. MCCCD Additional Requirements

   a. Oral Communication
      Satisfied by COM225 taken for Literacy and Critical Inquiry Requirement
   b. Critical Reading
      CRE101 or exemption by testing

II. Elementary Education Requirements

A total of 25 semester credits are required to satisfy the Elementary Education Requirements.

A. Education Foundations

Complete the following courses to satisfy the Education Foundations requirements:

EDU220 Introduction to Serving English Language Learners (ELL)
EDU221 Introduction to Education
EDU222 Introduction to the Exceptional Learner
EDU230 Cultural Diversity in Education
MAT256 Investigating Quantity: Number, Operations and Numeration Systems
MAT257 Investigating Geometry, Probability and Statistics

B. Restricted Electives

A total of 5 semester credits are required to satisfy the Restricted Electives. Courses must transfer to all public Arizona universities as Elective Credit, Departmental Elective, or Equivalent to a university course as indicated in the Arizona Course Equivalency Guide in effect when the course is taken. Courses identified as Non-transferable in the Arizona Course Equivalency Guide cannot be used to satisfy this requirement. Content Area Electives

Select 5 credits from the following:
- Any ARH, ART, CIS, ECN, BPC, ENG, ENH, GCU, GPH, HIS, MHL, MTC, POS, THF, THE, THP prefixed course(s)
- Any EDU prefixed course(s) (except EDU250)
- Any MAT (courses numbered higher than 142 except MAT256 and MAT257)
- Any Foreign Language course(s)
- Any Natural Science course(s)
- CFS/ECH176 Child Development
- CFS205 Human Development
- EED215 Early Learning: Heath, Safety, Nutrition and Fitness
- AAA/CPD115 Creating College Success

AAEE Total Credits: 60-63

NOTE: The following courses meet the state teacher certification requirement for United States and Arizona Constitutions:

United States—HIS103, POS110, POS220, POS222, or GCU/POS113
Arizona—POS220, POS221, or GCU/POS113
ASSOCIATE IN APPLIED SCIENCE
GENERAL EDUCATION REQUIREMENTS

Purpose of the Degree
The Maricopa County Community College District Associate in Applied Science (AAS) degree is recommended for students who wish to gain a depth of technical expertise by completing an occupational program presented in the college catalog. Students should consult this catalog to determine specific program requirements.

Academic Policies that Govern the AAS degree:

- Requires 60 or more credits numbered 100 or above and includes credits or the equivalent in the General Education Core areas and credits in the Distribution areas. AAS degree requirements follow with the use of a diagonal character (/) between course numbers to signify options. An asterisk (*) following the course number defines requirements with an effective begin term of spring;
- Requires grades as listed for specific areas such as the General Education Core where a minimum grade of “C” is required. See specific AAS occupational degree for specific program grade requirements;
- Follows the graduation policies within the general catalog;
- Includes both courses and their modular equivalents, either the course or the modular equivalents will satisfy the Associate in Applied Science requirements.
- Requires at least 12 semester credit hours earned at the college awarding the AAS degree. The 12 hours in the AAS degree curricula may be in the Required Courses area and/or Restricted Electives courses. Courses from the General Education Core and Distribution area are excluded.
- Shared Programs are programs offered at multiple colleges but not available at all colleges. The requirements are identical at all the colleges offering the program.
- A shared program requires a minimum of six credit hours from the total program requirements to be completed with a grade of “C” or better at the college awarding the certificate or degree. For those shared programs with less than six credit hours, the total hours for the program must be completed at the college awarding the certificate. The minimum of six credit hours in the certificate or degree curricula may be in the Required Courses area and/or the Restricted Electives. Courses from the General Education Core and Distribution areas are excluded;
- The exception is the Nursing program. Students must apply for graduation from the college where they have successfully completed Block 4 of the Associate in Applied Science in Nursing.
- Requires completion of General Education courses as indicated in the General Education Requirements for the Associate in Applied Science degree from the Maricopa County Community College District, or completion of a curriculum as stated in the catalog;
- Accepts one of the courses that is cross-referenced with other courses;

GENERAL EDUCATION CORE:
(15 credits - grade of “C” or better)
Demonstrate college-level skills in the following areas:
First-Year Composition (6 credits)
  ENG English [101/107] & [102/108/111]
Oral Communication (3 credits)
  COM Communication 100/100AA & 100AB & 100AC/110/110AA & 110AB &110AC/225/230
Critical Reading (3 credits)
  CRE Critical Reading 101/111/Equivalent as indicated by assessment
Mathematics (3 credits)
  MAT Mathematics 103AA&103AB/112/120/121/122/122AA/122AB/122AC/140/141/142/150/151/151AA/
  276/277/Equivalent course/Satisfactory completion of a higher level mathematics course.

GENERAL EDUCATION DISTRIBUTION AREAS:
(9-10 credits)
Humanities, Arts and Design (2-3 credits)
Students are encouraged to choose courses from more than one discipline.
  AHU Arabic Humanities 245
  AIS American Indian Studies 213
  AJS Administration of Justice Studies 123
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ARH  Art Humanities Any ARH Course(s)
ASB  Anthropology 211/214/220/222/223/253
CCS  Chicana and Chicano Studies 101
CNS  Construction 101
COM  Communication 241
DAH  Dance Humanities 100/201/250/255
EDU  Education 291/292/294
ENG  English 200/213/218
ENH  English Humanities Any ENH Course(s)(except 250)
FRE  French 265
HCR  Health Care Related 210
HIS  History 101/102/103/108/110/111/113/114/203/212/251/252/275
HUM  Humanities Any HUM course(s)
     (except 120, 225)
INT  Interior Design 115/120/225
LAT  Latin 201/202
MHL  Music: History/Literature 140/143/145/146/153/155/194/204/241/242/295
PHI  Philosophy Any PHI Course(s)
REL  Religious Studies Any REL Course(s)
SLC  Studies in Language & Culture 201
SPA  Spanish 241/242/265/266
SPH  Spanish Humanities 241/ 245
SSH  Sustainability/Social Sciences and
     Humanities 111
STO  Storytelling 292/294
TCM  Telecommunications 107
THE  Theater 111/206/220
THF  Theatre and Film 205/210
THP  Theater Performance/Production 241
WST  Women's Studies 209/284/285/290

Social-Behavioral Sciences (3 credits)
Students are encouraged to choose courses from more than one discipline.
AFR  African American Studies 202
AIS  American Indian Studies 101/140/141/160
AJS  Administration of Justice Studies 101/200/225/258/259/270
ASB  Anthropology 100/102/202/211/222/223/226/230/235/252
ASM  Anthropology 104/275
CFS  Child/Family Studies 112/157/159/176/205/235/259
COM  Communications 100/100AA &100AB&100AC/110/110AA&110AB & 110AC/ 163/230/250/263
ECH  Early Childhood Education 176
ECN  Economics Any ECN course(s)
EDU  Education 221/222
EED  Early Education 200/205/222
EMT  Emergency Medical Technology 258
ENG  English 213
FOR  Forensic Science 275
FSC  Fire Science 258
FUS  Future Studies 101
GCU  Cultural Geography 102/113/121/122/141/221
HES  Health Science 100
HIS  History Any HIS course(s)
     (except 111,170, 251, 252, 253, 254)
HON  Honors 201
IBS  International Business 109
MCO  Mass Communications 120
PAD  Public Administration 200
ASSOCIATE IN BUSINESS (ABUS) DEGREE GENERAL REQUIREMENTS (GR)

Description
The Maricopa County Community College District Associate in Business General Requirements (ABus GR) degree requires a total of 62-63 semester credits for the program of study. The degree has three major components:

I. MCCCD General Education, which includes Arizona General Education Curriculum for Business (AGEC-B),

II. Common Lower Division Program Requirements

III. General Electives.

Purpose of the Degree
The ABus GR degree is designed for students who plan to transfer to Arizona's public universities into majors that articulate with the Associate in Business General Requirements pathway and for students who plan to complete lower division course work toward a baccalaureate program at other degree granting institutions. All business majors except Computer Information Systems should follow the ABus GR pathway. Computer Information Systems majors should follow the Associate in Business Special Requirements pathway.
Generally, the degree transfers as a block without loss of credit to Arizona’s public universities and other institutions with district-wide articulation agreements. In most cases, courses used to satisfy the MCCCD Associate in Business General Requirements will apply to university graduation requirements of the university major for which the ABus GR was designed.

Academic Policies that Govern the Associate in Business General Requirements Degree:

- Requires 62-63 semester credits in courses numbered 100 and above to be completed with a grade of “C” or better. Credit units transferred from outside of the district need to be at a grade of “C” or better. A grade of “C” equals 2.0 on a 4.0 grading scale or equivalent. On an exception basis, P-grades may be allowed in the AGEC for credit transferred if documentation collected by the community college indicates that the P-grade issued was the only option for the student and the P-grade is a “C” or better. The P-grade exception does not apply to credits awarded by AGEC granting/receiving institutions;
- Credit received through prior learning assessment or credit by evaluation is transferable within the Maricopa Community Colleges but is not necessarily transferable to other colleges and universities. No more than 20 semester credit hours may be applied toward AGEC.
- Uses the following policies to help students complete the required Core and Awareness Areas in AGEC B without exceeding the 35 semester credits
  - Courses can satisfy a Core Area and one or two Awareness Areas simultaneously.
  - A course cannot be used to satisfy more than one Core Area requirement.
  - Uses the following policies to help students complete the program requirements at a minimum of 62 semester credits but not more than 63 semester credits:
    - Courses can satisfy multiple areas within the degree simultaneously (AGEC B Core Area, AGEC B Awareness Area, and/or Common Lower Division Program Requirements)
    - Follows the general education policy below:
      - General Education Designations (example: (FYC), [SB], [HU], etc.)
    - Effective Fall 2000 the course evaluation and/or general education designation as listed in the Arizona CEG (Course Equivalency Guide) within AZ Transfer is valid for the term in which the student is awarded credit on the transcript. A course evaluation and/or general education designation may be subject to change. Given that curriculum is dynamic at both MCCCD and the institutions to which MCCCD students transfer, students have the option to petition for general education evaluations and/or general education designations.
    - Requires courses that transfer as an equivalent course, departmental elective credit (XXXXDEC), or general elective credit (Elective) at all Arizona public universities according to the Arizona Course Equivalency Guide (CEG) within AZ Transfer. The course evaluation and/or general education designation as listed in AZ Transfer is valid for the term in which the student is awarded credit on the transcript
    - Follows the graduation policies within the general catalog
    - Includes both courses and their modular equivalents, either the course or the modular equivalents will satisfy the Associate in Business General Requirements
    - Accepts one of the courses that is cross-referenced with other courses
    - Provides for exemption from Arizona university admission requirements for students who complete the ABus GR degree from a regionally accredited post-secondary institution with a minimum 2.0 on a 4.0=A scale for Arizona residents and a minimum 2.5 on a 4.0=A scale for non-residents.

Degree Requirements

The 62-63 semester credits required for the Associate in Business General Requirements follow. View specific course information via the following website: HTTPS://ASA.MARICOPA.EDU/DEPARTMENTS/CENTER-FOR-CURRICULUM-TRANSFER-ARTICULATION, click on the AGEC link; select Maricopa Community College District or any of the Maricopa Community Colleges; click on the appropriate AGEC A, B, S, or AGEC Matrix. The lists identify the courses in alpha-order by prefix as well as the different Core Areas and Awareness Areas where the course will apply.

I. MCCCD General Education

A. MCCCD AGEC B

1. Core Areas: ........................................................................................................................................... 35
   a. First-Year Composition (FYC) ......................................................................................................... 6
   b. Literacy and Critical Inquiry [L] .................................................................................................... 3
   c. Mathematical Studies [MA/CS] .................................................................................................... 6

To complete the Mathematical Studies requirement select one course to satisfy Mathematics [MA] B and a second course from Computer/Statistics/Quantitative Applications [CS].

1. Mathematics [MA] B (3 credits)
   MAT212, Brief Calculus, or a higher level mathematics course AND
   CIS105 [CS] Survey of Computer Information Systems

d. Humanities, Arts and Design [HU]........................................................................................................................... 6
   Students are encouraged to choose course work from more than one discipline for a total of six semester credits.

e. Social-Behavioral Sciences [SB]........................................................................................................................... 6
   Students are encouraged to choose course work from more than one discipline for a total of six semester credits.

f. Natural Sciences [SQ/SG]..........................................................................................................................................8
   To complete the Natural Sciences requirement: Select four (4) semester credits of [SQ] and four (4) semester credits of [SG] for a total of (8) semester credits, OR eight (8) semester credits of [SQ].
   Students cannot take eight (8) semester credits of [SG] to meet the Natural Sciences requirement.
   Note: Students transferring to ASU in Accountancy should take two of the following courses in meeting the general education requirements: a transfer course in Sociology, Psychology, COM230 or COM225. If students do not take these prior to transfer, they may need to take additional hours to meet ASU graduation requirements.
   The lecture course(s) selected for Natural Sciences must include or be accompanied by the corresponding laboratory course. The lecture and corresponding laboratory course(s) may carry separate credit. Students should consult with an advisor for appropriate course selection. Students should also access the AZ Course Equivalency Guide (CEG) within AZ Transfer for information on equivalencies.

2. Awareness Areas
   Students must satisfy two Awareness Areas: Cultural Diversity in the United States [C] and either Global Awareness [G] or Historical Awareness [H]. However, it is not necessary for students to exceed thirty-five semester credits to complete the Awareness Areas because courses can satisfy a Core Area and one or two Awareness Areas simultaneously. Therefore no additional semester credits are required to satisfy the two Awareness Areas.
   Cultural Diversity in the United States [C] AND Global Awareness [G] OR
   Historical Awareness [H]

II. Common Lower Division Program Requirements: ............................................................................................ 27
   A total of 27-28 credits are required to satisfy the Common Lower Division Program Requirements. However, if students select courses that simultaneously satisfy multiple areas of the degree, then the number of semester credits required for Common Lower Division Program Requirements is reduced. Additional semester credits may be required in General Electives to complete the minimum 62–63 total program semester credits. Complete the following:
   Accounting:
   ACC111 Accounting Principles I AND
   ACC230 Uses of Accounting Information I AND
   ACC240 Uses of Accounting Information II OR
   *ACC211 Financial Accounting AND
   ACC212 Managerial Accounting.....................................................................................................................6

*MCCKD ACC111 and ACC112 together are equivalent to ACC211.

   ECN211 [SB] Macroeconomic Principles.................................................................................................................3
   ECN212 [SB] Microeconomic Principles................................................................................................................3
   GBS205 Legal, Ethical, Regulatory Issues in Business .........................................................................................3
   GBS221 [CS] Business Statistics............................................................................................................................3
   Quantitative Methods..............................................................................................................................................3
   GBS220 Quantitative Methods in Business OR
   *MAT217 Mathematical Analysis for Business OR
   *MAT218 Mathematical Analysis for Business
   *Students planning to attend ASU W.P. Carey will be required to take MAT217 or MAT218

   Business Electives ..............................................................................................................................................6
   Select from the following options:
   CIS114DE Excel Spreadsheet
   CIS133DA Internet/Web Development Level I
   CIS162AD C#: Level I
   GBS151 Introduction to Business
ASSOCIATE IN BUSINESS (ABUS) DEGREE
SPECIAL REQUIREMENTS (SR)

Description
The Maricopa County Community College District Associate in Business, Special Requirements (ABus SR) degree requires a total of 62-63 semester credits for the program of study. The degree has three major components:

I. MCCCD General Education which includes the Arizona General Education Curriculum for Business (AGEC B),
II. Common Lower Division Program Requirements,
III. General Electives.

Purpose of the Degree
The ABus SR degree is designed for Computer Information Systems majors who plan to transfer to Arizona’s public universities and for students who plan to complete lower division course work toward a baccalaureate program at other degree granting institutions. The Associate in Business General Requirements (ABus GR) is designed for all other business majors. Additional information on academic majors at the Arizona public universities can be accessed via the following web site: WWW.AZTRANSFER.COM/

Generally, the degree transfers as a block without loss of credit to Arizona’s public universities and other institutions with district-wide articulation agreements. In most cases, courses used to satisfy the MCCCD Associate in Business Special Requirements may apply to university graduation requirements of the university major for which the ABus SR was designed.

Academic Policies that Govern the Associate in Business Special Requirements Degree:
• Requires 62-63 semester credits in courses numbered 100 and above to be completed with a grade of “C” or better. Credit units transferred from outside of the district need to be at a grade of “C” or better. A grade of “C” equals 2.0 on a 4.0 grading scale or equivalent. On an exception basis, P-grades may be allowed in the AGEC for credit transferred if documentation collected by the community college indicates that the P-grade issued was the only option for the student and the P-grade is a “C” or better. The P-grade exception does not apply to credits awarded by AGEC granting/receiving institutions;
Credit received through prior learning assessment or credit by evaluation is transferable within the Maricopa Community Colleges but is not necessarily transferable to other colleges and universities. No more than 20 semester credit hours may be applied toward AGEC.

Uses the following policies to help students complete the required Core and Awareness Areas in AGEC B without exceeding the 35 semester credits.

Courses can satisfy a Core Area and one or two Awareness Areas simultaneously.

A course cannot be used to satisfy more than one Core Area requirement.

Uses the following policy to help students complete the program requirements at a minimum of 62 semester credits but not more than 63 semester credits:

Courses can satisfy multiple areas within the degree simultaneously (AGEC B Core Area, AGEC B Awareness Area, and/or Common Lower Division Program Requirements)

Follows the general education policy below:

- General Education Designations (example: (FYC), [SB], [HU], etc.)
- Effective Fall 2000 the course evaluation and/or general education designation, as listed in the Arizona CEG (Course Equivalency Guide) within the AZTranfer is valid for the term in which the student is awarded credit on the transcript. A course evaluation and/or general education designation may be subject to change. Given that curriculum is dynamic at both MCCCD and the institutions to which MCCCD students transfer, students have the option to petition for course evaluations and/or general education designations.

- Requires courses that transfer as an equivalent course, departmental elective credit (XXXXDEC), or general elective credit (Elective) at all Arizona public universities according to the Arizona Course Equivalency Guide (CEG). The course evaluation and/or general education designation as listed in AZCAS is valid for the term in which the student is awarded credit on the transcript.

- Follows the graduation policies within the general catalog.
- Includes both courses and their modular equivalents, either the course or the modular equivalents will satisfy the Associate in Business Special Requirements.
- Accepts one of the courses that is cross-referenced with other courses.
- Provides for exemption from Arizona university admission requirements for students who complete the ABus SR degree from a regionally accredited post-secondary institution with a minimum 2.0 on a 4.0=A scale for Arizona residents and a minimum 2.5 on a 4.0=A scale for non-residents.

Degree Requirements

The 62-63 semester credits required for the Associate in Business Special Requirements follow. View specific course information via the following website:

https://asa.maricopa.edu/departments/center-for-curriculum-transfer-articulation

Click on the AGEC link; select Maricopa Community College District or any of the Maricopa Community Colleges Click on the appropriate AGEC A, B, S, or AGEC Matrix; the lists identify the courses in alpha-order by prefix as well as the different Core Areas and Awareness Areas where the course will apply.

I. MCCCD General Education

A. MCCCD AGEC B

1. Core Areas: .................................................................................................................................................. 35
   a. First-Year Composition (FYC) .................................................................................................................. 6
   b. Literacy and Critical Inquiry [L] .............................................................................................................. 3
   c. Mathematical Studies [MA/CS] .................................................................................................................. 6

To complete the Mathematical Studies requirement select one course to satisfy the Mathematics [MA] B and a second course from Computer/Statistics/Quantitative Applications [CS]

1. Mathematics [MA] B (3 credits)
   MAT212, Brief Calculus, or a higher level mathematics course AND
2. Computer/Statistics/Quantitative Applications [CS]
   CIS105 [CS] Survey of Computer Information Systems
   d. Humanities, Arts and Design [HU] .......................................................................................................... 6
   Students are encouraged to choose course work from more than one discipline for a total of six semester credits.
   e. Social-Behavioral Sciences [SB] .............................................................................................................. 6
   Students are encouraged to choose course work from more than one discipline for a total of six semester credits.
   f. Natural Sciences [SQ/SG] ......................................................................................................................... 8

To complete the Natural Sciences requirement:
Select four (4) semester credits of [SQ] and four (4) semester credits of [SG] for a total of eight.
(8) semester credits, OR
eight (8) semester credits of [SQ].

Students cannot take eight (8) semester credits of [SG] to meet the Natural Sciences requirement. The lecture course(s) selected for Natural Sciences must include or be accompanied by the corresponding laboratory course. The lecture and corresponding laboratory course(s) may carry separate credit. Students should consult with an advisor for appropriate course selection. Students should also access the AZ Course Equivalency Guide (CEG) within the AZ Transfer (AZCAS) for information on equivalencies.

2. Awareness Areas:
   Students must satisfy two Awareness Areas: Cultural Diversity in the United States [C] and either Global Awareness [G] or Historical Awareness [H]. However, it is not necessary for students to exceed thirty-five semester credits to complete the Awareness Areas because courses can satisfy a Core Area and one or two Awareness Areas simultaneously. Therefore no additional semester credits are required to satisfy the two Awareness Areas. Cultural Diversity in the United States [C] AND Global Awareness [G] OR Historical Awareness [H]

II. Common Lower Division Program Requirements ............................................................................................. 27
A total of 27-28 credits are required for the Common Lower Division Program Requirements. Common courses meeting general education areas are noted with the general education designations encased in brackets. Complete the following:

Accounting:
- ACC111 Accounting Principles I AND
- ACC230 Uses of Accounting Information I AND
- ACC240 Uses of Accounting Information II OR
- *ACC211 Financial Accounting AND
- ACC212 Managerial Accounting ................................................................. 6
- *MCCCD ACC111 and ACC112 together are equivalent to ACC211.

Programming I:
- CIS162AD C#: Level .......................................................................................... 3

Programming II:
- CIS250 Management of Information Systems .................................................. 3
- GBS205 Legal, Ethical, and Regulatory Issues in Business ................................. 3
- GBS221 [CS] Business Statistics ...................................................................... 3
- ECN211 [SB] Macroeconomic Principles ......................................................... 3
- ECN212 [SB] Microeconomic Principles .......................................................... 3

Quantitative Methods 3
- GBS220 Quantitative Methods in Business OR
- *MAT217 Mathematical Analysis for Business OR
- *MAT218 Mathematical Analysis for Business

*Students planning to attend ASU W.P. Carey will be required to take MAT217 or MAT218

III. General Electives .................................................................................................................................................... 0-6
Select courses to complete a minimum of 62 semester credits but no more than a total of 63 semester credits for the program. General Electives semester credits may be necessary if courses selected for the degree satisfy multiple areas.

Maricopa courses and external courses evaluated as Maricopa equivalents or departmental electives (for example, HISELC, MATELC), that are numbered 100 level or higher, and completed with a grade of “C” or higher, may be applied in the elective area, regardless of potential transferability to other institutions. It is recommended, however, that students planning to transfer to a baccalaureate-granting institution meet elective requirements with courses that are transferable and applicable to their intended university degree. For appropriate course selection, students should consult with an advisor.

ABus SR Total Credits: ...........................................................................................................................................62-63
ARIZONA GENERAL EDUCATION CURRICULUM  
(AGEC) - A, B, S

Description
The Maricopa County Community College District Arizona General Education Curriculum (MCCCD AGEC) is a 35-38 semester-credit general education certificate that fulfills lower-division general education requirements for students planning to transfer to any Arizona public community college or university. Generally, the MCCCD AGEC transfers as a block without loss of credit.

In most cases, all courses used to satisfy the MCCCD AGEC will apply to graduation requirements of the university major for which the AGEC was designed.

For students planning to pursue an associate degree or transfer to an Arizona public community college or university, the AGEC A is a component of the MCCCD Associate in Arts, the AGEC B is a component of the MCCCD Associate in Business, and the AGEC S is a component of the MCCCD Associate in Science.

Purpose of the ACECs
There are three types of MCCCD ACECs. They are the AGEC A, the AGEC B, and the AGEC S. Designed to articulate with different academic majors, their requirements vary accordingly. Additional information on academic majors at the Arizona public universities can be accessed via the following website: www.aztransfer.com

1. The AGEC A is designed to satisfy requirements in many liberal arts majors as well as other majors that articulate with the Associate in Arts (e.g., social sciences, fine arts, humanities). AGEC A requires a minimum of college mathematics or college algebra to satisfy the Mathematics [MA] requirement. AGEC A Mathematics requirement is less stringent than the AGEC B and AGEC S. AGEC A and AGEC B Natural Sciences requirements are less stringent than AGEC S.

2. The AGEC B is designed to satisfy requirements in business majors that articulate with the Associate in Business. AGEC B requires a minimum of brief calculus to satisfy the Mathematics [MA] requirement.

3. The AGEC S is designed to satisfy requirements in majors with more prescriptive mathematics and mathematics-based science requirements. AGEC S articulates with the Associate in Science. AGEC S requires a minimum of the first course in a calculus sequence to satisfy the Mathematics [MA] requirement, and a minimum of eight credits of either university chemistry, university physics or general biology to satisfy the Natural Sciences [SQ/SG] requirement. In addition, students must select six to eight additional credits of math and/or science appropriate to the major.

Academic Policies that Govern the AGEC A, B, S:

• Requires 35-38 semester credits in courses numbered 100 and above to be completed with a grade of “C” or better. Credit units transferred from outside of the district need to be at a grade of “C” or better. A grade of “C” equals 2.0 on a 4.0 grading scale or equivalent. On an exception basis, P-grades may be allowed in the AGEC for credit transferred if documentation collected by the community college indicates that the P-grade issued was the only option for the student and the P-grade is a “C” or better. The P-grade exception does not apply to credits awarded by AGEC granting/receiving institutions;

• Credit received through prior learning assessment or credit by evaluation is transferable within the Maricopa Community Colleges but is not necessarily transferable to other colleges and universities. No more than 20 semester credit hours may be applied toward AGEC;

• Uses the following policies to help students complete the required Core and Awareness Areas without exceeding the 35-38 semester credits

  1. Courses can satisfy a Core area and one or two Awareness areas simultaneously.
  2. A course cannot be used to satisfy more than one Core area requirement in the AGEC A and B.
  3. A course can be used to satisfy the L and SB or L and HU requirements simultaneously in the Core area for the AGEC S.

• Follows the general education policy below:

  General Education Designations (example: (FYC), [SB], [HU], etc.)

Effective fall 2000 the course evaluation and/or the general education designation as listed in the Arizona CEG (Course Equivalency Guide) within the AZ Transfer is valid for the term in which the student is awarded credit on the transcript. A course evaluation and/or general education designation may be subject to change. Given that curriculum is dynamic at both MCCCD and the institutions to which MCCCD students transfer, students have the option to petition for course evaluations and/or general education designations.
• Require courses that transfer as equivalent courses, departmental elective credit (XXXXDEC), or general elective credit (Elective) at all Arizona public universities according to the Arizona CEG (Course Equivalency Guide). The course evaluation and/or general education designation as listed in AZ Transfer is valid for the term in which the student is awarded credit on the transcript;
• Require that a minimum of 12 semester credits of course work be taken at any of the MCCCD colleges;
• Include both courses and their modular equivalents, either the course or the modular equivalents will satisfy the AGEC;
• Accept one of the courses that is cross-referenced with other courses;
• Provide for exemption from Arizona university admission requirements for: Students who complete the AGEC A, AGEC B, or AGEC S with a minimum 2.5 on a 4.0=A scale, or students who complete an associate or higher degree from a regionally accredited post-secondary institution with a minimum 2.0 on a 4.0=A scale for Arizona residents and a minimum 2.5 on a 4.0=A scale for non-residents.

AGEC Requirements
The 35-38 semester credits required for each of the three AGECs follow. View specific course information via the following website: https://asa.maricopa.edu/departments/center-for-curriculum-transfer-articulation by clicking on the statewide AGEC link.

The AGEC A, B, S, and AGEC Matrix identify the courses in alpha-order by prefix as well as the different Core Areas and Awareness Areas where the course will apply.

A. Core Areas:.......................................................................................................................................................... 35
1. First-Year Composition (FYC).......................................................................................................................................... 6
2. Literacy and Critical Inquiry [L] .......................................................................................................................................... 0-3
   AGEC A & AGEC B: Select a course that satisfies the [L] requirement (3)
   AGEC S: Recommend selecting a course that satisfies (L and SB) or (L and HU), or (L and COM), or (L and CRE101) requirements simultaneously.
3. Mathematical Studies [MA/CS]........................................................................................................................................... 4-6
   The Mathematics [MA] requirement differs for AGEC A, AGEC B, and AGEC S.
   To complete the Mathematical Studies requirement for AGEC A and AGEC B, select one course to satisfy Mathematics [MA] and a second course from Computer/Statistics/Quantitative Applications [CS]. AGEC S does not require the [CS] area.
   AGEC A requires;
   a. Mathematics [MA] (3 credits) AND
      (Requires a course in college mathematics (MAT140, MAT141, MAT142) or college algebra (MAT150, MAT151, MAT152) or pre-calculus (MAT187) or any other mathematics course designated with the MA general education value and for which college algebra is a pre-requisite.)
   b. Computer/Statistics/Quantitative Applications [CS] (3 credits)
   AGEC B requires;
   a. Mathematics [MA] (3 credits) AND
      (Requires a course in brief calculus (MAT212) or a higher level mathematics course (MAT220, or MAT221 or any course for which these courses are prerequisites).
   b. Computer/Statistics/Quantitative Applications [CS] (3 credits) CIS105 Survey of Computer Information Systems
   AGEC S requires;
   a. Mathematics [MA] (4 credits) AND
      Requires a calculus course (MAT220 or MAT221) OR any mathematics course for which MAT220 or MAT221 are prerequisites
4. Humanities, Arts and Design [HU]........................................................................................................................................... 6
   AGEC A and AGEC B: Students are encouraged to choose courses from more than one discipline for a total of six semester credits.
   AGEC S: Recommend selecting a course that satisfies (L and HU) requirements simultaneously.
5. Social-Behavioral Sciences [SB]........................................................................................................................................... 6
   AGEC A and AGEC B: Students are encouraged to choose courses from more than one discipline for a total of six semester credits.
   AGEC S: Recommend selecting a course that satisfies (L and SB) requirements simultaneously.
6. Natural Sciences [SQ/SG]

To complete the Natural Sciences requirement:
AGEC A and AGEC B require four (4) semester credits of [SQ] and four (4) semester credits of [SG] for a total of eight (8) semester credits, OR eight (8) semester credits of [SQ]. Students cannot take eight (8) semester credits of [SG] to meet the Natural Sciences requirement.
The Natural Sciences requirement differs for AGEC S. AGEC S requires eight (8) semester credits of either university chemistry or eight (8) semester credits of university physics or eight (8) semester credits of general biology appropriate to the major.
The lecture course(s) selected for Natural Sciences must include or be accompanied by the corresponding laboratory course. The lecture and corresponding laboratory course(s) may carry separate credit. Students should consult with an advisor for appropriate course selection. Students should also access the AZ Course Equivalency Guide (CEG) within the AZ Transfer for information on equivalencies.

7. Options (Subject based on major) (AGEC S)

Students completing AGEC S, through careful selection of courses that meet the other major or pre-requisite requirements for Science degrees, will meet this requirement. Using a transfer guide, select Mathematics courses above Calculus, and/or Science courses from: Astronomy, Biology, Botany, Chemistry, Environmental Science, Geology, Physical Geography, Physics, Zoology.

B. Awareness Areas:
Students must satisfy two Awareness areas: Cultural Diversity in United States [C] and either Global Awareness [G] or Historical Awareness [H]. However, it is not necessary for students to exceed thirty-five to thirty-eight semester credits to complete any of the three MCCCD AGECs because courses can satisfy a Core area and one or two Awareness areas simultaneously. Therefore, no additional semester credits are required to satisfy the two Awareness areas.

1. Cultural Diversity in the United States [C] AND
2. Global Awareness [G] OR
3. Historical Awareness [H]

AGEC Area Requirements Descriptions/Definitions

CORE AREAS

First-Year Composition (FYC)
Courses must be completed with a grade of “C” or better in the First-Year Composition Core area. Courses must emphasize skills necessary for college-level learning and writing skills.

Literacy and Critical Inquiry [L]
Courses must be completed with a grade of “C” or better in the Literacy and Critical Inquiry Core area. In the [L] course, typically at the sophomore level, students gather, interpret, and evaluate evidence and express their findings in writing or speech. This course includes a series of graded written or spoken formal assignments. For AGEC S, students will select a course that satisfies both Literacy and Social-Behavioral Sciences or Literacy and Humanities, Arts and Design requirements simultaneously.

Literacy is defined broadly as communicative competence in written and oral discourse; critical inquiry is defined as the gathering, interpreting, and evaluating of evidence. Building on the proficiency attained in traditional First-Year Composition courses, the Literacy and Critical Inquiry requirement helps students sustain and extend their ability to reason critically and communicate clearly through language.

Mathematical Studies
Courses must be completed with a grade of “C” or better in the Mathematical Studies Core Area. One course must be selected from Mathematics [MA]. In AGEC A and AGEC B, a second course must be selected from Computer/Statistics/Quantitative Applications [CS].
The Mathematical Studies requirement is intended to ensure that students have skill in basic mathematics, can use mathematical analysis in their chosen fields, and can understand how computers make mathematical analysis more powerful and efficient.

First, the acquisition of essential skill in basic mathematics requires the student to complete a course in college algebra or to demonstrate a higher level of skill by completing a course for which college algebra is a prerequisite.

Second, the real-world application of mathematical reasoning requires the student to take a course in statistics or the use of quantitative analysis to solve problems of substance.
Third, the use of the computer to assist in serious analytical work is required. Computers are widely used to study the implications of social decisions or to model physical systems.

**Mathematics [MA] AGEC A**
The AGEC A Mathematics Core area requires a course in college mathematics, college algebra, pre-calculus, or any other mathematics course for which college algebra is a prerequisite.

**Mathematics [MA] AGEC B**
The AGEC B Mathematics Core area requires a course in Brief Calculus or a higher level mathematics course.

**Mathematics [MA] AGEC S**
The AGEC S Mathematics Core area requires the first course in the calculus sequence or any mathematics course for which that course is a prerequisite.

**Computer/Statistics/Quantitative Applications [CS]**
AGEC A, B [CS] requires: courses that emphasize the use of statistics or other mathematical methods in the interpretation of data and in describing and understanding quantitative relationships, courses that involve the use of computer programming languages or software in the development of skills in analytical thinking. AGEC B specifies CIS105 as the course that meets the [CS] requirement.

**Humanities, Arts and Design [HU]**
Courses must be completed with a grade of “C” or better in the Humanities, Arts and Design Core area. Students are encouraged to choose coursework from more than one discipline.
The study of the humanities and the disciplines of art and design deepen awareness of the complexities of the human condition and its diverse histories and cultures. Courses in the humanities are devoted to the production of human thought and imagination, particularly in philosophical, historical, religious and artistic traditions. Courses with an emphasis in arts and design are devoted to the study of aesthetic experiences and the processes of artistic creation. They may also feature a design emphasis in which material culture is studied as a product of human thought and imagination.

**Social-Behavioral Sciences [SB]**
Courses must be completed with a grade of “C” or better in the Social-Behavioral Sciences Core area. Students are encouraged to choose course work from more than one discipline.
The Social-Behavioral Sciences Core area provides scientific methods of inquiry and empirical knowledge about human behavior, both within society and within individuals. The forms of study may be cultural, economic, geographic, historical, linguistic, political, psychological, or social. The courses in this area address the challenge of understanding the diverse natures of individuals and cultural groups who live together in a world of diminishing economic, linguistic, military, political, and social distance.

**Natural Sciences [SQ/SG]**
Courses must be completed with a grade of “C” or better in the Natural Sciences Core area.
Courses in the Natural Sciences Core area help the student to develop an appreciation of the scope and limitations of scientific capability to contribute to the quality of society. This Core area emphasizes knowledge of methods of scientific inquiry and mastery of basic scientific principles and concepts, in particular those that relate to matter and energy in living and non-living systems. Firsthand exposure to scientific phenomena in the laboratory is important in developing and understanding the concepts, principles, and vocabulary of science. At least one of the two laboratory courses required in the Natural Sciences Core area must include an introduction to the fundamental behavior of matter and energy in physical or biological systems.

**Natural Sciences [SQ] A & B**
The AGEC A and B Natural Sciences Core area requires one laboratory course in natural sciences that includes a substantial introduction to the fundamental behavior of matter and energy in physical or biological systems.

**Natural Sciences [SG] A & B**
The AGEC A and B Natural Sciences Core area requires a second laboratory course in the natural sciences, for example, from anthropology, astronomy, biology, chemistry, experimental psychology, geology, microbiology, physical anthropology, physical geography, physics, plant biology.

**Natural Sciences S**
The AGEC S Natural Sciences Core area requires eight semester credits of either university chemistry or eight semester credits of university physics or eight semester credits of general biology appropriate to the major.

SQ = Natural Science-Quantitative
SG = Natural Science-General
Subject Options (for AGEC S)
Courses in the Subject Options area help the student to be prepared for specific majors in science. Students completing AGEC S, through careful selection of courses that meet the other major or pre-requisite requirements for Science degree, will meet this requirement. Using a transfer guide, courses would be selected from Mathematics courses above Calculus, and/or Science courses from: Astronomy, Biology, Botany, Chemistry, Environmental Science, Geology, Physical Geography, Physics, and Zoology.

Awareness Areas
Students must satisfy two Awareness areas: Cultural Diversity in U.S. and either Global Awareness or Historical Awareness. Courses can satisfy a Core area and one or two Awareness areas simultaneously. Therefore, no additional semester credits are required to satisfy the two Awareness areas.

Cultural Diversity in the United States [C]
The contemporary “culture” of the United States involves the complex interplay of many different cultures that exist side by side in various states of harmony and conflict. U.S. history involves the experiences not only of different groups of European immigrants and their descendants, but also of diverse groups of American Indians, Hispanic Americans, African Americans and Asian Americans-- all of whom played significant roles in the development of contemporary culture and together shape the future of the United States. At the same time, the recognition that gender, class, and religious differences cut across all distinctions of race and ethnicity offers an even richer variety of perspectives from which to view one. Awareness of cultural diversity and its multiple sources can illuminate the collective past, present, and future and can help to foster greater mutual understanding and respect.

The objective of the Cultural Diversity area requirement is to promote awareness of and appreciation for cultural diversity within the contemporary United States. This is accomplished through the study of the cultural, social, or scientific contributions of women and minority groups, examination of their experiences in the United States, or exploration of successful or unsuccessful interactions between and among cultural groups.

Global Awareness [G]
Human organizations and relationships have evolved from being family and village centered to the modern global interdependence that is apparent in many disciplines--for example, contemporary art, business, engineering, music, and the natural and social sciences. Many serious local and national problems are world issues that require solutions which exhibit mutuality and reciprocity. These problems occur in a wide variety of activities, such as food supply, ecology, health care delivery, language planning, information exchange, economic and social developments, law, technology transfer, and even philosophy and the arts. The Global Awareness Area recognizes the need for an understanding of the values, elements, and social processes of cultures other than the culture of the United States. The Global Awareness Area includes courses that recognize the nature of other contemporary cultures and the relationship of the American cultural system to generic human goals and welfare.

Courses that satisfy the global awareness option in the requirements are of one or more of the following types:

1. Area studies that are concerned with an examination of culture-specific elements of a region of the world;
2. The study of a non-English language;
3. Studies of international relationships, particularly those in which cultural change is facilitated by such factors as social and economic development, education, and the transfer of technology; and
4. Studies of cultural interrelationships of global scope such as the global interdependence produced by problems of world ecology.
Historical Awareness [H]
The Historical Awareness Area option in the requirements aims to develop a knowledge of the past that can be useful in shaping the present and future. Because historical forces and traditions have created modern life and lie just beneath its surface, historical awareness is an aid in the analysis of present-day problems. Also, because the historical past is a source of social and national identity, historical study can produce intercultural understanding by tracing cultural differences to their origins. Even the remote past may have instructive analogies for the present. The Historical Awareness Area consists of courses that are historical in method and content. In this area, the term “history” designates a sequence of past events or a narrative whose intent or effect is to represent such a sequence.

The requirement presumes that these are human events and that history includes all that has been felt, thought, imagined, said, and done by human beings. History is present in the languages, art, music, literature, philosophy, religion, and the natural sciences, as well as in the social science traditionally called history.

ASSOCIATE IN GENERAL STUDIES (AGS) DEGREE

Description
The Maricopa County Community College District Associate in General Studies (AGS) degree is recommended for students whose educational goals require flexibility. The AGS allows students to choose any elective courses numbered 100 or above to complete the degree. Therefore, this degree may be less appropriate for students who intend to transfer to a baccalaureate-granting institution. Students who demonstrate skills comparable to those in Critical Reading and/or Mathematics and/or Computer Usage may substitute acceptable elective courses to satisfy the total credits required for the degree.

Academic Policies That Govern the Associate in General Studies Degree:
- Requires a minimum of 60 semester credits in courses numbered 100 and above.
- AGS degree requirements follow with the use of a diagonal character (/) between course numbers to signify options. An asterisk (*) following the course number defines requirements with an effective begin term of spring;
- Requires grades as listed for specific areas such as the General Education Core where a minimum grade of “C” is required. Courses applied to other areas may be completed with a minimum grade of “D”;
- Uses the following policies for course(s) satisfying multiple program areas;
  1. A course can simultaneously satisfy one Core area and one Distribution area. Courses that meet this criterion are bold print and underscored in the Core areas and Distribution areas.
  2. A course cannot satisfy more than one Core area, even if it is approved for more than one Core area.
  3. A course cannot satisfy more than one Distribution area, even if it is approved for more than one Distribution area.
- Follows the graduation policies within the general catalog;
- Includes both courses and their modular equivalents; either the course or the modular equivalents will satisfy the Associate in General Studies;
- Accepts one of the courses that is cross-referenced with other courses;

Degree Requirements
GENERAL EDUCATION CORE
(16 CREDITS - GRADE OF “C” OR BETTER)

First-Year Composition (6 credits)
ENG English [101/107] & [102/108]

Oral Communication (3 credits)
COM Communication 100/100AA &100AB & 100AC/110/110AA & 110AB & 110AC/225/230

Critical Reading (3 credits)
CRE Critical Reading 101/Equivalent as indicated by assessment

Mathematics (3 credits)
Computer Usage (1 credit)
Computer-related course or demonstration of comparable computer skills. Additional courses may be approved by individual colleges. Students should contact their advisor for college-specific courses satisfying the requirement.

- ACC Accounting 115
- ADA Advertising Arts 169/175/177/183/283/283AA/289
- AJS Administration of Justice Studies 205
- AMS Automated Manufacturing System 150
- ARC Architecture 243/244/245
- ART Art 100/169/170/173/175/177/179/any 180 module/183/283/289
- BIO Biology 283
- BPC Business-Personal Computers Any BPC Course(s)
- CIS Computer Information Systems Any CIS Course(s) (except 159, 162, 162AC, 169, 183AA, 217AM, 259, 262)
- CSC Computer Science Any CSC Course(s) (except 200, 200AA, 200AB, 210, 210AA, 210AB)
- CTR Court Reporting 101/102
- DFT Drafting Technology 105AA/251/254AA/256AA
- ECH Early Childhood Education 238
- EEE Electrical Engineering 120
- ELE Electronic 131/181/241/243/245
- ELT Electronic Technology 131/241/243
- ENG English 100AE
- FON Food & Nutrition 100
- GBS General Business 221
- GIS Geographic Information Science 205/211
- GPH Physical Geography 220
- HRM Hotel Restaurant Management 126
- JRN Journalism 133
- LAS Paralegal Studies 229
- MAT Mathematics 206
- MET Manufacturing Technology 264
- MTC Music Theory/Composition 180/191
- NET Networking Technology 181
- OAS Office Automation Systems 111AA/111AB/113/119/130DK
- PSY Psychology 230
- SBS Small Business 211
- SWU Social Work 225
- TVL Travel Agent Technology 203
- VPT Video Production Technology 106

GENERAL EDUCATION DISTRIBUTION AREAS (28-29 CREDITS)

Humanities, Arts and Design (9 credits)
Students are encouraged to choose courses from more than one discipline.

- AHU Arabic Humanities 245
- AIS American Indian Studies 213
- AJS Administration of Justice Studies 123
- ARH Art Humanities Any ARH Course(s)
- ASB Anthropology 211/214/220/222/223/253
- CCS Chicana and Chicano Studies 101
- CNS Construction 101
- COM Communication 241
- DAH Dance Humanities 100/201/250/255
- EDU Education 291/292/294
- ENG English 200/213/218
- ENH English Humanities Any ENH Course(s) (except 250)
- FRE French 265
- HCR Health Care Related 210
- HIS History 101/102/103/108/110/111/113/114/203/212/251/252/275
Maricopa Community Colleges (MCCCD) General Education Curriculum 2017-2018

| HUM | Humanities Any HUM course(s) (except 120, 225) |
| INT | Interior Design 115/120/225 |
| LAT | Latin 201/202 |
| MHL | Music: History/Literature 140/143/145/146/153/155/194/204/241/242/295 |
| PHI | Philosophy Any PHI Course(s) |
| REL | Religious Studies Any REL Course(s) |
| SLC | Studies in Language & Culture 201 |
| SPA | Spanish 241/242/265/266 |
| SPH | Spanish Humanities 241, 245 |
| SSH | Sustainability/Social Sciences and Humanities 111 |
| STO | Storytelling 292/294 |
| TCM | Telecommunications 107 |
| THE | Theater 111/206/220 |
| THF | Theatre and Film 205/210 |
| THP | Theater/Performance/Production 241 |
| WST | Women's Studies 209/284/285/290 |

Social-Behavioral Sciences (9 credits)
Students are encouraged to choose courses from more than one discipline.

| AFR | African American Studies 202 |
| AIS | American Indian Studies 101/140/141/160 |
| AJS | Administration of Justice Studies 101/119/200/225/258/259/270 |
| ASB | Anthropology 100/102/202/211/222/223/226/230/235/252 |
| ASM | Anthropology 104/275 |
| CFS | Child/Family Studies 112/157/159/176/205/235/259 |
| COM | Communication 100/100AA&100AB&100AC/110/110AA&110AB&110AC/163/230/250/263 |
| ECH | Early Childhood Education 176 |
| ECN | Economics Any ECN Course(s) |
| EDU | Education 221/222 |
| EED | Early Education 200/205/222 |
| EMT | Emergency Medical Technology 258 |
| ENG | English 213 |
| FOR | Forensic Science 275 |
| FSC | Fire Science Technology 258 |
| FUS | Future Studies 101 |
| GCU | Cultural Geography 102/113/121/122/141/221 |
| HES | Health Science 100 |
| HIS | History any HIS Course(s) (except 111, 170, 251, 252, 253, 254) |
| HON | Honors 201 |
| IBS | International Business 109 |
| MCO | Mass Communications 120 |
| PAD | Public Administration 200 |
| POS | Political Science Any POS course(s) |
| REC | Recreation 120 |
| SBU | Society and Business 200 |
| SLC | Studies in Language & Culture 201 |
| SOC | Sociology Any SOC course(s) (except 143, 245, 253, 265, 270) |
| SSH | Sustainability/Social Sciences and Humanities 111 |
| SUS | Sustainability/Natural Sciences 110 |
| SWU | Social Work 102/171/250/258/292 |
| WED | Wellness Education 110 |
| WST | Women's Studies 100/161 |
| YAQ | Yaqui Indian History and Culture 100 |

Natural Sciences (7-8 credits)
Two lecture courses and one corresponding laboratory course are to be selected. The lecture and corresponding laboratory course(s) may carry separate credit. For appropriate course selection students should consult with an advisor.
Maricopa Community Colleges (MCCCD) General Education Curriculum 2017-2018

AGS Agricultural Science 164, 260
ASB Anthropology 231
ASM Anthropology 104/265/275
AST Astronomy 101&102/106&107/111/112/113/114
BIO Biology 100/101/102/105/107/108/109/111/145/149AF/149AH/149AK/149AL/149AM/149AN/ 156/156XT
160/181/181XT/182/201/202/205/241/245
CHM Chemistry 107&107LL/130&130LL/130AA/150/150AA/151/151AA/151LL/152AA/152&152LL/
154&154LL/230&230LL
ENV Environmental Sciences 101
FON Food and Nutrition 241&241LL
FOR Forensic Science 105/106/275
GLG Geology Any GLG course(s)
GPH Physical Geography 111/112&113/211/212&214/213&215
PHS Physical Science 110/120
PHY Physics 101/101AA/111/111AA/112/115/116/121/131
PSY Psychology 275/290AB/290AC

Literacy and Critical Inquiry (3 credits)
AIS American Indian Studies 213
BIO Biology 294
COM Communication 222/225/241
CPD Counseling and Personal Development 160
CRE Critical Reading 101
CUL Culinary Arts 223
DAH Dance Humanities 255
EDU Education 282AC
ENG English 111/200/215/216/217/218
ENH English Humanities 241/254/255
EXS Exercise Science 290
GBS General Business 233
GPH Physical Geography 267
HUM Humanities 225/250/251
IFS Information Studies 201
JRN Journalism 201/215/234
MCO Mass Communications 220
MHL Music: History/Literature 204
PHI Philosophy 103/106/218
POS Political Science 115
PSY Psychology 290AB/290AC
REL Religious Studies 203/205/207
THE Theater 220
THP Theater Performance/Production 241

Elective Courses (15-16 credits)
May select courses from prefixes already chosen for General Education Distribution requirements in order to

ASSOCIATE IN SCIENCE DEGREE (AS)

Description
The Maricopa County Community College District Associate in Science degree requires 60-64 semester credits for the
program of study. The degree includes the following components:

I. General Education:
Arizona General Education Curriculum for Science (AGEC-S) MCCCD Additional Requirements
II. General Electives

Purpose of the Degree
The Associate in Science degree is designed for students planning to transfer to four-year colleges and universities.
In general, the components of the degree meet requirements for majors with more stringent mathematics and math-
emematics-based science requirements. Generally, the degree will transfer as a block without loss of credit to Arizona's public universities and other institutions with district-wide articulation agreements.

In most cases, courses used to satisfy the MCCCD Associate in Science will apply to university graduation requirements of the university major for which the Associate in Science is designed. Information regarding the articulation of the Associate in Science with majors at the Arizona public universities can be accessed via the following website:

WWW.AZTRANSFER.COM

Academic Policies that Govern the Associate in Science Degree

• Completion of the Associate in Science and the AGEC-S provides for exemption from Arizona public university admission requirements for Arizona residents who have a minimum Grade Point Average of 2.0 on a 4.0=A scale and a minimum 2.5 on a 4.0=A scale for non-residents.

• The graduation policies within the general catalog must be satisfied for completion of the Associate in Science degree.

• A minimum of 60 semester credits in courses numbered 100 and above to be completed with a grade of "C" or better. Credit units transferred from outside of the district need to be at a grade of "C" or better. A grade of "C" equals 2.0 on a 4.0 grading scale or equivalent. On an exception basis, P-grades may be allowed in the AGEC for credit transferred if documentation collected by the community college indicates that the P-grade issued was the only option for the student and the P-grade is a "C" or better. The P-grade exception does not apply to credits awarded by AGEC granting/receiving institutions.

• Credit received through prior learning assessment or credit by evaluation is transferable within the Maricopa Community Colleges but is not necessarily transferable to other colleges and universities. No more than 20 semester credit hours may be applied toward AGEC.

• The General Education Requirements for AGEC-S may be completed in 36-38 semester credits with the following stipulations:
  • Courses can satisfy a Core area and one or two Awareness areas simultaneously.
  • A course cannot be used to satisfy more than one Core area requirement in the AGEC A and B.
  • A course can be used to satisfy the L and SB or L and HU requirements simultaneously in the Core area for the AGEC S.
  • General Education Courses can satisfy multiple areas within the degree simultaneously (AGEC-S Core Area, AGEC Awareness Area, MCCCD Additional Requirements, or lower-division courses applicable to the major).
  • Effective fall 2000, the course evaluation and/or general education designation as listed in the Arizona Course Equivalency Guide (CEG) within the AZ Transfer, is valid for the term in which the student is awarded credit on the transcript. A course evaluation and/or general education designation may be subject to change. Students do have the option to petition for general education evaluations and/or general education designations upon transfer.
  • Courses completed at one of the Maricopa Community Colleges to meet AGEC-S requirements must be listed in the Course Equivalency Guide within AZ Transfer as an equivalent course, departmental elective credit (XXXXDEC), or general elective credit (Elective) at all Arizona public universities. The course's evaluation and/or general education designation is valid for the term in which the student is awarded credit on the transcript. View specific course information via the following website: https://asa.maricopa.edu/departments/center-for-curriculum-transfer-articulation by clicking on the statewide AGEC link.
  • Maricopa courses and external courses evaluated as Maricopa equivalents or departmental electives (for example, HISELC, MATELC), that are numbered 100 level or higher, and completed with a grade of "C" or higher, may be applied in the elective area, regardless of potential transferability to other institutions. It is recommended, however, that students planning to transfer to a baccalaureate-granting institution.
  • meet elective requirements with courses that are transferable and applicable to their intended university degree.
  • For appropriate course selection, students should consult with an advisor.
  • Courses transferred from another regionally accredited institution to one of the Maricopa Community Colleges will be evaluated by the college for inclusion in the AGEC-S or Associate in Science Degree.
  • Courses and their modular equivalents will satisfy AGEC-S and Associate in Science requirements.
  • If a course is cross-referenced with one or more other courses, then only one of the cross-referenced courses will be accepted to meet requirements.
  • Courses completed at one of the Maricopa Community Colleges to satisfy Common Courses must be transferable as elective or better to the universities that have the shared majors listed on a Common Course Matrix. A shared major is a university degree program that has similar academic preparation to one or more degree programs at other Arizona public universities as listed on the Common Course Matrices. For appropriate course selection, students should consult with an advisor.
**Degree Requirements**

The 60-64 semester credits required for the Associate in Science follow. View specific course information via the following website: https://asa.maricopa.edu/departments/center-for-curriculum-transfer-articulation by clicking on the statewide AGEC link. The AGEC A, B, S, and AGEC Matrix identify the courses in alpha-order by prefix as well as the Core Areas and Awareness Areas where the course will apply.

I. **MCCCD General Education**

The MCCCD General Education includes two areas: MCCCD AGEC-S and MCCCD Additional Requirements.

A. **MCCCD AGEC-S**

1. **Core Areas: 36-38**
   - **First-Year Composition (FYC).................................................................................................................6**
   - **Literacy and Critical Inquiry [L]..................................................................................................................0-3**
     Recommend selecting a course that satisfies L (Literacy and Critical Inquiry) and SB (Social-Behavioral Sciences) OR L (Literacy and Critical Inquiry) and HU (Humanities, Arts and Design) or L (Literacy and Critical Inquiry) and COM or L (Literacy and Critical Inquiry) and CRE101 requirements simultaneously.
   - **Mathematical Studies [MA].........................................................................................................................4**
     To complete the Mathematical Studies requirement, select one course to satisfy Mathematics [MA] S. Mathematics [MA] S (4 credits)
     Select a calculus course MAT220 or MAT221, OR Any mathematics course for which MAT220 or MAT221 is a prerequisite,
   - **Humanities, Arts and Design [HU]...............................................................................................................6**
     Students are encouraged to choose course work from more than one discipline for a total of six semester credits. Select a course that satisfies both L and HU requirements simultaneously.
   - **Social-Behavioral Sciences [SB]..................................................................................................................6**
     Students are encouraged to choose course work from more than one discipline for a total of six semester credits. Select a course that satisfies both L and SB requirements simultaneously.
   - **Natural Sciences...........................................................................................................................................8**
     To complete the Natural Sciences requirement:
     Select eight (8) semester credits of either general chemistry CHM151 & CHM151LL and CHM152 & CHM152LL OR
     Eight (8) semester credits of university physics PHY115 & PHY116 or PHY121 & PHY131 OR
     Eight (8) semester credits of general biology, BIO181 & BIO182 appropriate to the major.
   - **Subject Options (subject based on major)..................................................................................................6-8**
     Students completing AGEC S, through careful selection of courses that meet the other major or pre-requisite requirements for Science degree, will meet this requirement. Using a transfer guide, select courses from Mathematics courses above Calculus, and/or Science courses from: Astronomy, Biology, Botany, Chemistry, Environmental Science, Geology, Physical Geography, Physics, Zoology.

2. **Awareness Areas:**

   Students must satisfy two Awareness Areas: Cultural Diversity in the United States [C] and either Global Awareness [G] or Historical Awareness [H]. However, it is not necessary for students to exceed thirty-six to thirty-eight semester credits to complete the Awareness Areas because courses can satisfy a Core Area and one or two Awareness Areas simultaneously. Therefore no additional semester credits are required to satisfy the two Awareness Areas.

   Cultural Diversity in the United States [C] AND Global Awareness [G] OR
   Historical Awareness [H]

3. **MCCCD Additional Requirements..............................................................................................................0-6**

   Students must satisfy Oral Communication and Critical Reading areas. However, it is not necessary for students to exceed the thirty-six to thirty-eight semester credits required in order to complete the MCCCD Additional Requirements.
   - **Oral Communication**
     A total of three (3) semester credits are required for Oral Communication. However, if students select a communication course that satisfies both the Oral Communication area and an area within the Core, then the Oral Communication requirement has been satisfied and additional electives may be taken.
     Select from the following options: COM100 [SB] (3 credits) OR
     COM100AA & COM100AB & COM100AC [SB] (3 credits) OR
     COM110 [SB] (3 credits) OR
COM110AA & COM110AB & COM110AC [SB] (3 credits) OR
COM225 [L] (3 credits) OR COM230 [SB] (3 credits)

b. Critical Reading
A total of three (3) semester credits are required for the Critical Reading area. If students demonstrate
proficiency through assessment, then the Critical Reading requirement has been satisfied and additional
electives may be taken.
CRE101 [L] OR equivalent as indicated by assessment

II. General Electives
Select courses to complete a minimum of 60 semester credits but no more than a total of 64 semester credits.

For students who have decided on a major that articulates with the AS, but who are undecided on the university to
which they will transfer, courses satisfying the General Electives area should be selected from the list of Common Cours-
es, Arizona Transfer Pathway Guides, and/or University Transfer Guides in order for the courses to apply in the major
upon transfer.

The list of Common Courses for each major is included in the Arizona Transfer Pathway Guides. University Transfer
Guides are also available for the Arizona public universities. These guides, both statewide and institutional, are accessi-
ble on the following web site: WWW.AZTRANSFER.COM

Maricopa courses and external courses evaluated as Maricopa equivalents or departmental electives (for example,
HISELC, MATELC), that are numbered 100 level or higher, and completed with a grade of “C” or higher, may be applied in
the elective area, regardless of potential transferability to other institutions. It is recommended, however, that students
planning to transfer to a baccalaureate-granting institution meet elective requirements with courses that are transfer-
able and applicable to their intended university degree. For appropriate course selection, students should consult with
an advisor. For appropriate course selection, students should consult with an advisor.

For some majors, students must demonstrate 4th semester proficiency at the 202 course level to satisfy the Non-English
Language Requirements. Students should consult the Arizona Transfer Pathway Guides and/ or the University Transfer
Guides to determine this requirement for the major at the university to which they intend to transfer. If required, it is
recommended that students choose Maricopa courses as electives to meet this requirement as part of the Associate in
Science degree.

Students who are undecided on a major or university should consult an advisor. Not all majors have common courses,
so it is recommended that students consult with an advisor for a list of common courses or assistance with selecting
appropriate electives.

**Associate in Science Total Credits:** ......................................................................................................................60-64


Academic Certificate

The Maricopa Community College District Academic Certificate (area of emphasis) is a defined and coherent program of study that is recommended for students who wish to gain additional expertise in an academic area. While this program of study can result in proficiency in specified skills and competencies, as well as mastery of knowledge, it is not designed to prepare someone for employment in a specific occupation. The content for an Academic Certificate (area of emphasis) may be derived from a variety of disciplines or it can be discipline specific. The Academic Certificate does not require a general studies component even though requirements of the certificate may include courses that currently meet specific general studies designations such as Humanities and Fine Arts, Social and Behavioral Sciences, etc.

Academic Policies that Govern the Academic Certificate (area of emphasis):

- Generally ranges from 12-39 credit hours in courses numbered 100 or above, although there is no minimum number of credit hours required for an Academic Certificate;
- Requires a cumulative GPA of 2.0 or better for completion;
- Follows the graduation policies within the general catalog;
- Accepts one of the courses that is cross-referenced with other courses;
- Includes both courses and their modular equivalents, either the course or the modular equivalents will satisfy the Academic Certificate requirements;
- Does not presume block transfer value — consequently, in most cases the Academic Certificate should not be a subset of an existing transfer degree;
- May have admission criteria established by the college if and when appropriate;
- Is for the most part college specific.
PROFESSIONAL EDUCATION
CERTIFICATE AND DEGREE PROGRAMS

ACCOUNTING
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Business and Information Technologies
Chair: David Smith

CERTIFICATE OF COMPLETION IN ACCOUNTING
(23-26 CREDITS; CODE 5665)
The Certificate of Completion (CCL) in Accounting is for students seeking to gain skills and knowledge in the field of accounting. Possible entry-level jobs for this program include accounting clerk, accounts payable/receivable clerk, claims clerk, credit clerk, full-charge bookkeeper, accounting intern, or comparable positions. An Associate in Applied Science (AAS) is also available.

Required Courses .............................................................................................................................................. 23-26
ACC111  Accounting Principles I (3) AND
ACC230+ Uses of Accounting Information I (3) AND
ACC240+ Uses of Accounting Information II (3) OR
ACC111  Accounting Principles I (3) AND
ACC112+ Accounting Principles II (3) AND
ACC212+ Managerial Accounting (3) OR
ACC211  Financial Accounting (3) AND
ACC212+ Managerial Accounting (3) .................................................................6-9
ACC105  Payroll, Sales and Property Taxes ...............................................................3
ACC115+ Computerized Accounting .................................................................2
CIS105  Survey of Computer Information Systems ...........................................3
CIS114DE Excel Spreadsheet .............................................................................3
GBS151  Introduction to Business .....................................................................3
GBS205  Legal, Ethical and Regulatory Issues in Business.........................3

ASSOCIATE IN APPLIED SCIENCE DEGREE IN ACCOUNTING
(60 - 65 CREDITS; CODE 3149)
The Associate in Applied Science (AAS) in Accounting is one of several options for students seeking to gain skills and knowledge in the field of accounting. Possible entry-level jobs for this program include accounting clerk, accounts payable/receivable clerk, claims clerk, credit clerk, full-charge bookkeeper, accounting intern, or comparable positions.

Program Prerequisites .............................................................................................................................................. 3
CRE101+ College Critical Reading (3) OR
Equivalent as indicated by assessment .................................................................0-3

Required Courses .............................................................................................................................................. 29-32
Students must earn a grade of “C” or better in each course in the Required Courses area.
ACC111  Accounting Principles I (3) AND
ACC230+ Uses of Accounting Information I (3)
AND ACC240+ Uses of Accounting Information II (3) OR
ACC111  Accounting Principles I (3) AND
ACC112+ Accounting Principles II (3) AND
ACC212+ Managerial Accounting (3) OR
ACC211  Financial Accounting (3) AND
ACC212+ Managerial Accounting (3) ..................................................................6-9
ACC105  Payroll, Sales and Property Taxes .........................................................3
ACC115+ Computerized Accounting .................................................................2
ACC121  Income Tax Preparation (3) OR
ACC221+ Tax Accounting (3) .............................................................................3

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

CIS105  Survey of Computer Information Systems .......................................................... 3
CIS114DE Excel Spreadsheet .......................................................................................... 3
GBS151  Introduction to Business .................................................................................. 3
GBS205  Legal, Ethical and Regulatory Issues in Business ........................................... 3
GBS233+ Business Communication ............................................................................. 3

Restricted Electives ........................................................................................................ 9
ACC+++++ Any ACC Accounting course(s) except courses used to satisfy Required Courses area ....... 9
CIS117DM Microsoft Access: Database Management .................................................. 3

GBS110 Human Relations in Business and Industry (3) OR
MGT251 Human Relations in Business (3) .................................................................. 3
GBS131 Business Calculations ..................................................................................... 3
GBS207 Business Law (General Corporate) ................................................................. 3
GBS220+ Quantitative Methods in Business ................................................................ 3

General Education Requirements .................................................................................. 22-24
ECN211 Macroeconomic Principles (3) OR
ECN212 Microeconomic Principles (3) OR
SBU200 Society and Business (3) .................................................................................. 3

ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) AND
ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3) ............................................................... 6

MAT120+ Intermediate Algebra (5) OR
MAT121+ Intermediate Algebra (4) OR
MAT122+ Intermediate Algebra (3) OR

Satisfactory completion of a higher level mathematics course ........................................... 3-5
Any approved general education course in the Oral Communication area ....................... 3
Any approved general education course in the Humanities, Arts and Design area ............ 3
Any approved general education course in the Natural Sciences area ................................ 4

ADMINISTRATIVE TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of "C" or better in all courses within the program.

Division: Business and Information Technologies
Chair: David Smith

ASSOCIATE IN APPLIED SCIENCE DEGREE IN ADMINISTRATIVE TECHNOLOGY
(60 CREDITS; CODE 3237 )
The Associate of Applied Science (AAS) Degree in Administrative Technology is designed to give a student a well-rounded preparation for a career in an office environment in the public or private sector. The degree includes a wide range of business and computer skills and applications as well as general education.

Program Prerequisites ..................................................................................................... 1
OAS101AA Computer Typing I: Keyboard Mastery (1) OR
OAS103AA+ Computer Typing: Skill Building (1) .......................................................... 1

Required Courses ............................................................................................................. 33
ACC111 Accounting Principles I ................................................................................... 3
ACC115+ Computerized Accounting ............................................................................. 2
BPC110 Computer Usage and Applications (3) OR

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
CIS105          Survey of Computer Information Systems (3) OR
CIS183AH       Microsoft Office (3) OR
BPC/OAS130DK+  Beginning Word (1) AND
CIS118AB       PowerPoint: Level I (1) AND
CIS117AM       Database Management: Microsoft Access Level I (1)..............................3
CIS114DE       Excel Spreadsheet .................................................................3
BPC/OAS131DK+  Intermediate Word .....................................................................1
ECN211         Macroeconomic Principles (3) OR
ECN212         Microeconomic Principles (3)..........................................................3
GBS110         Human Relations in Business and Industry ......................................3
GBS233+        Business Communication ..........................................................3
MGT101+        Techniques of Supervision .............................................................3
OAS101AB+      Computer Typing I: Letters, Tables, and Reports.............................1
OAS101AC+      Computer Typing I: Production and Manuscripts............................1
OAS108         Business English ...........................................................................3
OAS118         10-Key by Touch ............................................................................1
CSM/TQM101     Quality Customer Service ..........................................................3

Restricted Electives .........................................................................................5

Students should select five (5) credits from the following prefixes:
ACC+++++ Any ACC course(s)
CIS+++++ Any CIS course(s)
ECN+++++ Any ECN course(s)
EPS+++++ Any EPS course(s)
GBS+++++ Any GBS course(s)
HSM+++++ Any HSM course(s)
IBS+++++ Any IBS course(s)
MGT+++++ Any MGT course(s)
MKT+++++ Any MKT course(s)
SBU+++++ Any SBU course(s)
SBS+++++ Any SBS course(s)
TQM+++++ Any TQM course(s)

General Education Requirements .................................................................22
COM100         Introduction to Human Communication (3) OR
COM110         Interpersonal Communication (3)...................................................3
CRE101+        Critical and Evaluative Reading I (3) OR
                Equivalent by Assessment....................................................................3
ENG101+        First-Year Composition (3) AND
ENG102+        First-Year Composition (3)...........................................................6
MAT112+        Mathematical Concepts and Applications (3) OR
MAT122+        Intermediate Algebra (3) OR
                Equivalent by Assessment (0)................................................................0-3
Any approved general education course in the Humanities, Arts and Design area ..........3
Any approved general education course in the Natural Science area ..........................4

AIR CONDITIONING/REFRIGERATION FACILITIES
CERTIFICATES OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of "C" or better in all courses within the program.

Division: Industrial Technology
Chair: John Kelly

CERTIFICATE OF COMPLETION IN AIR CONDITIONING/ REFRIGERATION/ FACILITIES
(44 - 47.5 CREDITS; CODE 5380)
The Certificate of Completion (CCL) in Air Conditioning/Refrigeration/Facilities program is designed to provide training
Professional Education Certificate & Degree Programs

in the areas of Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R) systems, electricity, electronic controls and instrumentation, hydronics, electro-mechanical devices, and general repair. Students will have an opportunity to learn skills necessary to assess and solve problems quickly in emergency situations, based upon an understanding of regulatory guidelines.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPC110 Computer Usage and Applications</td>
<td>3</td>
</tr>
<tr>
<td>FAC/HVA101+ Refrigeration Applications and Components I</td>
<td>3</td>
</tr>
<tr>
<td>FAC/HVA101LL+ Refrigeration Applications and Components I Lab</td>
<td>1</td>
</tr>
<tr>
<td>ELC/FAC/HVA105+ Electricity for Industry</td>
<td>3</td>
</tr>
<tr>
<td>ELC/FAC/HVA105LL+ Electricity for Industry Lab</td>
<td>1</td>
</tr>
<tr>
<td>ELC/FAC/HVA115+ Motors, Controls and Wiring Diagrams</td>
<td>3</td>
</tr>
<tr>
<td>ELC/FAC/HVA115LL+ Motors, Controls and Wiring Diagrams Lab</td>
<td>1</td>
</tr>
<tr>
<td>FAC/HVA186+ Electro-Mechanical Devices</td>
<td>3</td>
</tr>
<tr>
<td>FAC/HVA210+ Facilities Air Conditioning Systems</td>
<td>3</td>
</tr>
<tr>
<td>FAC/HVA210LL+ Facilities Air Conditioning Systems Lab</td>
<td>1</td>
</tr>
<tr>
<td>FAC220+ Controls and Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>FAC220LL+ Controls and Instrumentation Lab</td>
<td>1</td>
</tr>
<tr>
<td>FAC/HVA231 Codes</td>
<td>3</td>
</tr>
<tr>
<td>FAC235+ Commercial Air and Water Test/Balance</td>
<td>3</td>
</tr>
<tr>
<td>FAC235LL+ Commercial Air and Water Test/Balance Lab</td>
<td>1</td>
</tr>
<tr>
<td>HVA103+ Refrigeration Applications/Components II</td>
<td>3</td>
</tr>
<tr>
<td>HVA103LL+ Refrigeration Applications/Components II Lab</td>
<td>1</td>
</tr>
<tr>
<td>HVA104+ EPA Section 608 Technician Preparation and Certification (0.5) OR</td>
<td>0-0.5</td>
</tr>
<tr>
<td>Proof of EPA Certification (0)</td>
<td></td>
</tr>
<tr>
<td>HVA112+ Heating and Air Conditioning</td>
<td>3</td>
</tr>
<tr>
<td>HVA112LL+ Heating and Air Conditioning Lab</td>
<td>1</td>
</tr>
<tr>
<td>HVA143 Load Calculation and Duct Design</td>
<td>3</td>
</tr>
<tr>
<td>OSH105AA Construction Safety (3)</td>
<td></td>
</tr>
<tr>
<td>OR OSH106AA Industrial Safety (3) OR OSH106AA</td>
<td></td>
</tr>
<tr>
<td>Proof of OSHA 30 hour card</td>
<td>0-3</td>
</tr>
</tbody>
</table>

CERTIFICATE OF COMPLETION IN RESIDENTIAL AND LIGHT COMMERCIAL AIR CONDITIONING
(22 - 25.5 CREDITS; CODE 5542)
The Certificate of Completion (CCL) in Residential and Light Commercial Air Conditioning program is designed to provide training in the areas of Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R) systems, electricity, electronic controls and general repair. Students will have the opportunity to learn skills necessary to assess and solve problems quickly in emergency situations.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Required Courses area, the options for OSH105AA, OSH106AA or Proof of OSHA 30-hour card must be the in-person format.</td>
<td></td>
</tr>
<tr>
<td>Completion of District Placement Exam in Mathematics is required before the start of the Residential and Light Commercial Air Conditioning program.</td>
<td></td>
</tr>
<tr>
<td>BPC110 Computer Usage and Applications</td>
<td>3</td>
</tr>
<tr>
<td>FAC/HVA101+ Refrigeration Applications and Components I</td>
<td>3</td>
</tr>
<tr>
<td>FAC/HVA101LL+ Refrigeration Applications and Components I Lab</td>
<td>1</td>
</tr>
<tr>
<td>HVA103+ Refrigeration Applications and Components II</td>
<td>3</td>
</tr>
<tr>
<td>HVA103LL+ Refrigeration Applications and Components II Lab</td>
<td>1</td>
</tr>
<tr>
<td>HVA104+ EPA Section 608 Technician Preparation and Certification (0.5) OR</td>
<td>0-0.5</td>
</tr>
<tr>
<td>Proof of EPA Certification (0)</td>
<td></td>
</tr>
<tr>
<td>ELC/FAC/HVA105+ Electricity for Industry</td>
<td>3</td>
</tr>
<tr>
<td>ELC/FAC/HVA105LL+ Electricity for Industry Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Program note:
In Required Courses area, the options for OSH105AA, OSH106AA or Proof of OSHA 30 hour card must be the in-person format. Completion of District Placement Exam in Mathematics is required before the start of the Residential and Light Commercial Air Conditioning program.

**ASSOCIATE IN APPLIED SCIENCE DEGREE IN AIR CONDITIONING/REFRIGERATION/FACILITIES**

(66 - 74.5 CREDITS; CODE 3587)

The Associate in Applied Science (AAS) in Air Conditioning/Refrigeration/Facilities program is designed to provide training in the areas of Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R) systems, electricity, electronic controls and instrumentation, hydronics, electro-mechanical devices, and general repair. Students will have an opportunity to learn skills necessary to assess and solve problems quickly in emergency situations, based upon an understanding of regulatory guidelines. The program provides students an opportunity to develop written and verbal communication skills through general education courses.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPC110</td>
<td>Computer Usage and Applications</td>
<td>3</td>
</tr>
<tr>
<td>FAC/HVA101+</td>
<td>Refrigeration Applications and Components I</td>
<td>3</td>
</tr>
<tr>
<td>FAC/HVA101LL+</td>
<td>Refrigeration Applications and Components I Lab</td>
<td>1</td>
</tr>
<tr>
<td>ELC/FAC/HVA105+</td>
<td>Electricity for Industry</td>
<td>3</td>
</tr>
<tr>
<td>ELC/FAC/HVA105LL+</td>
<td>Electricity for Industry Lab</td>
<td>1</td>
</tr>
<tr>
<td>ELC/FAC/HVA115+</td>
<td>Motors, Controls and Wiring Diagrams</td>
<td>3</td>
</tr>
<tr>
<td>ELC/FAC/HVA115LL+</td>
<td>Motors, Controls and Wiring Diagrams Lab</td>
<td>1</td>
</tr>
<tr>
<td>FAC/HVA186+</td>
<td>Electro-Mechanical Devices</td>
<td>3</td>
</tr>
<tr>
<td>FAC/HVA210+</td>
<td>Facilities Air Conditioning Systems</td>
<td>3</td>
</tr>
<tr>
<td>FAC/HVA210LL+</td>
<td>Facilities Air Conditioning Systems Lab</td>
<td>1</td>
</tr>
<tr>
<td>FAC220+</td>
<td>Controls and Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>FAC220LL+</td>
<td>Controls and Instrumentation Lab</td>
<td>1</td>
</tr>
<tr>
<td>FAC/HVA231+</td>
<td>Codes</td>
<td>3</td>
</tr>
<tr>
<td>FAC235+</td>
<td>Commercial Air and Water Test and Balance</td>
<td>3</td>
</tr>
<tr>
<td>FAC235LL+</td>
<td>Commercial Air and Water Test and Balance Lab</td>
<td>1</td>
</tr>
<tr>
<td>HVA103+</td>
<td>Refrigeration Applications and Components II</td>
<td>3</td>
</tr>
<tr>
<td>HVA103LL+</td>
<td>Refrigeration Applications and Components II Lab</td>
<td>1</td>
</tr>
<tr>
<td>HVA104+</td>
<td>EPA Section 608 Technician Preparation and Certification (0.5) OR Proof of EPA Certification (0)</td>
<td>0-0.5</td>
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</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVA112+</td>
<td>Heating and Air Conditioning</td>
<td>3</td>
</tr>
<tr>
<td>HVA112LL+</td>
<td>Heating and Air Conditioning Lab</td>
<td>1</td>
</tr>
<tr>
<td>HVA143</td>
<td>Load Calculation and Duct Design</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSH105AA</td>
<td>Construction Safety (3)</td>
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<tr>
<td>OR OSH106AA</td>
<td>Industrial Safety (3) OR</td>
<td></td>
</tr>
<tr>
<td>Proof of OSHA 30 hour card</td>
<td></td>
<td>0-3</td>
</tr>
</tbody>
</table>

**General Education Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CHM130+</td>
<td>Fundamental Chemistry (3) AND</td>
<td></td>
</tr>
<tr>
<td>CHM130LL+</td>
<td>Fundamental Chemistry Lab (1) OR</td>
<td></td>
</tr>
<tr>
<td>PHY101+</td>
<td>Introduction to Physics (4) OR</td>
<td></td>
</tr>
<tr>
<td>PHY111+</td>
<td>General Physics I (4)</td>
<td>4</td>
</tr>
</tbody>
</table>
Professional Education Certificate & Degree Programs

COM100 Introduction to Human Communication (3) OR
COM110 Interpersonal Communication (3) OR
COM225+ Public Speaking (3) OR
COM230 Small Group Communication (3).................................3

CRE101+ College Critical Reading (3) OR
CRE111+ Critical Reading for Business and Industry (3) OR
Equivalent as indicated by assessment.........................................0-3

ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) AND
ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3) OR
ENG111+ Technical and Professional Writing (3)...............................6

MAT112+ Mathematical Concepts and Applications (3) OR
MAT120+ Intermediate Algebra (5) OR
MAT121+ Intermediate Algebra (4) OR
MAT122+ Intermediate Algebra (3) OR
Equivalent or higher level mathematics course.................................3-5

Any approved general education course from the Humanities, Arts and Design area.................................3
Any approved general education course from the Social and Behavioral Sciences area.................................3

AUTOMOTIVE TECHNOLOGY
CERTIFICATES OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Industrial Technology
Chair: John Kelly

CERTIFICATE OF COMPLETION IN AIR CONDITIONING AND ELECTRICAL ACCESSORIES
(12 CREDITS; CODE 5435 N)
Students can obtain a Certificate of Completion by successfully completing the following courses with grade of “C” or better. This course grouping should prepare the students to enter the automotive air conditioning/electrical service areas of the industry.

Required Courses .................................................................................................................... 12
AUT103AA Automotive Electrical Systems .............................................................................. 6
AUT107AA Automotive Air Conditioning ................................................................................. 3
AUT203 Electrical Accessories .......................................................................................... 3

CERTIFICATE OF COMPLETION IN AUTOMOTIVE DRIVE TRAINS
(12 CREDITS; CODE 5463 N)
Students can obtain a Certificate of Completion by successfully completing the following courses with a grade of “C” or better. This course grouping should prepare the students to enter the transmission service area of automotive service.

Required Courses .................................................................................................................... 12
AUT106AC Engine Overhaul and Reconditioning: Heads and Valves .................................. 3
AUT110AA Automotive Transmissions and Power Trains ............................................... 3
AUT123 Automatic Transmissions ....................................................................................... 6

CERTIFICATE OF COMPLETION IN AUTOMOTIVE SUSPENSION, STEERING AND BRAKES
(12 CREDITS; CODE 5439 N)
The Certificate of Completion (CCL) in Automotive Suspension, Steering and Brakes program is designed to prepare

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
students to enter the suspension, alignment, and brakes service areas of automotive service. Modern laboratory facilities, fully equipped with the latest equipment, provide students with excellent opportunities for pre-employment experience. Students can obtain a Certificate of Completion by successfully completing the following courses with a grade of “C” or better.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT108AB</td>
<td>Front-End Suspension, Steering and Alignment</td>
<td>4</td>
</tr>
<tr>
<td>AUT109AC</td>
<td>Automotive Brake Systems</td>
<td>4</td>
</tr>
<tr>
<td>AUT130</td>
<td>Automotive Quick Service</td>
<td>4</td>
</tr>
</tbody>
</table>

**CERTIFICATE OF COMPLETION IN AUTOMOTIVE TECHNOLOGY**

(51 CREDITS; CODE 5480)

The Certificate of Completion (CCL) in Automotive Technology program is designed to prepare students for employment as automotive technicians (mechanics). Instruction is given in both the theoretical and practical aspects of automotive operation, maintenance and service. Instruction includes directed systems (both conventional and electronic), brakes, air conditioning, automotive electricity, tune-up and emission control, suspension, and steering systems. Modern laboratory facilities, fully equipped with the latest equipment, provide students with excellent opportunities for pre-employment experience.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT103AA</td>
<td>Automotive Electrical Systems</td>
<td>6</td>
</tr>
<tr>
<td>AUT104AA</td>
<td>Automotive Fuel Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUT105AA</td>
<td>Engine Performance and Diagnosis</td>
<td>3</td>
</tr>
<tr>
<td>AUT106AA</td>
<td>Engine Overhaul and Reconditioning: Heads and Valves</td>
<td>3</td>
</tr>
<tr>
<td>AUT107AD</td>
<td>Automotive Air Conditioning</td>
<td>4</td>
</tr>
<tr>
<td>AUT108AB</td>
<td>Front-End Suspension, Steering and Alignment</td>
<td>4</td>
</tr>
<tr>
<td>AUT109AC</td>
<td>Automotive Brake Systems</td>
<td>4</td>
</tr>
<tr>
<td>AUT110AC</td>
<td>Automotive Power Trains</td>
<td>4</td>
</tr>
<tr>
<td>AUT123AA</td>
<td>Automatic Transmissions</td>
<td>4</td>
</tr>
<tr>
<td>AUT130</td>
<td>Automotive Quick Service</td>
<td>4</td>
</tr>
<tr>
<td>AUT240+</td>
<td>Hybrid Vehicle Overview</td>
<td>2</td>
</tr>
<tr>
<td>AUT215AA+</td>
<td>Automotive and Electrical/Electronic Systems II</td>
<td>4</td>
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</tbody>
</table>

**Required Electives**

Students should select six credits from the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT101</td>
<td>Internal Combustion Engines Theory</td>
<td>3</td>
</tr>
<tr>
<td>AUT210+</td>
<td>Automotive Emission Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUT233+</td>
<td>Computerized Engine Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUT270AC</td>
<td>Automotive Technology Internship</td>
<td>3</td>
</tr>
<tr>
<td>AUT298AC</td>
<td>Special Projects</td>
<td>3</td>
</tr>
<tr>
<td>OSH106AA</td>
<td>Industrial Safety</td>
<td>3</td>
</tr>
</tbody>
</table>

**CERTIFICATE OF COMPLETION IN ENGINE PERFORMANCE AND DIAGNOSIS**

(15 CREDITS; CODE 5479 N)

Students can obtain a Certificate of Completion by successfully completing the following courses with a grade of “C” or better. This course grouping should prepare the student to enter the automotive engine service area.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT103AA</td>
<td>Automotive Electrical Systems</td>
<td>6</td>
</tr>
<tr>
<td>AUT104AA</td>
<td>Automotive Fuel Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUT105AA</td>
<td>Engine Performance and Diagnosis</td>
<td>3</td>
</tr>
<tr>
<td>AUT210+</td>
<td>Automotive Emission Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUT233+</td>
<td>Computerized Engine Control Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**ASSOCIATE IN APPLIED SCIENCE DEGREE IN AUTOMOTIVE TECHNOLOGY**

(68 -72 CREDITS; CODE 3480)

The Associate in Applied Science (AAS) in Automotive Technology program is designed to prepare students for employment as automotive technicians (mechanics). Instruction is given in both the theoretical and practical aspects.
Professional Education Certificate & Degree Programs

of automotive operation, maintenance and service. Instruction includes directed systems (both conventional and electronic), brakes, air conditioning, automotive electricity, tune-up and emission control, suspension, and steering systems. Modern laboratory facilities, fully equipped with the latest equipment, provide students with excellent opportunities for pre-employment experience.

Required Courses ................................................................................................................................................... 45
AUT103AA Automotive Electrical Systems ........................................................................................................ 6
AUT104AA+ Automotive Fuel Systems .............................................................................................................. 3
AUT105AA+ Engine Performance and Diagnosis ................................................................................................. 3
AUT106AC+ Engine Overhaul and Reconditioning: Heads and Valves ............................................................. 3
AUT107AD Automotive Air Conditioning ......................................................................................................... 4
AUT108AB Front-End Suspension, Steering and Alignment ............................................................................... 4
AUT109AC Automotive Brake Systems ............................................................................................................. 4
AUT110AC Automotive Power Trains .................................................................................................................. 4
AUT123AA Automatic Transmissions .............................................................................................................. 4
AUT130 Automotive Quick Service ................................................................................................................... 4
AUT240+ Hybrid Vehicle Overview ................................................................................................................2
AUT215AA+ Automotive and Electrical/Electronic Systems II ........................................................................4

Restricted Electives ................................................................................................................................................ 6
Students should select six credits from the following courses:
AUT101 Internal Combustion Engines Theory ................................................................................................. 3
AUT210+ Automotive Emission Systems ........................................................................................................... 3
AUT233+ Computerized Engine Control Systems ........................................................................................... 3
AUT270AC+ Automotive Technology Internship ............................................................................................. 3
AUT298AC+ Special Projects ........................................................................................................................... 3
OSH106AA Industrial Safety ............................................................................................................................ 3

General Education Requirements ..................................................................................................................... 17-21
CRE101+ Critical and Evaluative Reading I (3) OR
CRE111+ Critical Reading for Business and Industry (3) OR
Equivalent by Assessment .................................................................................................................................. 0-3
ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) AND
ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3) OR
ENG111+ Technical and Professional Writing (3) ............................................................................................ 6
MAT112+ Mathematical Concepts and Applications (3) OR
Equivalent or higher level mathematics course ............................................................................................... 3

Any approved general education course in the Oral Communication area ....................................................... 3
Any approved general education course in the Humanities, Arts and Design area ........................................ 2-3
Any approved general education course in the Social and Behavioral Sciences area ........................................ 3

HONDA - TOYOTA AUTOMOTIVE TECHNICIAN
Cooperative training programs are available with major import manufacturers and dealerships to train service technicians for the sophisticated computerized technology found in automobiles today. GateWay Community College offers a two-year Associate in Applied Science degree program that includes four, 16-week semesters on campus plus 24-28 weeks of paid work experience at a local dealership in Arizona or neighboring states. Current model vehicles, service manuals, test equipment and repair procedures are available to students. Enrollment requires pre-testing for basic skills and personal interviews.

HONDA PACT
Professional Automotive Career Training

TOYOTA T-T E N
Toyota Technical Education Network

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
BUSINESS TECHNOLOGY SPECIALIST
CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Business and Information Technologies
Chair: David Smith

CERTIFICATE OF COMPLETION IN BUSINESS TECHNOLOGY SPECIALIST
(22.5 - 23 CREDITS; CODE 5762)
The Certificate of Completion (CCL) in Business Technology Specialist emphasizes training on word processing, spreadsheet, database, and presentation software for business purposes. Completion of this certificate program which has as a prerequisite completion of the Office Technology Certificate would qualify an individual for secretarial, administrative assistant, or executive assistant positions.

Required Courses ............................................................................................................................................. 19.5-20
Certificate of Completion in Office Technology (5261) ........................................................................................18
BPC/OAS131DK+Intermediate Word .................................................................................................................1
CIS100 Internet: A Tool for Learning (0.5) OR
CIS133AA Internet/Web Development Level I-A (1) ........................................................................................0.5-1

Restricted Electives .................................................................................................................................................. 3
BPC/CIS+++++ Any BPC/CIS prefix courses ........................................................................................................3

COMPUTED TOMOGRAPHY
CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

CERTIFICATE OF COMPLETION IN COMPUTED TOMOGRAPHY
(18-19 CREDITS; CODE 5461)
The Certificate of Completion (CCL) in Computed Tomography program offers graduate Radiologic Technologists, Radiation Therapists, and graduate Nuclear Medicine Technologists the opportunity to complete both didactic coursework and clinical skills experience necessary to prepare to meet eligibility for the professional certification in this field. The program focuses on specific skills and knowledge necessary to become proficient in this field.

Admission Criteria:
1. [Certified by American Registry of Radiologic Technologists (ARRT) in Radiography or in Radiation Therapy, OR Certified by ARRT or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine, OR Certified by American Registry of Diagnostic Medical Sonography (ARDMS) or ARRT in Diagnostic Medical Sonography, OR Radiography, Radiation Therapist, or Nuclear Medicine student currently enrolled at GateWay, or registry eligible graduate] AND DMI/ICE220 and DMI/ICE223 or NUC150.
2. Admission to the program is required.
3. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
4. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
5. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.
Professional Education Certificate & Degree Programs

Program Prerequisites

- DMI/DMS/ICE220+ Sectional Anatomy ................................................................. 4-5
- DMI/ICE223+ Introduction to Computed Tomography (1) OR
- NUC250+ Fundamentals of Computed Tomography for Nuclear Medicine Technologist (2) ........ 1-2

Required Courses

- ICE248+ Computed Tomography (CT) Multi-Planar Sectional Anatomy ....................... 2
- ICE263+ Computed Tomography Physics and Instrumentation .................................... 3
- ICE265+ Computed Tomography Procedure Protocols ............................................... 3
- ICE267+ Computed Tomography Advanced Imaging Practicum ................................... 2
- ICE273+ Computed Tomography Pathology .............................................................. 3
- ICE291+ Computed Tomography Registry and Board Exam Preparation .......................... 1

COMPUTER INFORMATION SYSTEMS
CERTIFICATE OF COMPLETION
ASSOCIATED IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Business and Information Technologies
Chair: David Smith

CERTIFICATE OF COMPLETION IN COMPUTER INFORMATION SYSTEMS
(21 CREDITS; CODE 5671)
The Certificate of Completion (CCL) in Computer Information Systems program is designed to meet the needs of students who are planning to find employment using current computer applications. It is intended for students who may later want to pursue an Associate's Degree in Computer Information Systems, but who do not expect to go beyond the community college program. The courses include Survey of Computer Information Systems and a variety of operating systems, database management, and popular programming languages. An Associate in Applied Science (AAS) is also available.

Program Note:
Consultation with an Academic Advisor is recommended for course selection.

Required Courses

- CIS133DA Internet/Web Development Level I .......................................................... 3
- CIS105 Survey of Computer Information Systems .................................................. 3
- CIS126DA UNIX Operations System (3) OR
- CIS126DL Linux Operating System (3) OR
- MST150 Microsoft Windows Professional (3) OR
- MST150VI Microsoft Windows Vista Administration (3) OR
- MST150XP Microsoft Windows XP Professional (3) .................................................. 3
- CIS150+ Programming Fundamentals (3) OR
- CIS150AB+ Object-Oriented Programming Fundamentals (3) ................................. 3

Restricted Electives

- CIS+++++ Any CIS Computer Information course(s) except courses used to Satisfy Required Courses area ................................................................. 9

* Indicates course has prerequisites and/or co-requisites.
** Indicates any module suffixed courses.
ASSOCIATED IN APPLIED SCIENCE DEGREE IN COMPUTER INFORMATION SYSTEMS
(61 - 64 CREDITS; CODE 3152)
The Associate in Applied Science (AAS) degree in Computer Information Systems program is designed to prepare students who are planning to find employment using current computer applications. Courses include Survey of Computer Information Systems and a variety of operating systems, database management, and popular programming languages. A Certificate of Completion (CCL) is also available.

Program Note:
Consultation with an Academic Advisor is recommended for course selection.

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<thead>
<tr>
<th>Program Prerequisites</th>
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<tbody>
<tr>
<td>CRE101+</td>
<td>College Critical Reading I (3) OR Equivalent by Assessment</td>
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<th>Required Courses</th>
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<tr>
<td>ACC111</td>
<td>Accounting Principles I (3)</td>
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<tr>
<td>CIS133DA</td>
<td>Internet/Web Development Level I (3)</td>
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<tr>
<td>CIS105</td>
<td>Survey of Computer Information Systems (3)</td>
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<tr>
<td>CIS126DA</td>
<td>UNIX Operations System (3) OR</td>
</tr>
<tr>
<td>CIS126DL</td>
<td>Linux Operating System (3) OR</td>
</tr>
<tr>
<td>MST150</td>
<td>Microsoft Windows Professional (3) OR</td>
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<tr>
<td>MST150V1</td>
<td>Microsoft Windows Vista Administration (3) OR</td>
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<td>MST150XP</td>
<td>Microsoft Windows XP Professional (3)</td>
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<td>CIS150+</td>
<td>Programming Fundamentals (3) OR</td>
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<td>CIS150AB+</td>
<td>Object-Oriented Programming Fundamentals (3) OR</td>
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<tr>
<td>CIS159+</td>
<td>Visual Basic Programming I (3) OR</td>
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<tr>
<td>CIS162++/+</td>
<td>Any C Programming Level I course (3) OR</td>
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<tr>
<td>CIS163AA+</td>
<td>Java Programming: Level I (3) OR</td>
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<tr>
<td>CIS190+</td>
<td>Introduction to Local Area Networks (3) OR</td>
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<tr>
<td>MST140</td>
<td>Microsoft Networking Essentials (3) OR</td>
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<tr>
<td>CNT140AA</td>
<td>Cisco Networking Fundamentals (4)</td>
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<tr>
<td>GBS151</td>
<td>Introduction to Business (3)</td>
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<tr>
<td>GBS233+</td>
<td>Business Communication (3)</td>
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<tr>
<th>Restricted Electives</th>
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<tr>
<td>CIS+++++</td>
<td>Any CIS Computer Information course(s) except courses used to Satisfy Required Courses area</td>
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<table>
<thead>
<tr>
<th>General Education Requirements</th>
<th>22-24</th>
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<tbody>
<tr>
<td>ECN211</td>
<td>Macroeconomic Principles (3) OR</td>
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<tr>
<td>ECN212</td>
<td>Microeconomic Principles (3) OR</td>
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<tr>
<td>SBU200</td>
<td>Society and Business (3)</td>
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<td>ENG101+</td>
<td>First-Year Composition (3) OR</td>
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<td>ENG107+</td>
<td>First-Year Composition for ESL (3) AND</td>
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<td>ENG102+</td>
<td>First-Year Composition (3) OR</td>
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<td>ENG108+</td>
<td>First-Year Composition for ESL (6)</td>
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<td>MAT120+</td>
<td>Intermediate Algebra (5) OR</td>
</tr>
<tr>
<td>MAT121+</td>
<td>Intermediate Algebra (4) OR</td>
</tr>
<tr>
<td>MAT122+</td>
<td>Intermediate Algebra (3) OR</td>
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</table>

Satisfactory completion of a higher level mathematics course 3-5
Any general education course in the Oral Communication area 3
Any general education course in the Humanities, Arts and Design area 3
Any general education course in the Natural Sciences area 4
CERTIFICATES OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREES

To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Business and Information Technologies
Chair: David Smith

CERTIFICATE OF COMPLETION IN COURT REPORTING – JUDICIAL
(67-68 CREDITS; CODE 5194)

The Certificate of Completion (CCL) in Court Reporting: Judicial program prepares students for court reporting. Court reporters work for the government, courts, large business corporations, freelance reporting agencies, and television stations.

GateWay Community College is one of the few community colleges across the nation to offer a National Court Reporters Association certified court reporting program which includes realtime machine shorthand, computerized machine shorthand theory, speed development, transcription, court practice and overview in video application. Upon completion of the program, students will be qualified to enter the court reporting profession subject to any and all individual state requirements. In addition, students are assisted in preparing for the National Court Reporters Association Registered Professional Reporter (RPR) Examination and the Arizona Written Knowledge Test. Students whose personal interests and needs can be met by concentration on a core program of Court Reporting courses and who do not wish an associate in applied science may receive a certificate after completion of the courses listed.

Admission Criteria:
1. 45 wpm typing speed based on typing test at GateWay assessment center.
2. Students must pass two timed writings of five minutes with a minimum speed of 45 wpm in order to complete this certificate.
3. ENGLISH ASSESSMENT - Placement into ENG101/ENG107 First-Year Composition on district placement exam OR permission of Department or Division.
4. Transcript(s) of high school graduation OR equivalent must be on file in the Admissions and Records Office.

Required Courses ................................................................................................................................................... 67-68

BPC101AA Introduction to Computers I (1) OR Demonstrated proficiency in computer usage as determined by Program Director ........................................... 0-1
BPC/OAS130DK+Beginning Word ........................................................................................................................... 1
BPC/OAS131DK+Intermediate Word ........................................................................................................................ 1
CTR101+ Court Reporting: Machine Shorthand Theory Block I ......................................................................... 6
CTR102+ Court Reporting: Machine Shorthand Theory Block II ..................................................................... 6
CTR105 Court Reporting: Punctuation and Grammar ......................................................................................... 1
CTR106 Court Reporting: Legal Terminology ..................................................................................................... 1
CTR107 Court Reporting: Medical Terminology ................................................................................................. 1
CTR197+ Court Reporting Lab ............................................................................................................................. 1
CTR209+ Judicial Procedures for Court Reporting ............................................................................................. 3
CTR211+ Judicial Internship .................................................................................................................................. 1
CTR215+ Computer-Aided Transcription ............................................................................................................ 3
CTR251+ Court Reporting Speed Building Block III .......................................................................................... 14
CTR252+ Court Reporting Speed Building Block IV ......................................................................................... 14
CTR253+ Court Reporting Speed Building Block V .......................................................................................... 14

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
ASSOCIATE IN APPLIED SCIENCE DEGREE IN COURT REPORTING-JUDICIAL
(88 - 92 CREDITS; CODE 3194)
The Associate in Applied Science (AAS) in Court Reporting: Judicial program prepares students for court reporting. Court reporters work for the government, courts, large business corporations, freelance reporting agencies, and television stations.

GateWay Community College is one of the few community colleges across the nation to offer a National Court Reporters Association certified court reporting program which includes realtime machine shorthand, computerized machine shorthand theory, speed development, transcription, court practice and overview in video application. Upon completion of the program, students will be qualified to enter the court reporting profession subject to any and all individual state requirements. In addition, students are assisted in preparing for the National Court Reporters Association. Registered Professional Reporter (RPR) Examination and the Arizona Written Knowledge Test.

Admission Criteria:
1. 45 wpm typing speed based on typing test at GateWay assessment center.
2. Students must pass two timed writings of five minutes with a minimum speed of 45 wpm in order to complete this certificate.
3. ENGLISH ASSESSMENT - Placement into ENG101/ENG107 First-Year Composition on district placement exam OR permission of Department or Division.
4. Transcript(s) of high school graduation OR equivalent must be on file in the Admissions and Records Office.

Required Courses ................................................................................................................................................. 67-68

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BPC101AA</td>
<td>Introduction to Computers I (1) OR</td>
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<tr>
<td>BPC/OAS130DK+</td>
<td>Beginning Word</td>
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<tr>
<td>BPC/OAS131DK+</td>
<td>Intermediate Word</td>
<td>1</td>
</tr>
<tr>
<td>CTR101+</td>
<td>Court Reporting: Machine Shorthand Theory Block I</td>
<td>6</td>
</tr>
<tr>
<td>CTR102+</td>
<td>Court Reporting: Machine Shorthand Theory Block II</td>
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<tr>
<td>CTR105</td>
<td>Court Reporting: Punctuation and Grammar</td>
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<td>CTR106</td>
<td>Court Reporting: Legal Terminology</td>
<td>1</td>
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<tr>
<td>CTR107</td>
<td>Court Reporting: Medical Terminology</td>
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<td>CTR197+</td>
<td>Court Reporting Lab</td>
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<td>CTR209+</td>
<td>Judicial Procedures for Court Reporting</td>
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<td>CTR211+</td>
<td>Judicial Internship</td>
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<td>CTR215+</td>
<td>Computer-Aided Transcription</td>
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<td>CTR251+</td>
<td>Court Reporting Speed Building Block III</td>
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<tr>
<td>CTR252+</td>
<td>Court Reporting Speed Building Block IV</td>
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<tr>
<td>CTR253+</td>
<td>Court Reporting Speed Building Block V</td>
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General Education Requirements ................................................................................................................. 21-24

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<th>Course Code</th>
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<td>BIO160</td>
<td>Introduction to Human Anatomy and Physiology</td>
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<td>COM100</td>
<td>Introduction to Human Communication (3) OR</td>
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<td>COM110</td>
<td>Interpersonal Communication (3)</td>
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<tr>
<td>CRE101+</td>
<td>Critical and Evaluative Reading I (3) OR</td>
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<td>CRE111+</td>
<td>Critical Reading for Business and Industry (3) OR</td>
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<tr>
<td>ENG101+</td>
<td>First-Year Composition (3) OR</td>
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<tr>
<td>ENG107+</td>
<td>First-Year Composition for ESL (3) AND</td>
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<tr>
<td>ENG102+</td>
<td>First-Year Composition (3) OR ENG108+</td>
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<tr>
<td>ENG111+</td>
<td>Technical and Professional Writing (3)</td>
<td>6</td>
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<tr>
<td>MAT112+</td>
<td>Mathematical Concepts and Applications (3) OR</td>
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<tr>
<td>PSY101</td>
<td>Introduction to Psychology</td>
<td>3</td>
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</tbody>
</table>

Any approved general education course in the Humanities, Arts and Design area ........................................ 2
CERTIFICATE OF COMPLETION IN COURT REPORTING – SCOPING/ TRANSCRIPTION
(17-21 CREDITS; CODE 5875 )
The Certificate of Completion (CCL) in Court Reporting: Scoping/Transcription program helps prepare students for employment as a scopist for court reporters and transcriptionists. This program will provide students with the knowledge and skill of reading machine shorthand notes and using computer-aided transcript software to work in conjunction with court reporters in editing and preparing text and transcripts. The curriculum provides instruction in realtime machine shorthand theory, use of computer-aided transcription software, and court procedures.

The second emphasis in transcription will provide students with the knowledge and skill of writing machine shorthand and using computer-aided transcript software to produce transcripts from an audio file. Both emphases will focus on English grammar, spelling, punctuation and proofreading, medical vocabulary, basic law and word processing skills are reinforced within the program curriculum as well.

Program Note:
Students must pass two timed writings of five minutes with a minimum speed of 45 wpm in order to complete this certificate.

Admission Criteria:
1. 45 wpm typing speed based on typing test at GateWay assessment center.
2. English Assessment - Placement into ENG101/ENG107 First-Year Composition on district placement exam OR permission of Department or Division.
3. Transcript(s) of high school graduation OR equivalent must be on file in the Admissions and Records Office.

Required Courses .............................................................................................................................................. 17-21
BPC101AA+ Introduction to Computers I (1) OR
Proficiency in computer usage as determined by Program Director........................................... 0-1
CTR105 Court Reporting: Punctuation and Grammar .............................................................................. 1
CTR106 Court Reporting: Legal Terminology ......................................................................................... 1
CTR107 Court Reporting: Medical Terminology...................................................................................... 1
CTR101+ Court Reporting: Machine Shorthand Theory Block I ......................................................... 6
CTR197+ Court Reporting Lab .................................................................................................................. 1
CTR215+ Computer-Aided Transcription ......................................................................................... 3
CTR271+ Scoping ................................................................................................................................. 2

Student must select one of two (2) tracks or may select both tracks:
Track I: Emphasis: Scoping
BPC/OAS130DK+Beginning Word .......................................................................................................... 1
BPC/OAS131DK+Intermediate Word ....................................................................................................... 1
CTR209+ Judicial Procedures for Court Reporting ............................................................................. 3

Track II: Emphasis: Transcription
CTR272+ Transcription......................................................................................................................... 2

DIAGNOSTIC MEDICAL SONOGRAPHY
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

CERTIFICATE OF COMPLETION IN DIAGNOSTIC MEDICAL SONOGRAPHY
(80 - 94 CREDITS; CODE 5656)
The Certificate of Completion (CCL) in Diagnostic Medical Sonography program is designed for students who wish to explore the field of sonography, as well as those who have made a career decision to seek certification from the American Registry of Diagnostic Medical Sonographers (A.R.D.M.S.). Diagnostic medical sonographers are highly specialized members of the health care team who provide patient services using ultrasound under the direction of a physician. Sonographers provide care essential to diagnostic ultrasound imaging by operating equipment and...
Professional Education Certificate & Degree Programs

performing examinations for medical diagnosis. Sonographers have an in-depth knowledge of physics, disease processes, physiology, cross-sectional anatomy, positioning and sonographic techniques necessary to create ultrasound images. Knowledge of darkroom techniques, equipment maintenance, record keeping and film processing are also part of the job.

Careers in the field of diagnostic sonography can be found in hospitals, clinics, doctors’ offices, and mobile imaging centers. Research, applications, teaching and marketing may be available to sonographers who wish to explore careers in business or industry.

Educational Information:
The Diagnostic Medical Sonography program is open to all students who successfully complete the program prerequisites. Full-time day students must apply to the program and be accepted prior to registering for course offerings. The full-time program is 21 months in length. Clinical affiliations include a cooperative effort with a number of area hospitals, clinics and doctors’ offices. Clinical training is required by the American Registry of Diagnostic Medical Sonographers (A.R.D.M.S.) prior to sitting for the Registry examination.

Program Note:
Due to the requirements of the program accrediting body, the course of study requires many hours of classroom and clinical time.

Admission Criteria:
1. Formal application and admission to the program.
2. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
3. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
4. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

Program Prerequisites

Formal application to the Diagnostic Medical Sonography program can be made upon completion of the required prerequisite courses.

Successful completion of the following college courses with a minimum, cumulative GPA of 3.0.

BIO160 Introduction to Human Anatomy and Physiology (4) OR
BIO201+ Human Anatomy and Physiology I (4) AND
BIO202+ Human Anatomy and Physiology II (4).................. 4-8

Students selecting BIO201 and BIO202 must complete the prerequisite courses BIO146 or BIO181

BIO156+ Introductory Biology for Allied Health (4) OR
BIO181+ General Biology (Majors) I (4) OR
One year high school biology with a grade of C or better.......................... 0-4

COM+++++ Any approved general education course from the Oral Communication area .. 3

ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3).............................. 3

HCC145 Medical Terminology for Health Care Workers (3) OR
HCC146 Common Medical Terminology for Health Care Workers (2) OR
Graduate of an allied health education program that is patient care related................. 0-3

MAT120+ Intermediate Algebra (5) OR
MAT121+ Intermediate Algebra (4) OR
MAT122+ Intermediate Algebra (3) OR
Equivalent course or satisfactory completion of higher-level mathematics course .......... 3-5

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

Careers in the field of diagnostic sonography can be found in hospitals, clinics, doctors’ offices, and mobile imaging centers. Research, applications, teaching and marketing may be available to sonographers who wish to explore careers in business or industry.

Required Courses .................................................................................................................................................... 64

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
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<td>DMS101</td>
<td>Patient Care in Diagnostic Sonography</td>
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<tr>
<td>DMS110+</td>
<td>Introduction to Diagnostic Sonography</td>
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<tr>
<td>DMS120+</td>
<td>Ultrasound Imaging: Abdominal Procedures I</td>
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</tr>
<tr>
<td>DMS120LL+</td>
<td>Ultrasound Imaging: Abdominal Procedures I Laboratory</td>
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<tr>
<td>DMS121+</td>
<td>Ultrasound Imaging: Abdominal Procedures II</td>
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<tr>
<td>DMS130+</td>
<td>Ultrasound Imaging: OB/GYN Procedures</td>
<td>4</td>
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<td>DMS140+</td>
<td>Ultrasound Case Studies: Part I</td>
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<td>DMS145+</td>
<td>Clinical Pathology for Diagnostic Imaging</td>
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<td>DMS150+</td>
<td>Sonographic Principles and Instrumentation</td>
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<td>DMS155+</td>
<td>Clinical Practicum I</td>
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<td>Clinical Practicum II-AA</td>
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<td>DMS162+</td>
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<td>DMS163+</td>
<td>Clinical Practicum II-AC</td>
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<td>DMS171+</td>
<td>Clinical Practicum III-AA</td>
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<td>DMS172+</td>
<td>Clinical Practicum III-AB</td>
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<td>Concepts of Vascular Imaging</td>
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<td>Concepts of Vascular Imaging Laboratory</td>
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<td>DMS225+</td>
<td>High Risk Obstetric/Gynecology Sonography</td>
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<td>DMS240+</td>
<td>Ultrasound Case Studies: Part II</td>
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<td>DMS241+</td>
<td>Ultrasound Case Studies: Part III</td>
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<td>DMS250+</td>
<td>Musculoskeletal Sonography and Small Parts</td>
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<td>DMS261+</td>
<td>Clinical Practicum IV-AA</td>
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<td>DMS262+</td>
<td>Clinical Practicum IV-AB</td>
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<td>DMS270+</td>
<td>Clinical Practicum V-AA</td>
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<td>Clinical Practicum V-AB</td>
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<tr>
<td>DMS272+</td>
<td>Clinical Practicum V-AC</td>
<td>2</td>
</tr>
<tr>
<td>DMS281+</td>
<td>Ultrasound Registry Preparation Seminar: Physics and Instrumentation</td>
<td>1</td>
</tr>
<tr>
<td>DMS282+</td>
<td>Ultrasound Registry Preparation Seminar: Abdominal and Small Parts Imaging</td>
<td>1</td>
</tr>
<tr>
<td>DMS283+</td>
<td>Ultrasound Registry Preparation Seminar: Obstetrics, Gynecology, and Neonate</td>
<td>1</td>
</tr>
<tr>
<td>DMS284+</td>
<td>Ultrasound Registry Preparation: Vascular Imaging</td>
<td>1</td>
</tr>
<tr>
<td>DMS285+</td>
<td>Intermediate Vascular Technology</td>
<td>2</td>
</tr>
<tr>
<td>DMS286+</td>
<td>Advanced Vascular Technology</td>
<td>2</td>
</tr>
<tr>
<td>DMS286LL+</td>
<td>Advanced Vascular Technology Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

ASSOCIATE IN APPLIED SCIENCE DEGREE IN DIAGNOSTIC MEDICAL SONOGRAPHY
(88 -106 CREDITS; CODE 3656 )

The Associate of Applied Sciences (AAS) in Diagnostic Medical Sonography program is designed for students who wish to explore the field of sonography, as well as those who have made a career decision to seek certification from the American Registry of Diagnostic Medical Sonographers (A.R.D.M.S.). Diagnostic medical sonographers are highly specialized members of the health team who provide patient services using ultrasound under the direction of a physician. Sonographers provide care essential to diagnostic ultrasound imaging by operating equipment and performing examinations for medical diagnosis. Sonographers have an in-depth knowledge of physics, disease processes, physiology, cross-sectional anatomy, positioning and sonographic techniques necessary to create ultrasound images. Knowledge of darkroom techniques, equipment maintenance, record keeping and film processing are also part of the job.

Careers in the field of diagnostic sonography can be found in hospitals, clinics, doctors’ offices, and mobile imaging centers. Research, applications, teaching and marketing may be available to sonographers who wish to explore careers in business or industry.

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

### Educational Information:
The Diagnostic Medical Sonography program is open to all students who successfully complete the program prerequisites. Full-time day students must apply to the program and be accepted prior to registering for course offerings. The full-time program is 21 months in length. Clinical affiliations include a cooperative effort with a number of area hospitals, clinics and doctors' offices. Clinical training is required by the American Registry of Diagnostic Medical Sonographers (A.R.D.M.S.) prior to sitting for the Registry examination.

### Program Note:
*Due to the requirements of the program accrediting body, the course of study requires many hours of classroom and clinical time.*

### Admission Criteria:
1. Formal application and admission to the program.
2. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
3. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
4. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

### Program Prerequisites: 16-30
Formal application to the Diagnostic Medical Sonography program can be made upon completion of the required prerequisite courses.

Successful completion of the following college courses with a minimum, cumulative GPA of 3.0.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO160</td>
<td>Introduction to Human Anatomy and Physiology (4) OR</td>
</tr>
<tr>
<td>BIO201+</td>
<td>Human Anatomy and Physiology I (4) AND</td>
</tr>
<tr>
<td>BIO202+</td>
<td>Human Anatomy and Physiology II (4) ......................... 4-8</td>
</tr>
<tr>
<td>BIO146</td>
<td>Introductory Biology for Allied Health (4) OR</td>
</tr>
<tr>
<td>BIO181+</td>
<td>General Biology (Majors) I (4) OR</td>
</tr>
<tr>
<td>BIO145</td>
<td>Medical Terminology for Health Care Workers (3) OR</td>
</tr>
<tr>
<td>BIO146</td>
<td>Common Medical Terminology for Health Care Workers (2) OR</td>
</tr>
<tr>
<td>ENG101+</td>
<td>First-Year Composition (3) OR</td>
</tr>
<tr>
<td>ENG107+</td>
<td>First-Year Composition for ESL (3) ................................. 3</td>
</tr>
<tr>
<td>MAT120+</td>
<td>Intermediate Algebra (5) OR</td>
</tr>
<tr>
<td>MAT121+</td>
<td>Intermediate Algebra (4) OR</td>
</tr>
<tr>
<td>MAT122+</td>
<td>Intermediate Algebra (3) OR</td>
</tr>
<tr>
<td>PHY101+</td>
<td>General Physics I (4) ................................................. 3-4</td>
</tr>
</tbody>
</table>

### Required Courses: 64

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>DMI220+</td>
<td>Sectional Anatomy ................................................. 3</td>
</tr>
<tr>
<td>DMS101</td>
<td>Patient Care in Diagnostic Sonography ......................... 1</td>
</tr>
<tr>
<td>DMS110+</td>
<td>Introduction to Diagnostic Sonography ............................. 1</td>
</tr>
<tr>
<td>DMS120+</td>
<td>Ultrasound Imaging: Abdominal Procedures I ......................... 3</td>
</tr>
<tr>
<td>DMS120LL+</td>
<td>Ultrasound Imaging: Abdominal Procedures I Laboratory ........... 1</td>
</tr>
</tbody>
</table>

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
### Electrical Technology

#### Certificate of Completion

To assist industry in maintaining a safe and efficient facility, the facility electrician must have specialized knowledge in electricity, refrigeration, solid state electronic controls and safety. Facility electricians work closely with plant administration, regulatory agencies, safety analysts and engineers to provide both long and short term planning to meet the needs of the facility.

**Chair:** John Kelly  
**Division:** Industrial Technology

#### Associate in Applied Science Degree

To qualify, students must earn a grade of "C" or better in all courses within the program.

**Division:** Industrial Technology  
**Chair:** John Kelly

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### General Education Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRE101+</td>
<td>College Critical Reading (3) OR Critical Reading for Business and Industry (3) OR Equivalent as indicated by assessment</td>
<td>0-3</td>
</tr>
<tr>
<td>ENG102+</td>
<td>First-Year Composition (3) OR First-Year Composition for ESL (3)</td>
<td>3</td>
</tr>
</tbody>
</table>

Any approved general education course in the Humanities, Arts and Design area: 2-3  
Any approved general education course in the Social and Behavioral Sciences area: 3
Professional Education Certificate & Degree Programs

regulatory compliance, maintain a safe work environment and a cost controlled and efficient production schedule. The certificate and associate degree programs were recommended and designed by a collaborative effort of the Electric League of Arizona and GateWay Community College. The Electric League, whose industry members include City of Phoenix, Honeywell Flight Systems, IPEC Planar and Salt River Project, endorse this program. Graduates of this program will find employment with many of the companies that are members of the Electric League.

Program Prerequisites
Completion of math ASSET test with a minimum score of 43 and permission of department.

Required Courses ................................................................................................................................................... 43
ELC119  Concepts of Electricity and Electronics ................................................................................................. 3
ELC120  Solid State Fundamentals ......................................................................................................................... 3
ELC123  Residential Electrical Wiring and Codes ............................................................................................ 3
ELC124+ Industrial Electrical Wiring and Codes ............................................................................................ 3
ELC125+ Commercial Electrical Wiring and Codes ..................................................................................... 3
ELC144+ Basic Automated Systems Using Programmable Controllers .................................................. 2
ELC162+ Electrical Codes and Inspection I ........................................................................................................ 3
ELC163+ Electrical Codes and Inspection II ..................................................................................................... 3
ELC164  Grounding and Bonding .......................................................................................................................... 3
ELC210  AC Machinery and DC Machinery ...................................................................................................... 3
ELC217  Motor Controls ........................................................................................................................................ 3
ELC218+ Variable Frequency Drives .............................................................................................................. 3
ELE101+ Beginning Algebra for Technology ................................................................................................. 3
ELE105+ Algebra-Trigonometry for Technology ............................................................................................ 5

ASSOCIATE IN APPLIED SCIENCE DEGREE IN ELECTRICAL TECHNOLOGY
(60-65 CREDITS; CODE 3767)
This Associate in Applied Science (AAS) in Electrical Technology is designed to provide students with a broadened educational background and leadership skills in electrical technology. This expertise will allow employment within the industry in the areas of management, sales, field service, business ownership or instruction. Students are admitted to the AAS in Electrical Technology only through the Electric League of Arizona.

Program note:
Students must earn a grade of “C” or better in all courses within the program.
+ indicates course has prerequisites and/or co-requisites.

Admission Criteria:
Formal application and admission to the program by the Electric League of Arizona and a high school diploma, GED, or 6 months electrical industry or related experience.

Program Prerequisites
None

Required Courses ................................................................................................................................................... 38
ELC119  Concepts of Electricity and Electronics ................................................................................................. 3
ELC120  Solid State Fundamentals ......................................................................................................................... 3
ELC123  Residential Electrical Wiring and Codes ............................................................................................ 3
ELC124+ Industrial Electrical Wiring and Codes ............................................................................................ 3
ELC125+ Commercial Electrical Wiring and Codes ..................................................................................... 3
ELC144+ Basic Automated Systems Using Programmable Controllers .................................................. 2
ELC160  Electrical Codes & Inspection I .............................................................................................................. 3
ELC163+ Electrical Codes and Inspection II ..................................................................................................... 3
ELC164  Grounding and Bonding .......................................................................................................................... 3
ELC210  AC Machinery and DC Machinery ...................................................................................................... 3
ELC217  Motor Controls ........................................................................................................................................ 3
ELC218+ Variable Frequency Drives .............................................................................................................. 3

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

General Education Requirements ......................................................................................................................... 25
General Education Requirement Credits: 22-27

General Education Core ........................................................................................................................................ Credits: 12-17

First-Year Composition
Credits: 6
+ ENG101 First-Year Composition (3) OR
+ ENG107 First-Year Composition for ESL (3) AND
+ ENG102 First-Year Composition (3) OR
+ ENG108 First-Year Composition for ESL (3) OR
+ ENG111 Technical and Professional Writing (3) 6

Oral Communication
Credits: 3
COM230 Small Group Communication 3

Critical Reading
Credits: 3
+ CRE101 Critical Reading (3) OR
Equivalent by Assessment 0-3

Mathematics
Credits: 3
+ MAT120 Intermediate Algebra (5) OR
+ MAT121 Intermediate Algebra (4) OR
+ MAT122 Intermediate Algebra (3) OR
equivalent course or satisfactory completion of a higher level mathematics course 3-5

General Education Distribution
Credits: 10

Humanities and Fine Arts
Credits: 3
Any approved general education course from the Humanities, Arts and Design area. 3

Social and Behavioral Sciences
Credits: 3
Any approved general education course from the Social and Behavioral Sciences area. 3

Natural Sciences
Credits: 4
+ CHM130 Fundamental Chemistry (3) AND
+ CHM130LL Fundamental Chemistry Laboratory (1) 4

Program Competencies
1. Solve mathematical and algebraic problems using equations and formulas. (ELC103)
2. Define and describe principles, concepts, and devices related to electronics and solid state technology. (ELC119, ELC120)
3. Interpret blueprints specific to residential, industrial, and commercial wiring and the uniform electrical codes. (ELC123, ELC124, ELC125)
4. Describe and analyze the design and operation of specific, programmed control systems. (ELC144)
5. Describe National Electrical Code (NEC) requirements for hazardous locations and inspection practices. (ELC160 ELC163)
6. Interpret electrical code requirements for grounding and bonding. (ELC164)
7. Explain the principles and operation of alternating current (AC) and direct current (DC) motors, generators, and alternators. (ELC210)
8. Perform electrical maintenance and service on contacts and starters, control devices, reversing circuits and power distribution systems. (ELC217)

9. Describe principles and operations of frequency controlled AC motor drives and perform electrical maintenance and service on current source inverters (CSI), variable voltage inverters (VVI) and pulse width modulated inverters (PWM). (ELC218)

**ELECTRICAL TECHNOLOGY - RESIDENTIAL WIRING**

**CERTIFICATE OF COMPLETION**

**CERTIFICATE OF COMPLETION IN ELECTRICAL TECHNOLOGY (15 CREDITS; CODE 5756)**

This certificate program is specifically designed to provide a foundation of fundamental electrical knowledge and skills in residential electrical applications. These include use of tools, applied calculations, theories and concepts of electricity and electronics, residential wiring and codes. The Certificate of Completion (CCL) lays the framework for the International Code Council (ICC) and International Association of Electrical Inspectors (IAEI) certification exams. Students are admitted to the Certificate of Completion (CCL) in Electrical Technology-Residential Wiring program only through the Electric League of Arizona.

**Program note:**

*Students must earn a grade of “C” or better in all courses within the program.*

+ indicates course has prerequisites and/or co-requisites.

**Admission Criteria:**

- Formal application and admission to the program by the Electric League of Arizona and a high school diploma, GED, or 6 months electrical industry or related experience.

**Program Prerequisites:**

- None

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ ELC103</td>
<td>Electrical/Mechanical Calculations</td>
<td>3</td>
</tr>
<tr>
<td>+ ELC119</td>
<td>Concepts of Electricity and Electronics</td>
<td>3</td>
</tr>
<tr>
<td>+ ELC123</td>
<td>Residential Electrical Wiring and Codes</td>
<td>3</td>
</tr>
<tr>
<td>+ ELC160</td>
<td>Electrical Codes and Inspection</td>
<td>13</td>
</tr>
<tr>
<td>+ ELC164</td>
<td>Grounding and Bonding</td>
<td>3</td>
</tr>
</tbody>
</table>

**Program Competencies**

1. Solve mathematical and algebraic problems using equations and formulas. (ELC103)
2. Define and describe principles, concepts, and devices related to electronics and solid state technology. (ELC119)
3. Interpret blueprints specific to residential, industrial, and commercial wiring and the uniform electrical codes. (ELC123)
4. Describe National Electrical Code (NEC) requirements for hazardous locations and inspection practices. (ELC160)
5. Interpret electrical code requirements for grounding and bonding. (ELC164)

**ELECTRONEURODIAGNOSTIC (END) TECHNOLOGY**

**ASSOCIATE IN APPLIED SCIENCE DEGREE**

To qualify, students must earn a grade of “C” or better in all courses within the program.

**Division:** Health Sciences

**Chair:** Bryan Dodd

**ASSOCIATE IN APPLIED SCIENCE DEGREE IN ELECTRONEURODIAGNOSTIC (END) TECHNOLOGY**

(60.5 - 79.5 CREDITS; CODE 3136)

The Associate in Applied Science (AAS) in Electroneurodiagnostic (END) Technology program is designed to prepare students to use electrical techniques to evaluate activity of the brain and spinal cord and to perform electroencephalograms (EEG’s), evoked potentials (EP’s), and nerve conduction velocity studies (NCV’s) in...
Professional Education Certificate & Degree Programs

hospitals and other healthcare facilities. The program focuses on the general area of biomedical electronics with specific instruction in the theory and use of END instruments and factors influencing testing outcomes and reporting.

Successful completion of the AAS degree in Electroneurodiagnostic Technology program enables the student to take the American Board of Registered Electroneurodiagnostic Technologists (ABRET) examination to become a Registered Electroneurodiagnostic Technologist (R. EEG T.).

Admission Criteria:
1. Formal application can be made at any time.
2. Formal admission to the program is required.
3. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
4. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
5. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

Program Prerequisites ............................................................................................................................... 12.5-27.5

BIO160 Introduction to Human Anatomy and Physiology (4) OR
BIO201+ Human Anatomy and Physiology I (4) AND
BIO202+ Human Anatomy and Physiology II (4) ......................................................................................... 4-8
Students selecting BIO201 and BIO202 must complete the prerequisite courses BIO146 or BIO181
BIO156+ Introductory Biology for Allied Health (4) OR
BIO181+ General Biology (Majors) I (4) OR
One year high school biology with a grade of C or better......................................................................... 0-4

ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) .............................................................................................. 3

MAT120+ Intermediate Algebra (5) OR
MAT121+ Intermediate Algebra (4) OR
MAT122+ Intermediate Algebra (3) OR
Equivalent course or satisfactory completion of a higher level mathematics course ......................... 3-5

The following courses may be taken as program prerequisites or concurrent with required courses. HCC courses must be completed prior to clinical if taken concurrent with required courses.

HCC/RES109 CPR for Health Care Provider (0.5) OR
Proof of Current Health Care Provider CPR Certification (0) .................................................................. 0-0.5
HCC130 Fundamentals in Health Care Delivery (3) OR
HCC130AA Health Care Today (0.5) AND
HCC130AB Workplace Behaviors in Health Care (0.5) AND
HCC130AC Personal Wellness and Safety (0.5) AND
HCC130AD Communication and Teamwork in Health Care Organizations (0.5) AND
HCC130AE Legal Issues in Health Care (0.5) AND
HCC130AF Decision Making in the Health Care Setting (0.5) OR
Work experience or equivalent course education as evaluated by the GateWay Health Care Curriculum Coordinator ..................................................................................................................... 0-0.5

HCC145 Medical Terminology for Health Care Workers (3) OR
HCC146 Common Medical Terminology for Health Care Workers (2) ................................................. 2-3
HCC164+ Pharmacology for Allied Health ................................................................................................. 0.5

HCC200+ Basic Client Care for Allied Health (0.5) OR
Work experience or equivalent education as evaluated by the GateWay Health Care Curriculum Coordinator ..................................................................................................................... 0-0.5

Required Courses ......................................................................................................................................... 37

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
EEG115+ Biomedical Electronic Technology I .................................................................................. 2
EEG116+ Biomedical Electronic Technology II ............................................................................. 3
EEG130+ Introduction to EEG ....................................................................................................... 4
EEG140+ Basic Electroneurodiagnostic Skills ............................................................................. 2
EEG200+ Clinical Rotation I ......................................................................................................... 3
EEG201+ Intermediate EEG ........................................................................................................ 4
EEG205+ Applied Evoked Potentials and Nerve Conduction Studies ...................................... 2
EEG206+ Advanced EEG ............................................................................................................ 2
EEG207+ Electroneurodiagnostic Record Review .......................................................................... 4
EEG210+ Applied Neurophysiology ............................................................................................. 3
EEG211+ Clinical Rotation II ...................................................................................................... 3
EEG282AA+ Volunteerism for Electroneurodiagnostic Technology: Service Learning Experience ................................. 1

HRC101+ Overview of Healthcare Compliance ........................................................................... 1

**General Education Requirements** ......................................................................................... 11-15
ENG102+ First-Year Composition (3) OR ENG108+ First-Year Composition for ESL (3) OR
ENG111+ Technical and Professional Writing (3) ....................................................................... 3
CRE101+ College Critical Reading (3) OR CRE111+ Critical Reading for Business and Industry (3) OR
Equivalent as indicated by assessment ....................................................................................... 0-3
PSY101 Introduction to Psychology ............................................................................................... 3

Any approved general education course from the Oral Communication area ......................... 3
Any approved general education course from the Humanities, Arts and Design area ............ 3

**ENTREPRENEURIAL STUDIES**
**CERTIFICATE OF COMPLETION**
To qualify, students must earn a grade of "C" or better in all courses within the program.

Division: Business and Information Technologies
Chair: David Smith

**CERTIFICATE OF COMPLETION IN ENTREPRENEURIAL STUDIES LEVEL I**
**(10 -11 CREDITS; CODE 5819 N)**
The Certificate of Completion (CCL) in Entrepreneurial Studies Level I program is designed to provide students with an introduction to the entrepreneurial process. Courses include a history of entrepreneurship, current research into its impacts on society, types of business start-up opportunities, and creating a preliminary business plan, as well as securing a healthy financial future.

**Required Courses** .................................................................................................................. 10-11
EPS150 Introduction to Entrepreneurship .................................................................................... 3
EPS160 New Venture Creation ..................................................................................................... 2
EPS180 Technology Business Planning (3) OR
EPS195 Business Start-Up and Planning (2) .............................................................................. 2-3
GBS/HEC132 Personal and Family Financial Security ................................................................ 3
GENERAL BUSINESS  
CERTIFICATE OF COMPLETION  
ASSOCIATE IN APPLIED SCIENCE DEGREE  
To qualify, students must earn a grade of “C” or better in all courses within the program.  
Division: Business and Information Technologies Chair: David Smith  
Certificate of Completion in General Business (21 Credits; Code 5683)  

The Certificate of Completion (CCL) in General Business will provide business training for various entry-level positions in business. The courses include an introduction to business concepts, accounting and computer principles, and legal issues related to business. An Associate in Applied Science (AAS) is also available.

**Required Courses:**
- ACC111 Accounting Principles I ................................................................. 12
- CIS105 Survey of Computer Information Systems ........................................ 3
- GBS151 Introduction to Business ................................................................. 3
- GBS205 Legal, Ethical and Regulatory Issues in Business .......................... 3

**Restricted Electives:**
Students should select nine (9) credits from the following courses.  
Any 100/200 level prefixed courses may be selected, except courses used to satisfy the Required Courses area.
- ACC+++++ Any ACC Accounting course(s) ................................................. 1-9
- EPS+++++ Any EPS Entrepreneurial Studies Course(s) ............................... 1-3
- GBS+++++ Any GBS General Business prefixed courses not listed under the Required Courses area.... 1-9
- IBS+++++ Any IBS International Business prefixed courses ....................... 1-9
- MGT+++++ Any MGT Management prefixed courses .................................. 1-9
- MKT+++++ Any MKT Marketing prefixed courses ........................................ 1-9
- REA+++++ Any REA Real Estate prefixed courses ....................................... 1-9
- SBS+++++ Any SBS Small Business Management prefixed courses ........... 1-9
- CIS114DE Excel Spreadsheet ................................................................. 3
- CIS117DM Microsoft Access: Database Management ............................... 3
- CIS133DA Internet/Web Development Level I ........................................... 3

ASSOCIATE IN APPLIED SCIENCE DEGREE IN GENERAL BUSINESS  
(61 - 66 CREDITS; CODE 3148)  
The Associate in Applied Science (AAS) in General Business program meets the needs of students who wish a broad overview of business and desire not to enroll in a specialized curriculum in business. The program is designed to acquaint students with major subject areas of business, to improve the student’s business vocabulary, and to provide students with an understanding of influencing factors in business decision making and activities. In addition, this program could aid a student in recognizing a specific business field to be pursued in future studies. Although many courses will transfer to a four-year institution, some courses do not. This curriculum is not designed to meet the needs of students who wish to transfer to a four-year institution. A Certificate of Completion (CCL) is also available.

**Required Courses**
- ACC111 Accounting Principles I ................................................................. 3
- CIS105 Survey of Computer Information Systems ........................................ 3
- GBS110 Human Relations in Business and Industry (3) OR  
- MGT175 Business Organization and Management (3) OR  
- MGT251 Human Relations in Business (3) ................................................ 3
- GBS151 Introduction to Business ................................................................. 3
- GBS205 Legal, Ethical and Regulatory Issues in Business .......................... 3
- GBS233+ Business Communication ........................................................... 3
- MKT271 Principles of Marketing ................................................................. 3

**Restricted Electives**  
Students should select eighteen (18) credits from the following courses.  
Any 100/200 level prefixed courses may be selected, except courses used to satisfy the Required Courses area.
Professional Education Certificate & Degree Programs

ACC+++++ Any ACC Accounting course(s) ................................................................. 1-18
EPS+++++ Any EPS Entrepreneurial Studies course(s) ............................................... 1-18
GBS+++++ Any GBS General Business course(s) except courses used to satisfy Required Courses area. ................................................................. 1-18
IBS+++++ Any IBS International Business course(s) .................................................. 1-18
MGT+++++ Any MGT Management course(s) except courses used to satisfy Required Courses area. ................................................................. 1-18
MKT+++++ Any MKT Marketing course(s) except courses used to satisfy Required Courses area. ................................................................. 1-18
REA+++++ Any REA Real Estate course(s) ................................................................. 1-18
SBS+++++ Any SBS Small Business Management course(s) .................................... 1-18

CIS114DE Excel Spreadsheet .................................................................................. 3
CIS117DM Microsoft Access: Database Management ........................................... 3
CIS133DA Internet/Web Development Level I .......................................................... 3

General Education Requirements ........................................................................... 22-27
CRE101+ College Critical Reading (3) OR Equivalent by assessment ..................... 0-3
ECN211 Macroeconomic Principles (3) OR
ECN212 Microeconomic Principles (3) OR
SBU200 Society and Business ................................................................................ 3
ENG101+ First-Year Composition (3) OR ENG107+ First-Year Composition for ESL (3) AND ENG102+ First-Year Composition (3) OR ENG108+ First-Year Composition for ESL (3) ......................................................................................... 6
MAT120+ Intermediate Algebra (5) OR MAT121+ Intermediate Algebra (4) OR MAT122+ Intermediate Algebra (3) ............................... 3-5

Any approved general education course in the Oral Communication area .................. 3
Any approved general education course in the Humanities, Arts and Design area ........ 3
Any approved general education course in the Natural Sciences area ........................ 4

HEALTH SERVICES MANAGEMENT
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

CERTIFICATE OF COMPLETION IN HEALTH SERVICES MANAGEMENT
(13-19 CREDITS; CODE 5336 N)
The Certificate of Completion (CCL) in Health Services Management program prepares students to become candidates for leadership, supervisory and management positions in health services settings. The health services supervisor must develop skills to be an effective leader and planner, capable of coaching and developing motivated and committed employees and employee teams.

Required Courses .................................................................................................. 13-19
The following HCC courses may be taken as program prerequisites or concurrent with required courses.
HCC130 Fundamentals in Health Care Delivery (3) OR
HCC130AA Health Care Today (0.5) AND
HCC130AB Workplace Behaviors in Health Care (0.5) AND
HCC130AC Personal Wellness and Safety (0.5) AND

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
### Professional Education Certificate & Degree Programs

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCC130AD</td>
<td>Communication and Teamwork in Health Care Organizations</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AE</td>
<td>Legal Issues in Health Care</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AF</td>
<td>Decision Making in Health Care Setting (0.5)</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC1145</td>
<td>Medical Terminology for Health Care Workers</td>
<td>3</td>
</tr>
<tr>
<td>HRC101+</td>
<td>Overview of Healthcare Compliance</td>
<td>1</td>
</tr>
<tr>
<td>HSM122</td>
<td>Health Services Supervision</td>
<td>3</td>
</tr>
<tr>
<td>HSM125</td>
<td>Current Issues in Health Services Management</td>
<td>3</td>
</tr>
<tr>
<td>HSM222</td>
<td>Health Services Management</td>
<td>3</td>
</tr>
<tr>
<td>HSM226</td>
<td>Ethics and Legalities of Health Services Management</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Associate in Applied Science Degree in Health Services Management (62 - 73 Credits; Code 3336)

The Associate in Applied Science (AAS) in Health Services Management program prepares students to become supervisors and managers in all types of varied health care settings. Classroom experiences focus on the development of skills to be an effective leader and planner, capable of directing, coaching and developing motivated employees and employee teams. This is a program for current supervisors and managers who would like to enhance their skills as well as other employees currently working in a health care discipline who would like to take on more responsibilities. It is also appropriate for individuals planning to enter a health care field who may wish to be candidates for promotional opportunities.

#### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC111</td>
<td>Accounting Principles I</td>
<td>3</td>
</tr>
<tr>
<td>BPC/CIS+++</td>
<td>Any 100/200 level BPC Business-Personal Computers</td>
<td>2</td>
</tr>
<tr>
<td>CSM/TQM101</td>
<td>Quality Customer Service</td>
<td>3</td>
</tr>
<tr>
<td>GBS233+</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>HCC130</td>
<td>Fundamentals in Health Care Delivery</td>
<td>3</td>
</tr>
<tr>
<td>HCC130AA</td>
<td>Health Care Today</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AB</td>
<td>Workplace Behaviors in Health Care</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AC</td>
<td>Personal Wellness and Safety</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AD</td>
<td>Communication and Teamwork in Health Care Organizations</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AE</td>
<td>Legal Issues in Health Care</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AF</td>
<td>Decision making in the Health Care Setting</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC1145</td>
<td>Medical Terminology for Health Care Workers</td>
<td>3</td>
</tr>
<tr>
<td>HRC101</td>
<td>Overview of Healthcare Compliance</td>
<td>1</td>
</tr>
<tr>
<td>HRC228+</td>
<td>Healthcare Industry Regulation</td>
<td>3</td>
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<tr>
<td>HRC230+</td>
<td>Healthcare Corporate Compliance Program Design</td>
<td>3</td>
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<tr>
<td>HRC232+</td>
<td>Health Care Regulatory Compliance Program Design</td>
<td>3</td>
</tr>
<tr>
<td>HRC234+</td>
<td>Health Care Regulatory Enforcement Case Studies</td>
<td>3</td>
</tr>
<tr>
<td>HSM122</td>
<td>Health Services Supervision</td>
<td>3</td>
</tr>
<tr>
<td>HSM125</td>
<td>Current Issues in Health Services Management</td>
<td>3</td>
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<tr>
<td>HSM222</td>
<td>Health Services Management</td>
<td>3</td>
</tr>
<tr>
<td>HSM226</td>
<td>Ethics and Legalities of Health Services Management</td>
<td>3</td>
</tr>
<tr>
<td>HSM282AA+</td>
<td>Volunteerism for Health Services Management: A Service Learning Experience</td>
<td>1</td>
</tr>
</tbody>
</table>

* Indicates course has prerequisites and/or co-requisites.  
++ Indicates any module suffixed courses.
HEALTH UNIT COORDINATING/PATIENT CARE ASSOCIATE
CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

CERTIFICATE OF COMPLETION IN HEALTH UNIT COORDINATING/PATIENT CARE ASSOCIATE
(16 -23 CREDITS; CODE 5307 )
The Certificate of Completion (CCL) in Health Unit Coordinating/Patient Care Associate program offers two options which focus on the work involved in the nursing unit in health care facilities.

The Health Unit Coordinating option I focuses on the coordination of non-clinical activities related to patient care. Professional duties include processing doctors’ orders, scheduling diagnostic tests and treatments for patients, managing the patients’ paper and electronic charts, managing unit supplies and equipment, and facilitation of workflow in the health care setting. Communication duties include managing telephone and patient intercom calls.

The Patient Care Associate option II adds the role of the nursing assistant for clients across the wellness/illness continuum within the nurse assisting scope of practice to the Health Unit Coordinator role.

Program note:
HCC courses may be taken concurrently with HUC required courses or as pre-requisites.

The HUC required courses must be taken concurrently if seeking a Certificate of Completion in Health Unit Coordination/Patient Care Associate with the exception of HUC113 which may be taken one semester prior.

Admission Criteria:
1. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
2. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
Professional Education Certificate & Degree Programs

3. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements during the program may result in cancellation of enrollment in the HUC115 and HUC116 classes.

Required Courses ............................................................................................................................................. 16-17

Two options are available for student enrollment:
Option I - Health Unit Coordinating is for entry level students with no prior healthcare experience.
Option II - Patient Care Associate is for students who have completed NUR158 Nurse Assisting or the Certificate of Completion (CCL) Nursing Assisting (5963) or transfer 5-6 credits from a regionally accredited institution of higher education.

Option I: Health Unit Coordinating Emphasis ............................................................................................... 16-17
HCC130  Fundamentals in Health Care Delivery (3) OR
HCC130AA Health Care Today (0.5) AND
HCC130AB Workplace Behaviors in Health Care (0.5) AND
HCC130AC Personal Wellness and Safety (0.5) AND
HCC130AD Communication and Teamwork in Health Care Organizations (0.5) AND
HCC130AE Legal Issues in Health Care (0.5) AND
HCC130AF Decision Making in the Health Care Setting (0.5) ................................................................. 3
HCC145 or HCC146 must be taken within the last 5 academic years.
HCC145  Medical Terminology for Health Care Workers (3) OR
HCC146  Common Medical Terminology for Health Care Workers (2) ................................................. 2-3
HUC111+ Communication and Hospital Unit Management in Health Unit Coordinating .......................... 2
HUC113+ Diagnostic Tests and Treatments ................................................................................................. 4
HUC114+ Health Unit Coordinator Procedures ......................................................................................... 2
HUC115+ Health Unit Coordinator Clinical ................................................................................................. 2
HUC116+ Health Unit Coordinating Clinical Seminar .................................................................................. 1

Option II: Patient Care Associate Emphasis ................................................................................................... 16-17
NUR158+ Nurse Assisting (6) OR
Certificate of Completion (CCL) in Nursing Assisting (5963) (6) OR
Transfer 5-6 credits in Nursing Assisting from a regionally accredited institution of higher education (5-6) ...................................................................................................................... 5-6
HUC111+ Communication and Hospital Unit Management in Health Unit Coordinating .......................... 2
HUC113+ Diagnostic Tests and Treatments ................................................................................................. 4
HUC114+ Health Unit Coordinator Procedures ......................................................................................... 2
HUC115+ Health Unit Coordinator Clinical ................................................................................................. 2
HUC116+ Health Unit Coordinating Clinical Seminar .................................................................................. 1

Restricted Electives ............................................................................................................................................... 0-6
Students preparing for the Clinical Research Assistant may complete zero (0) to six (6) credits with permission of the Clinical Research Coordinator Program Director.
CRC120 Introduction to Clinical Research ................................................................................................. 4
CRC255 Introduction to Medical Devices in Clinical Evaluation ................................................................. 2

HEALTHCARE REGULATORY COMPLIANCE
CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

CERTIFICATE OF COMPLETION IN HEALTHCARE REGULATORY COMPLIANCE
(16 -19 CREDITS; CODE 5773 N)
The Certificate of Completion (CCL) in Healthcare Regulatory Compliance program is designed to provide academic preparation for health care professionals wishing to specialize in health care regulatory compliance.

Required Courses ............................................................................................................................................. 16-19
The following HCC courses may be taken as program prerequisites or concurrent with required courses.

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
HOSPITAL CENTRAL SERVICE TECHNOLOGY
CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of "C" or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

CERTIFICATE OF COMPLETION IN HOSPITAL CENTRAL SERVICE TECHNOLOGY
(24 - 25.5 CREDITS; CODE 5311)
The Certificate of Completion (CCL) in Hospital Central Service Technology program focuses on the types and names of instrumentation and equipment, decontamination of instrumentation, processing of instruments and a firm foundation in the process of sterilization of instrumentation. Students will have hands-on skill labs to learn techniques used for building instrument trays, wrapping surgical supplies and familiarizing themselves with care and handling of instrumentation. Clinical experience is arranged to give the student working experience in all of the practical areas of this department.

Students graduate with a certificate of completion that prepares them for employment in a hospital, clinic, veterinary hospital, out-patient hospital setting, endoscopy, or manufacturing companies of surgical supplies.
This program will provide information for preparation of a post-graduate certification examination in the field of Hospital Central Service.

Admission Criteria:
1. High School diploma or GED
2. Current American Heart Association Health Care Provider CPR card required
3. Arizona DPS finger print clearance card valid from enrollment into program through completion of program.

Required Courses ............................................................................................................................................. 24-25.5
The Program Director can waive RDG100AB if student takes District Placement Exam in reading and scores into CRE101 or if student has completed an associate's degree or a bachelor's degree.
BPC101AA Introduction to Computers I .............................................................................................................1
HCC/RES109 CPR for Health Care Provider (0.5) OR
Proof of Current American Heart Association Health Care Provider CPR Certification (0).................................0-0.5
HCC130 Fundamentals in Health Care Delivery (3) OR
HCC130AA Health Care Today (0.5) AND
HCC130AB Workplace Behaviors in Health Care (0.5) AND
HCC130AC Personal Wellness and Safety (0.5) AND
HCC130AD Communication and Teamwork in Health Care Organizations (0.5) AND
HCC130AE Legal Issues in Health Care (0.5) AND
HCC130AF Decision making in the Health Care Setting (0.5) ...........................................................................3
HCC146 Common Medical Terminology for Health Care Workers ......................................................................2
**INDUSTRIAL DESIGN TECHNOLOGY**

**CERTIFICATE OF COMPLETION**

**ASSOCIATE IN APPLIED SCIENCE DEGREE**

To qualify, students must earn a grade of "C" or better in all courses within the program.

Division: Industrial Technology  
Chair: John Kelly

**CERTIFICATE OF COMPLETION IN INDUSTRIAL DESIGN TECHNOLOGY: DESIGN SPECIALIST: SOLID WORKS**

(22 CREDITS; CODE 5642)

The Certificate of Completion (CCL) in Industrial Design Technology: Design Specialist: SolidWorks prepares students for careers as technical assistants, engineering technicians or hands-on product designers. This expertise will allow employment in a variety of hi-tech product development and manufacturing companies. The program includes courses designed to provide students with a working knowledge in the field of product design, product development and rapid part manufacturing. Competency and technical expertise will be learned on industry specific three-dimensional (3D) Solid Design software, 3D printers, and mechanical design simulation software. The core specialty of the program is hands-on experience with solid design.

**Admission Criteria:**
Math assessment score on District placement exam placing students into MAT090 or MAT091 or MAT092 or higher, or permission of Department or Division.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET109</td>
<td>Machine Trades Print Reading</td>
<td>3</td>
</tr>
<tr>
<td>MET110</td>
<td>Inspection Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MET111</td>
<td>Applied Geometric Dimensioning and Tolerancing</td>
<td>3</td>
</tr>
<tr>
<td>MET220+</td>
<td>Fundamentals of Coordinate Measuring Machines (CMM)</td>
<td>3</td>
</tr>
<tr>
<td>MET221+</td>
<td>Manufacturing Processes and [Materials].</td>
<td>3</td>
</tr>
<tr>
<td>MET286AE+</td>
<td>Solid Design I: Part Modeling: SolidWorks</td>
<td>3</td>
</tr>
<tr>
<td>MET288AE+</td>
<td>Solid Design II: Advanced Part Modeling: Solidworks</td>
<td>3</td>
</tr>
<tr>
<td>MET291AE+</td>
<td>Solid Design: Certified SolidWorks Associate / Certified Solidworks</td>
<td>3</td>
</tr>
</tbody>
</table>

**Professional Test: Preparation:** 1

**ASSOCIATE IN APPLIED SCIENCE DEGREE IN INDUSTRIAL DESIGN TECHNOLOGY**

(61 - 70 CREDITS; CODE 3116)

The Associate in Applied Science (AAS) in Industrial Design Technology program prepares students for careers as technical assistants, engineering technicians or hands-on product manufacturers. This expertise will allow employment in a variety of hi-tech product development and manufacturing companies. The program includes courses designed to provide students with a working knowledge in the field of product design, product development and rapid part production. Competency and technical expertise will be learned on industry specific three-dimensional (3D) Solid Design software, Computer Aided Manufacturing (CAM) software, and 3D printers. The core specialty of the program is hands-on experience with Computer Aided Design (CAD), CAM, and 3D printing.

**Admission Criteria:**
Math assessment score on District placement exam placing students into MAT090 or MAT091 or MAT092 or higher, or permission of Department or Division.
Required Courses ............................................................................................................................................... 40-43

MET109 Machine Trades Print Reading (3) OR Satisfactory placement on departmental placement exam ................................................................. 0-3
MET112+ Inspection Techniques ............................................................................................................................... 3
MET113+ Applied Geometric Dimensioning and Tolerancing ............................................................................... 3
MET220+ Fundamentals of Coordinate Measuring Machines (CMM) ....................................................................... 3
MET231+ Manufacturing Processes and Materials ...................................................................................................... 3
MET260+ Tooling and Fixturing .................................................................................................................................. 3
MET286AE+ Solid Design I: Part Modeling: SolidWorks .......................................................................................... 3
MET288AE+ Solid Design II: Advanced Part Modeling: SolidWorks .......................................................................... 3
MET289AE+ Solid Design III: Detailing/GD&T: SolidWorks ...................................................................................... 3
MET290AE+ Solid Design IV: Assembly and Kinematics: SolidWorks ....................................................................... 3
MET291AE+ Solid Design: Certified SolidWorks Associate/Certified SolidWorks Professional Test Preparation (1) OR
MET298AA+ Special Projects (1) ...................................................................................................................................... 1
MET292AE Solid Design 3D Printing: Techniques in Additive Manufacturing ............................................................... 3
MET293AE+ Solid Design: Surface Modeling: SolidWorks (3) AND/OR MET294AE+ Solid Design: Sheet Metal: SolidWorks (3) AND/OR
MET298AC+ Special Projects (3) ..................................................................................................................................... 6-9

General Education Requirements ............................................................................................................................. 21-27
CRE101+ College Critical Reading (3) OR Equivalent as indicated by assessment ......................................................... 0-3
ENG101+ First-Year Composition (3) OR ENG107+ First-Year Composition (3) AND ENG102+ First-Year Composition (3) OR ENG108+ First-Year Composition for ESL (3)
ENG111+ Technical and Professional Writing (3) ........................................................................................................... 6
MAT120+ Intermediate Algebra (5) OR MAT121+ Intermediate Algebra (4) OR MAT122+ Intermediate Algebra (3) OR Equivalent as indicated by assessment .............................................................................................................................. 3-5
PHY101+ Introduction to Physics (4) OR CHM130+ Fundamental Chemistry (3) ........................................................................................................ 3-4

Any approved general education course in the Oral Communication area except COM225 Public Speaking ...3
Any approved general education course in the Humanities, Arts and Design area .............................................................. 3
Any approved general education course in the Social and Behavioral Sciences area ......................................................... 3

MAGNETIC RESONANCE IMAGING
CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

Certificate of Completion in Magnetic Resonance Imaging (18 Credits; Code 5626) The Certificate of Completion (CCL) in Magnetic Resonance Imaging program offers graduate Radiologic Technologists, Radiation Therapists, Nuclear Medicine Technologists, and Diagnostic Medical Sonographers the opportunity to complete both didactic coursework and clinical skills experience necessary to prepare to meet eligibility for the professional certification in this field. The program focuses on specific skills and knowledge necessary to become proficient in this field.
Professional Education Certificate & Degree Programs

**Admission Criteria:**
1. Certified by American Registry of Radiologic Technologists (ARRT) in Radiography or in Radiation Therapy, OR Certified by ARRT or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine, OR Certified by American Registry of Diagnostic Medical Sonography (ARDMS) or ARRT in Diagnostic Medical Sonography, OR Radiography, Radiation Therapist, Nuclear Medicine or Sonography student currently enrolled at GateWay, or registry eligible graduate.
2. Admission to the program is required.
3. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
4. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
5. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMI/DMS/ICE220+</td>
<td>Sectional Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>ICE233+</td>
<td>Fundamentals of Magnetic Resonance Imaging (MRI)</td>
<td>1</td>
</tr>
<tr>
<td>ICE229+</td>
<td>Magnetic Resonance (MR) Multi-Planar Sectional Anatomy</td>
<td>2</td>
</tr>
<tr>
<td>ICE264+</td>
<td>MRI Physics, Instrumentation and Safety</td>
<td>3</td>
</tr>
<tr>
<td>ICE268+</td>
<td>MRI Advanced Imaging Practicum</td>
<td>2</td>
</tr>
<tr>
<td>ICE269+</td>
<td>Magnetic Resonance Procedure Protocols</td>
<td>3</td>
</tr>
<tr>
<td>ICE272+</td>
<td>Magnetic Resonance Pathology</td>
<td>3</td>
</tr>
<tr>
<td>ICE292+</td>
<td>MRI Board Exam Review Preparation</td>
<td>1</td>
</tr>
</tbody>
</table>

**MEDICAL RADIOGRAPHY**

**ASSOCIATE IN APPLIED SCIENCE DEGREE**

To qualify, students must earn a grade of “C” or better in all courses required within the program.

Division: Health Sciences  
Chair: Bryan Dodd

**ASSOCIATE IN APPLIED SCIENCE DEGREE IN MEDICAL RADIOGRAPHY**  
(83 -102.5 CREDITS; CODE 3582 )

The Associate in Applied Science (AAS) in Medical Radiography program provides training in patient services using imaging modalities, as directed by physicians qualified to order and/or perform radiologic procedures. Curriculum includes training in patient care essential to radiologic procedures; this includes exercising judgment when performing medical imaging procedures. The program focuses on principles of radiation protection for the patient, self, and others, anatomy, positioning, radiographic techniques, maintaining equipment, processing film, the digital environment, keeping patient records, and performing various office tasks.

**Program Note:**  
Students with other related health care experiences not listed in the following Program Prerequisites options may request an evaluation for course competency equivalence through the GateWay Health Core Curriculum Coordinator by calling 602-286-8509.

HCC130 requirement in Program Prerequisites area must be met by the 3-credit course in order to be eligible for graduation.

**Admission Criteria:**
1. Formal application and admission to the program.
2. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.

* Indicates course has prerequisites and/or co-requisites.  
++ Indicates any module suffixed courses.
3. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.

4. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

**Program Prerequisites**

Students must earn a minimum GPA of 3.0 in Part I Program Prerequisites. Part I Program Prerequisite courses must be completed before students are eligible to apply to the program and be placed in the Medical Radiography queue.

**Part I:**

- BIO160 Introduction to Human Anatomy and Physiology (4) OR
- BIO201+ Human Anatomy and Physiology I (4) AND
- BIO202+ Human Anatomy and Physiology II (4)
- COM100 Introduction to Human Communication (3) OR
- COM110 Interpersonal Communication (3) OR
- COM225+ Public Speaking (3) OR
- COM230 Small Group Communication (3)
- CRE101+ College Critical Reading (3) OR
- Equivalent by Assessment (Asset Reading Placement Test) OR
- CRE111+ Critical Reading for Business and Industry (3) OR
- Equivalent by Assessment
- ENG101+ First-Year Composition (3) OR
- ENG107+ First-Year Composition for ESL (3)
- MAT090+ Developmental Algebra (5) OR
- MAT091+ Introductory Algebra (4) OR
- MAT092+ Introductory Algebra (3) OR
- MAT093+ Introductory Algebra/Math Anxiety Reduction (5) OR
- Satisfactory score on district placement exam OR
- Satisfactory completion of a higher level mathematics course

After completion of Part I program prerequisites, the student is eligible to complete the application process for the Medical Radiography program to be placed in the Medical Radiography queue.

**Part 2:**

After acceptance into program and before the start of required courses, students must complete the following courses:

- HCC130 Fundamentals in Health Care Delivery
- HCC146 Common Medical Terminology for Health Care Workers
- DMI100 Introduction to Diagnostic Medical Radiography: Professionalism and Patient Care
- HCC/RES109 CPR for Health Care Provider (0.5) OR
- Proof of Current American Heart Association Health Care Provider CPR Certification (0)

**Required Courses**

There are two (2) options available to students to enter the medical radiography program. Option 1 is for entry level students with no prior medical radiography experience. Option 2 is only available to medical Certified Practitioner in Radiography (CPTR) with current state Medical Radiologic Technology Board of Examiners (MRTBE) licensure who are currently licensed and working in the radiography field with minimum six (6) months of experience in a hospital acute care setting OR one (1) year experience in an outpatient imaging setting.

**Option I:**

- DMI101+ Radiation Safety
- DMI102+ Radiographic Positioning I
- DMI102LL+ Radiographic Positioning I Laboratory
## Professional Education Certificate & Degree Programs

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMI104+</td>
<td>Radiography Practicum I</td>
<td>3.5</td>
</tr>
<tr>
<td>DMI105+</td>
<td>Fundamentals of Radiation Physics</td>
<td>3</td>
</tr>
<tr>
<td>DMI106+</td>
<td>Radiographic Image Evaluation I</td>
<td>1</td>
</tr>
<tr>
<td>DMI107+</td>
<td>Digital Imaging</td>
<td>4</td>
</tr>
<tr>
<td>DMI112+</td>
<td>Radiographic Positioning II</td>
<td>3</td>
</tr>
<tr>
<td>DMI114+</td>
<td>Radiography Practicum II</td>
<td>3</td>
</tr>
<tr>
<td>DMI118+</td>
<td>Contrast Media Procedures</td>
<td>2.5</td>
</tr>
<tr>
<td>DMI124+</td>
<td>Radiography Practicum III</td>
<td>3</td>
</tr>
<tr>
<td>DMI204+</td>
<td>Radiography Practicum IV</td>
<td>3</td>
</tr>
<tr>
<td>DMI212+</td>
<td>Advanced Radiographic Procedures</td>
<td>1</td>
</tr>
<tr>
<td>DMI214+</td>
<td>Radiography Practicum V</td>
<td>4.5</td>
</tr>
<tr>
<td>DMI215+</td>
<td>Radiation Biology</td>
<td>2</td>
</tr>
<tr>
<td>DMI216+</td>
<td>Radiographic Image Evaluation II</td>
<td>1</td>
</tr>
<tr>
<td>DMI/DMS/ICE220+</td>
<td>Sectional Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>DMI221+</td>
<td>Advanced Digital Imaging</td>
<td>2.5</td>
</tr>
<tr>
<td>DMI222+</td>
<td>Advanced Radiologic Pathology</td>
<td>1</td>
</tr>
<tr>
<td>DMI/ICE223+</td>
<td>Introduction to Computed Tomography</td>
<td>1</td>
</tr>
<tr>
<td>DMI224+</td>
<td>Radiography Practicum VI</td>
<td>5</td>
</tr>
<tr>
<td>DMI227+</td>
<td>Radiography Seminar</td>
<td>1</td>
</tr>
<tr>
<td>HCC218+</td>
<td>Venous Access for Diagnostic Agents</td>
<td>0.5</td>
</tr>
</tbody>
</table>

### Option II: 56 Credits

For Certified Practical Technologist in Radiography (CPTR) currently licensed and working in the radiography field with minimum six (6) months of experience in a hospital acute care setting OR one (1) year experience in an outpatient imaging setting.

Students who have been admitted into Option II in lieu of enrolling in DMI101, DMI102 lecture, DMI103, and DMI105 are required to take Credit by Evaluation for 9.5 credits through the Program Director.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMI102LL+</td>
<td>Radiographic Positioning I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>DMI104+</td>
<td>Radiography Practicum I</td>
<td>3.5</td>
</tr>
<tr>
<td>DMI106+</td>
<td>Radiographic Image Evaluation I</td>
<td>1</td>
</tr>
<tr>
<td>DMI107+</td>
<td>Principles of Digital Imaging</td>
<td>4</td>
</tr>
<tr>
<td>DMI112+</td>
<td>Radiographic Positioning II</td>
<td>3</td>
</tr>
<tr>
<td>DMI114+</td>
<td>Radiography Practicum II</td>
<td>3</td>
</tr>
<tr>
<td>DMI118+</td>
<td>Contrast Media Procedures</td>
<td>2.5</td>
</tr>
<tr>
<td>DMI124+</td>
<td>Radiography Practicum III</td>
<td>3</td>
</tr>
<tr>
<td>DMI204+</td>
<td>Radiography Practicum IV</td>
<td>3</td>
</tr>
<tr>
<td>DMI212+</td>
<td>Advanced Radiographic Procedures</td>
<td>1</td>
</tr>
<tr>
<td>DMI214+</td>
<td>Radiography Practicum V</td>
<td>4.5</td>
</tr>
<tr>
<td>DMI215+</td>
<td>Radiation Biology</td>
<td>2</td>
</tr>
<tr>
<td>DMI216+</td>
<td>Radiographic Image Evaluation II</td>
<td>1</td>
</tr>
<tr>
<td>DMI/DMS/ICE220+</td>
<td>Sectional Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>DMI221+</td>
<td>Advanced Digital Imaging</td>
<td>2.5</td>
</tr>
<tr>
<td>DMI222+</td>
<td>Advanced Radiologic Pathology</td>
<td>1</td>
</tr>
<tr>
<td>DMI/ICE223+</td>
<td>Introduction to Computed Tomography</td>
<td>1</td>
</tr>
<tr>
<td>DMI224+</td>
<td>Radiography Practicum VI</td>
<td>5</td>
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<tr>
<td>DMI227+</td>
<td>Radiography Seminar</td>
<td>1</td>
</tr>
<tr>
<td>HCC218+</td>
<td>Venous Access for Diagnostic Agents</td>
<td>0.5</td>
</tr>
</tbody>
</table>

### General Education Requirements: 11-14 Credits

Three (3) credits of First Year Composition are met by ENG101 or ENG107 in Program Prerequisites area.

- ENG102+    First-Year Composition (3) OR
- ENG108+    First-Year Composition for ESL (3)
Professional Education Certificate & Degree Programs

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.

### NETWORKING ADMINISTRATION AND TECHNOLOGY

**CERTIFICATES OF COMPLETION**

**ASSOCIATE IN APPLIED SCIENCE DEGREE**

To qualify, students must earn a grade of "C" or better in all courses within the program.

Division: Business and Information Technologies  
Chair: David Smith

**CERTIFICATE OF COMPLETION IN LINUX PROFESSIONAL**  
(12 CREDITS; CODE  5204 N)

The Certificate of Completion (CCL) in Linux Professional program is designed to help to prepare students for a variety of industry-recognized Linux certification exams as well as provide practical hands-on skills for the workplace. The program includes a core of Linux classes including Linux operating system basics, System Administration, Network Administration and Network Security. These classes will help develop a student’s knowledge and skill level in preparation for employment or to improve current professional skills. Objectives for a variety of industry certifications are encompassed within course and program objectives.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS126DL Linux Operating System</td>
<td>3</td>
</tr>
<tr>
<td>CIS238DL+ Linux System Administration</td>
<td>3</td>
</tr>
</tbody>
</table>

**Restricted Electives**

Students should select six (6) credits from the following courses in consultation with a Program Advisor.

<table>
<thead>
<tr>
<th>Restricted Electives</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPC170+ Computer Maintenance I: A+ Essentials Prep</td>
<td>3</td>
</tr>
<tr>
<td>BPC270+ Computer Maintenance II: A+ Technician Prep</td>
<td>3</td>
</tr>
<tr>
<td>CIS105 Survey of Computer Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIS197+ VMware ESXI Server Enterprise</td>
<td>4</td>
</tr>
<tr>
<td>CIS121AH Microsoft PowerShell/Command Line Operations</td>
<td>3</td>
</tr>
<tr>
<td>CIS226AL+ Internet/Intranet Server Administration Linux</td>
<td>3</td>
</tr>
<tr>
<td>CIS239DL+ Linux Shell Scripting</td>
<td>3</td>
</tr>
<tr>
<td>CIS240DL+ Linux Network Administration</td>
<td>3</td>
</tr>
<tr>
<td>CIS241DL+ Apache Web Server Administration (Linux/Unix)</td>
<td>3</td>
</tr>
<tr>
<td>CIS270+ Essentials of Network and Information Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS271DL+ Linux Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS190+ Introduction to Local Area Networks (3) OR</td>
<td></td>
</tr>
<tr>
<td>CNT140AA Cisco Networking Fundamentals (4) OR</td>
<td></td>
</tr>
<tr>
<td>MST140 Microsoft Networking Essentials (3)</td>
<td>3-4</td>
</tr>
<tr>
<td>MST150++ Microsoft Windows (any suffixed course)</td>
<td>3</td>
</tr>
<tr>
<td>CIS280 Current Topics in Computing</td>
<td>3</td>
</tr>
<tr>
<td>CIS290++/+ Computer Information Systems Internship (any suffixed course)</td>
<td>1-3</td>
</tr>
</tbody>
</table>

- Indicates course has prerequisites and/or co-requisites.  
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

CERTIFICATE OF COMPLETION IN MICROSOFT CERTIFIED INFORMATION TECHNOLOGY PROFESSIONAL (MCITP) ADMINISTRATOR

The Certificate of Completion (CCL) in Microsoft Certified Information Technology Professional (MCITP) Administrator program is designed to help prepare students towards an intermediate- to supervisory-level position working with Windows networks. It is designed to develop the skills needed to install, configure, customize, optimize, and troubleshoot Windows servers, Windows client workstations and Microsoft Office products. The courses in the program also help to prepare for Microsoft Certified Product Specialist (MCP), and Microsoft Certified Information Technology Professional (MCITP) examinations. The curriculum ideally is taught by Microsoft Certified Professionals.

Typical tasks of a Microsoft Certified Information Technology Professional (MCITP) are developing a local area network, installing and configuring software, creating and managing user and group accounts, analyzing and optimizing system performance, troubleshooting system and printing problems, training end users, and working as a system administrator.

Program Prerequisites .......................................................................................................................................... 0-3
CIS105 Survey of Computer Information Systems OR
Permission of Department (0) ................................................................................................................... 0-3
Required Courses .......................................................................................................................................... 29-32
CIS121AB Microsoft Command Line Operations (1) OR
CIS221AB+ Microsoft Power Shell (1) ........................................................................................................ 1

BPC170+ Computer Maintenance I: A+ Essentials Prep ........................................................................ 3
BPC270+ Computer Maintenance II: A+ Technician Prep ...................................................................... 3
CIS190+ Introduction to Local Area Networks (3) OR
CNT140AA Cisco Networking Fundamentals (4) OR

MST140 Microsoft Networking Essentials (3) .......................................................................................... 3-4
MST150 Microsoft Windows Professional (3) OR
MST150++ Any Microsoft Windows (any module) (3) ........................................................................... 3
MST155+ Implementing Windows Network Infrastructure (3) OR
MST155++/+ Any Windows Network Infrastructure (any module) (3-4) .................................................. 3-4
MST157+ Implementing Windows Directory Services (3) OR
MST157++/+ Any Active Directory Windows Server Configuration (any module) (3-4) ..................... 3-4
MST158++/+ Any Windows Server Administration (any module) ....................................................... 4
MST244+ Microsoft SQL Server Administration ...................................................................................... 3
MST259+ Designing Windows Network Security ..................................................................................... 3

CERTIFICATE OF COMPLETION IN MICROSOFT TECHNICAL SPECIALIST

The Certificate of Completion (CCL) in Microsoft Technical Specialist program provides training for an entry-level position working with Windows networks. Knowledge and skills are developed to install, configure, customize, optimize, and troubleshoot Windows servers and Windows client workstations. The courses in the program also help to prepare for Microsoft Certified Product Specialist (MCP) and Microsoft Certified Information Technology Professional (MCITP) examinations. The curriculum ideally is taught by Microsoft Certified Professionals.

Program Prerequisites ........................................................................................................................................ 0-3
CIS105 Survey of Computer Information Systems (3) OR
Permission of Department .............................................................................................................................. 0-3

Required Courses .......................................................................................................................................... 16-17
CIS121AB Microsoft Command Line Operations (1) OR
CIS221AB+ Microsoft Power Shell (1) ........................................................................................................ 1
BPC170+ Computer Maintenance I: A+ Essentials Prep ........................................................................ 3
BPC270+ Computer Maintenance II: A+ Technician Prep ...................................................................... 3
CIS190+ Introduction to Local Area Networks (3) OR
CNT140 Cisco Networking Basics (4) OR
MST140 Microsoft Networking Essentials (3) .......................................................................................... 3-4

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MST150</td>
<td>Microsoft Windows Professional (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>MST150++</td>
<td>Any MST150 Microsoft Windows course (3)</td>
<td>3</td>
</tr>
<tr>
<td>CIS270+</td>
<td>Essentials of Network and Information Security</td>
<td>3</td>
</tr>
</tbody>
</table>

CERTIFICATE OF COMPLETION IN NETWORK ADMINISTRATION: MICROSOFT WINDOWS SERVER (18 CREDITS; CODE 5124)

The Certificate of Completion (CCL) in Network Administration: Microsoft Windows Server program provides students with background knowledge and skills required for learning the specific tasks and industry recognized standards associated with computer networks and data communications. This program also prepares students to complete the required certification tests for Microsoft Administrator.

**Required Courses** ............................................................................................................................................. 15

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MST150</td>
<td>Microsoft Windows Professional (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>MST150++</td>
<td>Microsoft Windows Operating Systems (3)</td>
<td>3</td>
</tr>
<tr>
<td>MST155++</td>
<td>Windows Server Network (any suffixed course)</td>
<td>4</td>
</tr>
<tr>
<td>MST157++</td>
<td>Windows Server (any suffixed course)</td>
<td>4</td>
</tr>
<tr>
<td>MST158++</td>
<td>Windows Server (any suffixed course)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Required Courses** ............................................................................................................................................. 3

Students must select three (3) credits from the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS121AH</td>
<td>Microsoft PowerShell/Command Line Operations</td>
<td>3</td>
</tr>
<tr>
<td>CIS126++</td>
<td>Linux Operating System (any suffixed course)</td>
<td>3</td>
</tr>
<tr>
<td>CIS166AC</td>
<td>Web Scripting with Active Server Pages (ASP).NET</td>
<td>1-3</td>
</tr>
<tr>
<td>CIS197</td>
<td>VMware ESXi Server Enterprise</td>
<td>3</td>
</tr>
<tr>
<td>CIS238++</td>
<td>UNIX/Linux System Administration (any suffixed course)</td>
<td>3</td>
</tr>
<tr>
<td>CIS276DB</td>
<td>SQL Server Database</td>
<td>3</td>
</tr>
<tr>
<td>CNT+++++</td>
<td>Any CNT Cisco Network Technology course</td>
<td>1-4</td>
</tr>
<tr>
<td>MST+++++</td>
<td>Any MST Microsoft Technology course except courses used to satisfy Require Courses area</td>
<td>1-4</td>
</tr>
</tbody>
</table>

CERTIFICATE OF COMPLETION IN NETWORKING ADMINISTRATION: CISCO (14 -18 CREDITS; CODE 5969 N)

The Certificate of Completion (CCL) in Networking Administration: Cisco provides training for those interested in working with Cisco Systems networking and Internet hardware. Knowledge and skills are developed to install, configure, maintain, and troubleshoot Cisco routers and switches, and configure advanced routing protocols, Local Area Networks (LANs), and Wide Area Networks (WANs). The courses in the program are designed to help prepare students for the Cisco Certified Networking Associate (CCNA) examination and are taught by Cisco Certified Professionals using the Cisco Networking Academy program curriculum.

**Required Courses** ..................................................................................................................................................... 15

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MST150</td>
<td>Microsoft Windows Professional (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>MST155++</td>
<td>Microsoft Technology course (any suffixed course)</td>
<td>3</td>
</tr>
<tr>
<td>MST157++</td>
<td>Microsoft Windows Operating Systems (3)</td>
<td>3</td>
</tr>
<tr>
<td>MST158++</td>
<td>Windows Server (any suffixed course)</td>
<td>3</td>
</tr>
<tr>
<td>MST150++</td>
<td>Any MST150 Microsoft Windows course (3)</td>
<td>3</td>
</tr>
<tr>
<td>MST155++</td>
<td>Windows Server Network (any suffixed course)</td>
<td>4</td>
</tr>
<tr>
<td>MST157++</td>
<td>Windows Server (any suffixed course)</td>
<td>4</td>
</tr>
<tr>
<td>MST158++</td>
<td>Windows Server (any suffixed course)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Required Courses** ..................................................................................................................................................... 3

Students must select three (3) credits from the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS121AH</td>
<td>Microsoft PowerShell/Command Line Operations</td>
<td>3</td>
</tr>
<tr>
<td>CIS126++</td>
<td>Linux Operating System (any suffixed course)</td>
<td>3</td>
</tr>
<tr>
<td>CIS166AC</td>
<td>Web Scripting with Active Server Pages (ASP).NET</td>
<td>1-3</td>
</tr>
<tr>
<td>CIS197</td>
<td>VMware ESXi Server Enterprise</td>
<td>3</td>
</tr>
<tr>
<td>CIS238++</td>
<td>UNIX/Linux System Administration (any suffixed course)</td>
<td>3</td>
</tr>
<tr>
<td>CIS276DB</td>
<td>SQL Server Database</td>
<td>3</td>
</tr>
<tr>
<td>CNT+++++</td>
<td>Any CNT Cisco Network Technology course</td>
<td>1-4</td>
</tr>
<tr>
<td>MST+++++</td>
<td>Any MST Microsoft Technology course except courses used to satisfy Require Courses area</td>
<td>1-4</td>
</tr>
</tbody>
</table>

**Track 1: Exploration** ............................................................................................................................................. 14-18

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNT140</td>
<td>Cisco Networking Basics (4) OR</td>
<td>4</td>
</tr>
<tr>
<td>CNT140AA</td>
<td>Cisco Networking Fundamentals (4) OR</td>
<td>4</td>
</tr>
<tr>
<td>CNT138</td>
<td>CCNA Discovery - Networking for Home and Small Businesses (3) AND</td>
<td>4</td>
</tr>
<tr>
<td>CNT148+</td>
<td>CCNA Discovery - Working at a Small-to-Medium Business or Internet Service Provider (3)</td>
<td>4</td>
</tr>
<tr>
<td>CNT150+</td>
<td>Cisco Networking Router Technologies (4) OR</td>
<td>4</td>
</tr>
<tr>
<td>CNT150AA+</td>
<td>Cisco Routing Protocols and Concepts (4)</td>
<td>4</td>
</tr>
<tr>
<td>CNT160+</td>
<td>Cisco Switching Basics and Intermediate Routing (3) OR</td>
<td>3-4</td>
</tr>
<tr>
<td>CNT160AA+</td>
<td>Cisco Local Area Networking (LAN) Switching and Wireless (4)</td>
<td>3-4</td>
</tr>
<tr>
<td>CNT170+</td>
<td>Cisco Wide Area Networks (WAN) Technologies (3) OR</td>
<td>3-4</td>
</tr>
<tr>
<td>CNT170AA+</td>
<td>Cisco Accessing the Wide-Area Network (WAN) (4)</td>
<td>3-4</td>
</tr>
</tbody>
</table>
Professional Education Certificate & Degree Programs

Track 2: Discovery

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNT138</td>
<td>CCNA Discovery - Networking for Home and Small Businesses</td>
</tr>
<tr>
<td>CNT148+</td>
<td>CCNA Discovery - Working at a Small-to-Medium Business or Internet Service Provider</td>
</tr>
<tr>
<td>CNT158+</td>
<td>CCNA Discovery - Introduction to Routing and Switching in the Enterprise</td>
</tr>
<tr>
<td>CNT168+</td>
<td>CCNA Discovery - Designing and Supporting Computer Networks</td>
</tr>
</tbody>
</table>

CERTIFICATE OF COMPLETION IN NETWORKING TECHNOLOGY: CISCO (20 - 24 CREDITS; CODE 5967)

The Certificate of Completion (CCL) in Networking Technology: Cisco provides training for those interested in supervisory responsibilities working with Cisco Systems networking and Internet hardware. Knowledge and skills are developed to install, configure, maintain, and troubleshoot Cisco routers and switches; configure advanced routing protocols, Local Area Networks (LANs), and Wide Area Networks (WANs); troubleshoot problems with various hardware and software configurations and perform administrative tasks in a network. The courses in the program are also designed to help prepare students for the Cisco Certified Networking Associate (CCNA) examination and are taught by Cisco Certified Professionals using the Cisco Networking Academy program curriculum.

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPC170+</td>
<td>Computer Maintenance I: A+ Essentials Prep</td>
</tr>
<tr>
<td>CIS126+</td>
<td>UNIX/Linux Operating System (3) (Any module) OR</td>
</tr>
<tr>
<td>MST150+</td>
<td>Microsoft Windows Professional (3) (Any module)</td>
</tr>
</tbody>
</table>

One of the following two tracks must be fulfilled:

Track 1: Exploration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNT140</td>
<td>Cisco Networking Basics (4) OR</td>
</tr>
<tr>
<td>CNT140AA</td>
<td>Cisco Networking Fundamentals (4) OR</td>
</tr>
<tr>
<td>CNT138</td>
<td>CCNA Discovery - Networking for Home and Small Businesses (3) AND</td>
</tr>
<tr>
<td>CNT148+</td>
<td>CCNA Discovery - Working at a Small-to-Medium Business or Internet Service Provider (3)</td>
</tr>
<tr>
<td>CNT150+</td>
<td>Cisco Networking Router Technologies (4) OR</td>
</tr>
<tr>
<td>CNT150AA+</td>
<td>Cisco Routing Protocols and Concepts (4) OR</td>
</tr>
<tr>
<td>CNT160+</td>
<td>Cisco Switching Basics and Intermediate Routing (3) OR</td>
</tr>
<tr>
<td>CNT160AA+</td>
<td>Cisco Local Area Networking (LAN) switching and Wireless (4)</td>
</tr>
<tr>
<td>CNT170+</td>
<td>Cisco Wide Area Networks (WAN) Technologies (3) OR</td>
</tr>
<tr>
<td>CNT170AA+</td>
<td>Cisco Accessing the Wide-Area Network (WAN) (4)</td>
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</table>

Track 2: Discovery

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNT138</td>
<td>CCNA Discovery - Networking for Home and Small Businesses</td>
</tr>
<tr>
<td>CNT148+</td>
<td>CCNA Discovery - Working at a Small-to-Medium Business or Internet Service Provider</td>
</tr>
<tr>
<td>CNT158+</td>
<td>CCNA Discovery - Introduction to Routing and Switching in the Enterprise</td>
</tr>
<tr>
<td>CNT168+</td>
<td>CCNA Discovery - Designing and Supporting Computer Networks</td>
</tr>
</tbody>
</table>

ASSOCIATE IN APPLIED SCIENCE DEGREE IN MICROSOFT NETWORKING TECHNOLOGY (60 - 67 CREDITS; CODE 3778)

The Associate in Applied Science (AAS) in Microsoft Networking Technology program is designed to develop skills needed to implement a network infrastructure and install, configure, monitor, optimize, and troubleshoot Windows server and Windows client workstations. Courses in the program are also designed to help prepare for Microsoft Certified Product Specialist (MCP), and Microsoft Certified Information Technology Professional (MCITP) examinations.

Typical tasks of a Microsoft Networking Administrator include developing a local area network, installing and configuring software, creating and managing user and group accounts, analyzing and optimizing system performance, troubleshooting system and printing problems, interoperating with various operating systems, and working as a system administrator.

Typical tasks of a Microsoft Certified Information Technology Professional (MCITP) are developing a local area network, installing and configuring software, creating and managing user and group accounts, analyzing and optimizing system performance, troubleshooting system and printing problems, training end users, and working as a system administrator.

* Indicates course has prerequisites and/or co-requisites.
** Indicates any module suffixed courses.
### Program Prerequisites

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS105</td>
<td>Survey of Computer Information Systems OR Permission of Department</td>
<td>0-3</td>
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</tbody>
</table>

### Required Courses

Courses selected cannot apply in both Required Courses and Restricted Electives area.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS121AB</td>
<td>Microsoft Command Line Operations (1) OR CIS221AB+ Microsoft Power Shell (1)</td>
<td>1</td>
</tr>
<tr>
<td>BPC170+</td>
<td>Computer Maintenance I: A+ Essentials Prep</td>
<td>3</td>
</tr>
<tr>
<td>CIS102</td>
<td>Interpersonal and Customer Service Skills for IT Professionals</td>
<td>1</td>
</tr>
<tr>
<td>CIS126DA</td>
<td>UNIX Operating System (3) OR CIS126AA UNIX Operating System: Level I (1) AND CIS126BA+ UNIX Operating System: Level II (1) AND CIS126CA+ UNIX Operating System: Level III (1) OR CIS126DL Linux Operating System (3) OR CIS126AL Linux Operating System I (1) AND CIS126BL+ Linux Operating System II (1) AND CIS126CL+ Linux Operating System III (1)</td>
<td>3</td>
</tr>
<tr>
<td>CIS190</td>
<td>Introduction to Local Area Networks (3) OR CNT140AA Cisco Networking Fundamentals (4) OR MST140 Microsoft Networking Essentials (3)</td>
<td>3-4</td>
</tr>
<tr>
<td>MST150</td>
<td>Microsoft Windows Professional (3) OR MST150++ Any Microsoft Windows (any module) (3)</td>
<td>3</td>
</tr>
<tr>
<td>MST155+</td>
<td>Implementing Windows Network Infrastructure (3) OR MST155+++ Any Windows Network Infrastructure (any module) (3-4)</td>
<td>3-4</td>
</tr>
<tr>
<td>MST157+</td>
<td>Implementing Windows Directory Services (3) OR MST157+++ Any Active Directory Windows Server Configuration (any module) (3-4)</td>
<td>3-4</td>
</tr>
<tr>
<td>MST158+++</td>
<td>Any Windows Server Administration (any module)</td>
<td>4</td>
</tr>
</tbody>
</table>

### Restricted Electives

Students should select fourteen (14) to fifteen (15) credits from the following courses in consultation with a Program Advisor. Selected courses will not apply in both Required Courses and Restricted Electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPC171+</td>
<td>Recycling Used Computer Technology (1)</td>
<td>3</td>
</tr>
<tr>
<td>BPC270+</td>
<td>Computer Maintenance II: A+ Technician Prep</td>
<td>3</td>
</tr>
<tr>
<td>CIS238+</td>
<td>Advanced UNIX System Administration (3) OR CIS238+++ Any UNIX/Linux System Administration (any module) (3)</td>
<td>3</td>
</tr>
<tr>
<td>CIS239+++</td>
<td>Any Linux course (any module) except CIS239DC</td>
<td>3</td>
</tr>
<tr>
<td>CIS240+</td>
<td>Local Area Network Planning and Design (3) OR CIS240+++ Any Linux course (any module) (3)</td>
<td>3</td>
</tr>
<tr>
<td>CIS270+</td>
<td>Essentials of Network and Information Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS15+</td>
<td>Any CIS programming language Level I(3) OR CIS15+++ Any CIS programming language Level (any module) (3) OR CIS16+ Any CIS programming language Level II (3) OR CIS16+++ Any CIS programming language Level II (any module) (3)</td>
<td>3</td>
</tr>
<tr>
<td>CIS280</td>
<td>Current Topics in Computing (3) OR CIS280+++ Current Topics in Computing (any module)</td>
<td>1-3</td>
</tr>
<tr>
<td>CIS282+++</td>
<td>Volunteerism for Computer Information Systems: A Service Learning Experience (any suffixed course) (1-3) OR CIS290++ Computer Information Systems Internship (any suffixed course) (1-3) OR CIS296+++ Cooperative Education (any suffixed course) (1-4)</td>
<td>1-4</td>
</tr>
</tbody>
</table>
Professional Education Certificate & Degree Programs

CNT+++++ Any CNT Cisco Network Technology course ................................................................. 4
ITS+++++ Any ITS Information Technology Security course ......................................................... 3-4
MST141+ Enterprise Desktop Support Technician ....................................................................... 3
MST150 Microsoft Windows Professional (3) OR
MST150++ Any Microsoft Windows (any module) not selected in the Required Courses area (3) .... 3
MST152+ Microsoft Windows Server (4) OR
MST152++/+ Any Microsoft Windows (any module) (4) ............................................................ 4
MST157+ Implementing Windows Directory Services (3) OR
MST157++/+ Any Microsoft Windows (any module) not selected in the Required Courses area (3-4) 3-4
MST244+ Microsoft SQL Server Administration ........................................................................... 3
MST259+ Designing Windows Network Security ........................................................................... 3
MST298A++/+ Special Projects (any suffixed course) ................................................................. 1-3
CWE198++/+ Career Work Experience (any suffixed course) ..................................................... 1-3

General Education Requirements ......................................................................................... 22-25
ENG101+ First-Year Composition (3) AND
ENG102+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) AND
ENG108+ First-Year Composition for ESL (3) ............................................................................ 6
CRE101+ College Critical Reading (3) OR
Equivalent as indicated by assessment ................................................................................ 0-3
Any approved general education course in the Oral Communication area .............................. 3
Any approved general education course in the Mathematics area ........................................... 3
Any approved general education course in the Humanities, Arts and Design area ................ 3
Any approved general education course in the Social and Behavioral Sciences area ............ 3
Any approved general education course from the Natural Sciences area ................................ 4

ASSOCIATE IN APPLIED SCIENCE DEGREE IN NETWORKING TECHNOLOGY: CISCO
(60 - 64 CREDITS; CODE 3816)
A Cisco Systems recognized Regional or Local Academy, prepares students for industry-recognized certification. The curriculum is taught by Cisco Systems Certified Professionals. The Associate in Applied Science (AAS) in Networking Technology: Cisco provides training for a supervisory position working with Cisco Systems networking and Internet hardware. Knowledge and skills are developed to install, configure, maintain, and troubleshoot Cisco routers and components, advanced routing protocols, Local Area Networks (LANs), and Wide Area Networks (WANs); troubleshoot problems with various common hardware and software configurations; perform administrative tasks in a network; develop methods for customer service. Courses in the program also prepare students for the Cisco Certified Networking Associate examination.

Job Description:
A Cisco networking Administrator will be required to perform various tasks such as designing, installing, A Cisco networking Administrator will be required to perform various tasks such as designing, installing, maintaining and troubleshooting Cisco routers and components, Local Area Networks (LANs), and Wide Area Networks (WANs). Additional skills that are necessary include troubleshooting problems with various common hardware and software configurations, performing administrative tasks in a network, developing methods for customer service, and utilizing electronic systems.

Job Opportunities:
Cisco systems is the world’s largest manufacturer of networking and Internet hardware and has seen tremendous growth of market share. The employment opportunities for trained Networking Administrators are outstanding. Program note:
A course cannot be used to satisfy both the Required Course and Restricted Electives Area.

Required Courses .................................................................................................................. 20-24
BPC170+ Computer Maintenance I: A+ Essentials Prep ............................................................... 3
CIS126++ UNIX/Linux Operating System (Any Module) (3) OR

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
MST150+ Microsoft Windows Professional (3) OR
MST150VI+ Microsoft Windows Vista Administration (3) OR
MST150XP+ Microsoft Windows XP Professional (3) .......................................................................................................................... 3

One of the following two tracks must be fulfilled:

Track 1: Exploration .............................................................................................................................................................. 14–18
CNT140 Cisco Networking Basics (4) OR
CNT140AA Cisco Networking Fundamentals (4) OR
CNT138 CCNA Discovery - Networking for Home and Small Businesses (3) AND
CNT148+ CCNA Discovery - Working at a Small-to-Medium Business or Internet Service Provider (3) .......................................................... 4-6
CNT150+ Cisco Networking Router Technologies (4) OR
CNT150AA+ Cisco Routing Protocols and Concepts (4) ..................................................................................................................... 4
CNT160+ Cisco Switching Basics and Intermediate Routing (3) OR
CNT160AA+ Cisco Local Area Networking (LAN) Switching and Wireless (4) ........................................................................ 3-4
CNT170+ Cisco Wide Area Networks (WAN) Technologies (3) OR
CNT170AA+ Cisco Accessing the Wide Area Network (WAN) (4) ........................................................................................................ 3-4

Track 2: Discovery ................................................................................................................................................................. 14
CNT138 CCNA Discovery - Networking for Home and Small Businesses .................................................................................. 3
CNT148+ CCNA Discovery - Working at a Small-to-Medium Business or Internet Service Provider .................................................................. 3
CNT158+ CCNA Discovery - Introduction to Routing and Switching in the Enterprise ........................................................................ 4
CNT168+ CCNA Discovery - Designing and Supporting Computer Networks ................................................................................ 4

Restricted Electives ................................................................................................................................................................. 15
Students may select fifteen (15) from any of the following courses, except courses used to satisfy the Required Courses area:
BPC110 Computer Usage and Applications (3) OR
CIS105 Survey of Computer Information Systems (3) ..................................................................................................................... 3
CIS126++/+ UNIX/Linux Operating System (Any Module) (3) OR
MST150+ Microsoft Windows Professional (3) OR
MST150VI+ Microsoft Windows Vista Administration (3) OR
MST150XP+ Microsoft Windows XP Professional (3) ..................................................................................................................... 3
CIS190+ Introduction to Local Area Networks (3) OR
MST140 Microsoft Networking Essentials (3) .............................................................................................................................. 3
CIS270+ Essentials of Network and Information Security ............................................................................................................. 3
CIS296WA+ Cooperative Education (1) OR
CIS296WB+ Cooperative Education (2) OR
CIS296WC+ Cooperative Education (3) OR
CIS296WD+ Cooperative Education (4) ........................................................................................................................................ 1-4
CIS298AA+ Special Projects (1) OR
CIS298AB+ Special Projects (2) OR
CIS298AC+ Special Projects (3) ...................................................................................................................................................... 1-3
CIS121AB Microsoft Command Line Operations .......................................................................................................................... 1
CIS102 Interpersonal and Customer Service Skills for IT Professionals ...................................................................................... 1
CIS110 Home Entertainment and Computer Networking ............................................................................................................. 3
ELT100 Survey of Electronics .................................................................................................................................................... 3
CIS224 Project Management Microsoft Project for Windows ........................................................................................................ 3
CNT181+ Cisco Securing IOS Networks ....................................................................................................................................... 4
CNT185+ Cisco Network Security .................................................................................................................................................. 4
CNT202+ Cisco Secure Firewall Appliance Configuration ............................................................................................................. 4
CNT205+ Cisco Certified Network Associate Security .................................................................................................................. 4
CNT206+ Cisco Certified Network Associate Wireless .................................................................................................................. 4
CNT2++++ Any 200 level course with a CNT Prefix ....................................................................................................................... 1-4

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

General Education Requirements ............................................................................................................. 25
CRE101+ Critical and Evaluative Reading I (3) OR 
Equivalent by Assessment......................................................................................................................... 3
ENG101+ First-Year Composition (3) OR 
ENG107+ First-Year Composition for ESL (3) AND 
ENG102+ First-Year Composition (3) OR 
ENG108+ First-Year Composition for ESL (3) OR 
ENG111+ Technical and Professional Writing.......................................................................................... 6

Any approved general education course in the Communication area....................................................... 3
Any approved general education course in the Mathematics area............................................................. 3
Any approved general education course in the Humanities, Arts and Design area................................... 3
Any approved general education course in the Social and Behavioral area.............................................. 3
Any approved general education course in the Natural Science area...................................................... 4

NUCLEAR MEDICINE TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

ASSOCIATE IN APPLIED SCIENCE DEGREE IN NUCLEAR MEDICINE TECHNOLOGY
(108 -119 CREDITS; CODE 3688 )
The Associate in Applied Science (AAS) in Nuclear Medicine Technology program is designed to prepare students to function as competent members of the healthcare team in the role of nuclear medicine technologists. Employment opportunities exist in hospitals, medical offices and ambulatory clinics. Upon completion of the program, the student will be eligible to apply for the certifying board examination administered by the American Registry of Radiologic Technology [ARRT (N)], the Nuclear Medicine Technology Certification Board (NMTCB) and Arizona State Licensure. The curriculum is structured to provide appropriate didactic instruction, as well as ample supervised clinical exposure, to assure sufficient opportunity to achieve all didactic and clinical requirements.

Program Note:
Students with other related health care experiences not listed in the following Program Prerequisites may request an evaluation for course competency equivalence through the GateWay Health Core Curriculum Coordinator by calling 602-286-8509.

* Indicates course has prerequisites and/or co-requisites.
** Indicates any module suffixed courses.
Admission Criteria:
1. Formal application and admission to the program.
2. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
3. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the clinical health and safety policy.
4. Inability to comply with background check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

Readmission Criteria:
The Program reserves the right to deny acceptance of an admission application if the applicant was dismissed from any program for issues relating to academic integrity and/or unsafe patient care.

Program Prerequisites
The following college courses must be completed with a cumulative grade point average (GPA) of 3.0 or higher and with a final grade of C or better.

All previous college semester credits must be from a regionally accredited institution recognized by GateWay Community College with a cumulative grade point average (GPA) of 2.5 or higher.

Students must earn a grade of B or better in ENG102 or ENG108 or ENG111, MAT150 or MAT151 or MAT152, and NUC100.

- BIO201+ Human Anatomy and Physiology I ................................................................. 4
- BIO202+ Human Anatomy and Physiology II ................................................................. 4
- CHM130+ Fundamental Chemistry (3) AND
- CHM130LL+ Fundamental Chemistry Laboratory (1) OR
- CHM130AA+ Fundamental Chemistry with Lab (4) ......................................................... 4
- CRE101+ College Critical Reading (3) OR
- CRE111+ Critical Reading for Business and Industry (3) OR Equivalent as indicated by assessment. (0) .............................................................. 0-3
- ENG101+ First-Year Composition (3) OR
- ENG107+ First-Year Composition for ESL (3) ................................................................. 3
- ENG102+ First-Year Composition (3) OR
- ENG108+ First-Year Composition for ESL (3) OR
- ENG111+ Technical and Professional Writing (3) ......................................................... 3
- HCC145 Medical Terminology for Health Care Workers .............................................. 3
- MAT150+ College Algebra/Functions (5) OR
- MAT151+ College Algebra/Functions (4) OR
- MAT152+ College Algebra/Functions (3) OR Equivalent course or satisfactory completion of a higher level mathematics course .............. 3-5
- NUC100 Introduction to Nuclear Medicine Technology .................................................. 1
- PHY101+ Introduction to Physics (4) OR
- PHY111+ General Physics I (4) AND
- PHY112+ General Physics II (4) ................................................................................. 4-8

Any approved general education course from the Oral Communication area except COM225 Public Speaking ................................................................................. 3

Until program prerequisites are completed, students are only eligible for conditional admission to the program. All prerequisites must be completed prior to starting the Nuclear Medicine Program of Study.
Professional Education Certificate & Degree Programs

<table>
<thead>
<tr>
<th>Required Courses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DMI/DMS/ICE220+Sectional Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>NUC110+ Radiation Safety for Nuclear Medicine</td>
<td>3</td>
</tr>
<tr>
<td>NUC112+ Nuclear Medicine Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>NUC113+ Nuclear Medicine Laboratory II</td>
<td>2</td>
</tr>
<tr>
<td>NUC114+ Fundamentals of Nuclear Medicine I</td>
<td>3</td>
</tr>
<tr>
<td>NUC116+ Nuclear Medicine Imaging I</td>
<td>3</td>
</tr>
<tr>
<td>NUC126+ Nuclear Medicine Imaging II</td>
<td>3</td>
</tr>
<tr>
<td>NUC130+ Patient Care Lab for the Nuclear Medicine Technologist</td>
<td>2</td>
</tr>
<tr>
<td>NUC212+ Clinical Practicum I</td>
<td>2</td>
</tr>
<tr>
<td>NUC213+ Nuclear Medicine Image Evaluation I</td>
<td>1</td>
</tr>
<tr>
<td>NUC214+ Fundamentals of Nuclear Medicine II</td>
<td>1.5</td>
</tr>
<tr>
<td>NUC222+ Clinical Practicum II</td>
<td>3</td>
</tr>
<tr>
<td>NUC223+ Nuclear Medicine Image Evaluation II</td>
<td>1</td>
</tr>
<tr>
<td>NUC224+ Fundamentals of Nuclear Medicine III</td>
<td>1.5</td>
</tr>
<tr>
<td>NUC232+ Clinical Practicum III</td>
<td>3</td>
</tr>
<tr>
<td>NUC233+ Nuclear Medicine Image Evaluation III</td>
<td>1</td>
</tr>
<tr>
<td>NUC234+ Fundamentals of Nuclear Medicine IV</td>
<td>2</td>
</tr>
<tr>
<td>NUC236+ Nuclear Medicine Imaging III</td>
<td>3</td>
</tr>
<tr>
<td>NUC240+ Clinical Pathology for Diagnostic Imaging</td>
<td>3</td>
</tr>
<tr>
<td>NUC242+ Clinical Practicum IV</td>
<td>3</td>
</tr>
<tr>
<td>NUC243+ Nuclear Medicine Image Evaluation IV</td>
<td>1</td>
</tr>
<tr>
<td>NUC244+ Fundamentals of Nuclear Medicine V</td>
<td>3</td>
</tr>
<tr>
<td>NUC250+ Fundamentals of Computed Tomography for Nuclear Medicine Technologist</td>
<td>2</td>
</tr>
<tr>
<td>NUC252+ Clinical Practicum V</td>
<td>3</td>
</tr>
<tr>
<td>NUC260+ Imaging Research Methods and Design</td>
<td>1</td>
</tr>
<tr>
<td>NUC261+ Emerging Technologies</td>
<td>2</td>
</tr>
<tr>
<td>NUC262+ Capstone Practicum</td>
<td>1.5</td>
</tr>
<tr>
<td>NUC276+ Nuclear Medicine Cardiac Imaging</td>
<td>3</td>
</tr>
<tr>
<td>NUC280+ Nuclear Medicine PET and PET/CT</td>
<td>3</td>
</tr>
<tr>
<td>NUC283+ PET/CT Practicum</td>
<td>1.5</td>
</tr>
<tr>
<td>NUC290+ Nuclear Medicine Certification Preparation Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restricted Electives</th>
<th>0-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students interested in more cardiac clinical experience may complete zero (0) to one (1) credit with permission of the Nuclear Medicine Program Director.</td>
<td></td>
</tr>
<tr>
<td>NUC272+ Cardiac Practicum</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Education Requirements</th>
<th>5-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any general education course in the Humanities, Arts and Design area</td>
<td>2-3</td>
</tr>
<tr>
<td>Any general education course in the Social and Behavioral area</td>
<td>3</td>
</tr>
</tbody>
</table>

NURSING: MARICOPANURSING
CERTIFICATES OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of “C” or better in all courses or within the program.

Division: Nursing
Chair: Margi Schultz

NURSE ASSISTING
CERTIFICATE OF COMPLETION IN NURSE ASSISTING (6 CREDITS; CODE 5963 N)
The Certificate of Completion (CCL) in Nurse Assisting prepares students for entry level employment in various health care settings as a nursing assistant. The program combines classroom instruction with clinical laboratory, skilled care and acute care experiences.

* Indicates course has prerequisites and/or co-requisites.
** Indicates any module suffixed courses.
Students who complete the program are eligible to take a written and practical certification examination and work as a Certified Nursing Assistant or Licensed Nursing Assistant. Licensing requirements are the exclusive responsibility of the Arizona State Board of Nursing.

The MCCD Nurse Assisting Program is approved by the Arizona State Board of Nursing.

**Program Offerings:**
Chandler Gilbert Community College
Estrella Mountain Community College GateWay Community College
Glendale Community College
Mesa Community College
Mesa Community College/Boswell Paradise Valley Community College

**Waiver of Licensure/Certification Guarantee:**
Admission or completion from the MCCD Nurse Assisting Program does not guarantee obtaining a license or certificate to practice nursing. Licensure and certification requirements and the subsequent procedures are the exclusive right and responsibility of the Arizona State Board of Nursing. Students must satisfy the requirements of the Nurse Practice Act: Statutes, Rules and Regulations, independently of any college of school requirements for graduation.

Pursuant to A.R.S. § 32-1606(B)(17), an applicant for professional or practical nurse license by examination is not eligible for licensure if the applicant has any felony convictions and has not received an absolute discharge from the sentences for all felony convictions. The absolute discharge must be received three or more years before submitting this application. If you cannot prove that the absolute discharge date is three or more years, the Board cannot process your application.

All nurse assistant applicants for certification will be fingerprinted to permit the Department of Public Safety to obtain state and federal criminal history information. All applicants with a positive history are investigated. If there is any question about eligibility for licensure or certification, contact the nursing education consultant at the Arizona State Board of Nursing (602-899-5150).

**Health Declaration:**
It is essential that Nursing students be able to perform a number of physical activities in the clinical portion of the program. At a minimum, students will be required to lift patients, stand for several hours at a time and perform bending activities. Students who have a chronic illness or condition must be maintained on current treatment and be able to implement direct patient care. The clinical nursing experience also places students under considerable mental and emotional stress as they undertake responsibilities and duties impacting patients’ lives. Students must be able to demonstrate rational and appropriate behavior under stressful conditions. Individuals should give careful consideration to the mental and physical demands of the program prior to making application.

**Health & Safety Requirements for MCCD Nurse Assisting Program:**
1. Students must submit a completed Health and Safety Documentation Checklist and maintain current status throughout the program.
2. Students must submit CPR card for Health Care Provider and maintain current status throughout the program.
3. Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Supplemental Background Check policy. Program applications will not be accepted without a copy of an Arizona Department of Public Safety Level One Fingerprint Clearance Card. Upon conditional program admission, the student must comply with all requirements of the current MCCCD background check policy.
4. Health Provider Signature Form signed by a licensed health care provider.
5. Negative urine drug screen.

**Grade Requirements:**
Student must obtain a “C” grade or better in all courses.

**University Transfer Students:**
For students planning a University Program
Students who are planning to earn the Bachelor of Science in Nursing may obtain their prerequisite courses at Maricopa.
Professional Education Certificate & Degree Programs

Community Colleges. For information on courses that meet requirements for admission into a baccalaureate program, please contact a program advisor.

The Nurse Assisting Pathway:
The nurse assisting pathway is designed to prepare students to complete the Nurse Assistant Certification through the Arizona State Board of Nursing to practice in a health care agency as a certified nurse assistant or a licensed nursing assistant. Completion of the nurse assistant program of study provides job ready skills as a nursing assistant. Students may apply to the Nursing Program after completing the prerequisite courses and admission requirements.

Admission Criteria:
1. Application and acceptance into the program, High School graduate or GED, current Health Care Provider CPR Card required before beginning courses.
2. Students must submit a copy of a fingerprint clearance card with their application for the Maricopa Community College District Nursing Program.

Required Courses ................................................................. 6
NUR158+ Nurse Assisting ......................................................... 6

NURSING REFRESHER
CERTIFICATE OF COMPLETION IN NURSING REFRESHER
(10 CREDITS; CODE 5739 N)
The Certificate of Completion (CCL) in Nursing Refresher program provides registered nurses with a review and update of nursing theory and practice. The goal of the program is to update and refine theoretical and practical nursing knowledge and facilitate the nurse`s transition back into professional practice. The Nursing Refresher program is approved by the Arizona State Board of Nursing. Successful program completion satisfies the Arizona State Board of Nursing RN license renewal requirement for applicants who do not meet the practice mandate as stated in The Nurse Practice Act, R4-19312 (B).

Health Declaration: It is essential that Nursing Refresher students be able to perform a number of physical activities in the clinical portion of the program. At a minimum, students will be required to lift patients, stand for several hours at a time and perform bending activities. The clinical nursing experience also places students under considerable mental and emotional stress as they undertake responsibilities and duties impacting patients` lives. Students must be able to demonstrate rational and appropriate behavior under stressful conditions. Individuals should give careful consideration to the mental and physical demands of the program prior to making application.

Admission Criteria:
1. Formal application and admission to the program is required.
2. All applicants must have an active or inactive Registered Nurse (RN) license that is eligible for renewal per Regulatory Board requirements or has successfully passed the RN licensing examination, but has never worked as a registered nurse.
3. All applicants must be eligible for issuance of an active or temporary registered nurse license.
4. All applicants must be in good standing with the Regulatory Board. RN`s with restricted licenses are not eligible for the program. Once enrolled, students receiving any disciplinary actions against their license must notify the Nursing Program Chair within five (5) school days. The Nursing Program Chair reserves the right to restrict the student`s participation in clinical experiences and involvement in patient care until the license is valid and unrestricted.

Health and Safety Requirements for the Nursing Refresher Program:
1. Students must submit a Health and Safety Documentation verifying completion of all requirements and maintain current status throughout the program.
2. Students must submit the Health Declaration Form signed by a licensed health care provider.
3. Students must test negative on a timed urine drug screen.
4. Students must provide a copy of their current and valid Level One Finger Print Clearance Card upon application.

Required Courses ................................................................. 10
NUR295 Registered Nurse Refresher ....................................................... 10

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
FAST TRACK PRACTICAL NURSING
CERTIFICATE OF COMPLETION IN FAST TRACK PRACTICAL NURSING
(22 -29 CREDITS; CODE 5114)
The Certificate of Completion (CCL) in Fast Track Practical Nursing program provides students with the theory and skills required to practice as a practical nurse in acute care, extended care, and intermediate care settings. The program of study combines nursing theory lectures with planned patient care learning experiences in hospitals, nursing homes and health care agencies. Graduates are eligible to take the National Council Licensure Examination (NCLEX-PN) to become a licensed practical nurse (LPN). Licensing requirements are the exclusive responsibility of the Arizona State Board of Nursing.

The Certificate of Completion Fast Track Practical Nursing Program is approved by the Arizona State Board of Nursing.

Waiver of Licensure/Certification Guarantee:
Admission or graduation from the Fast Track Practical Nursing Program does not guarantee obtaining a license to practice nursing. Licensure requirements and the subsequent procedures are the exclusive right and responsibility of the Arizona State Board of Nursing. Students must satisfy the requirements of the Nurse Practice Act: Statutes, Rules and Regulations, independently of any college or school requirements for graduation.

Pursuant to A.R.S. 32-1606(B)(17), an applicant for professional or practical nurse license by examination is not eligible for licensure if the applicant has any felony convictions and has not received an absolute discharge from the sentences for all felony convictions. The absolute discharge must be received five or more years before submitting this application. If you cannot prove that the absolute discharge date is five or more years, the Board cannot process your application.

Level One Fingerprint Clearance is required for admission into the program. Applicants must present a Level One Fingerprint Clearance Card to be copied by the advisor or designee. For a Department of Public Safety Fingerprint Clearance Card application, contact a Nursing Advisor. If there is any question about eligibility for licensure or certification, contact the nursing education consultant at the Arizona State Board of Nursing (602.771.7800).

Health Declaration:
It is essential that nursing students be able to perform a number of physical activities in the clinical portion of the program. At a minimum, students will be required to lift patients, stand for several hours at a time and perform bending activities. Students who have a chronic illness or condition must be maintained on current treatment and be able to implement direct patient care. The clinical nursing experience also places students under considerable mental and emotional stress as they undertake responsibilities and duties impacting patients’ lives. Students must be able to demonstrate rational and appropriate behavior under stressful conditions. Individuals should give careful consideration to the mental and physical demands of the program prior to making application. All must provide documentation of compliance with all health and safety requirements required to protect patient safety. Only students in compliance are permitted to enroll in nursing courses. Students will meet these requirements by providing the required documentation for the Health/Safety Requirements Documentation Checklist and the signed Health Declaration Form.

Health and Safety Requirements for the Nursing Program:
1. Students must submit a Health and Safety Documentation Checklist verifying completion of all requirements and maintain current status throughout the program.
2. Students must submit the Health Declaration Form signed by a licensed health care provider.
3. Students must test negative on a timed urine drug screen.
4. Admission requires that students be in compliance with the Maricopa County Community College District Supplemental Background Check policy. Program applications will not be accepted without a copy of an Arizona Department of Public Safety Level One Fingerprint Clearance Card. Upon conditional program admission, the student must comply with all requirements of the current MCCCD background check policy.

Admission Criteria:
1. Application and acceptance into Fast-Track Practical Nursing Program.
2. Documentation of Health and Safety Requirements.
3. Level one fingerprint clearance card
4. Passing score on College Placement Exam or HESI Admission Assessment (HESI A2).
5. High School diploma or GED is required for the Certificate of Completion in Practical Nursing. Applicants must sign that they meet this requirement by providing high school diploma/transcripts or GED completion OR by signing the nursing application page containing the ‘Declaration of High School Graduation or GED completion’. In some instances, high school diploma/transcripts or proof of GED completion may be required.

6. All applicants holding or receiving a certificate as a Nursing Assisting and/or license as a Practical Nurse must remain in good standing with the Board of Nursing. Once enrolled, students receiving any disciplinary actions against their certificate or license must notify the Nursing Program Chair within five (5) school days. The Nursing Program Chair reserves the right to restrict the student’s participation in clinical experiences and involvement in patient care until the certificate and/or license is valid and unrestricted.

Program Prerequisites

Currently Certified Nurse Assistant (CNA) (0) OR
Licensed Nurse Assistant (LNA) (0) OR
NUR158 Nurse Assisting (6) OR
Equivalent (0-6) OR
Waived by the Nursing Program Director for Military Veterans demonstrating equivalent work experience .................................................................0-6

Required Courses

Students should meet with Nursing Program Director to make appropriate course selection for NUR180PN or NUR150.

NUR160PN+ Practical Nursing Theory and Science I .................................................................11
NUR180PN+ Practical Nursing Theory and Science II (11) OR
NUR150+ Practical Nurse Bridge Course (12) .................................................................11-12

PRACTICAL NURSING

CERTIFICATE OF COMPLETION IN PRACTICAL NURSING
(35 - 45 CREDITS; CODE 5957)

The Certificate of Completion (CCL) in Practical Nursing Program is available at eight of the Maricopa Community Colleges. Clinical experiences are provided in a variety of healthcare settings. Practical Nursing Program graduates are eligible to apply for the national exam for the practical nurse license. Licensing requirements are the exclusive responsibility of the State Board of Nursing.

The Certificate of Completion Practical Nursing Program is approved by the Arizona State Board of Nursing.

Program Offerings:
This program is offered at the following sites: Chandler Gilbert Community College
Estrella Mountain Community College GateWay Community College Glendale Community College
Mesa Community College
Paradise Valley Community College
Phoenix College
Scottsdale Community College

Waiver of Licensure/Certification Guarantee:
Admission or graduation from the Nursing Program does not guarantee obtaining a license to practice nursing. Licensure requirements and the subsequent procedures are the exclusive right and responsibility of the Arizona State Board of Nursing. Students must satisfy the requirements of the Nurse Practice Act: Statutes, Rules and Regulations, independently of any college or school requirements for graduation.

Pursuant to A.R.S. 32-1606(B)(17), an applicant for professional or practical nurse license by examination is not eligible for licensure if the applicant has any felony convictions and has not received an absolute discharge from the sentences for all felony convictions. The absolute discharge must be received five or more years before submitting this application. If you cannot prove that the absolute discharge date is five or more years, the Board cannot process your application.
Level One Fingerprint Clearance is required for admission into the program. Applicants must present a Level One Fingerprint Clearance Card to be copied by the advisor or designee. For a Department of Public Safety Fingerprint Clearance Card application, contact MCCCD Healthcare/Nursing Advisor. If there is any question about eligibility for licensure or certification, contact the nursing education consultant at the Arizona State Board of Nursing (602.771.7800).

Health Declaration:
It is essential that nursing students be able to perform a number of physical activities in the clinical portion of the program. At a minimum, students will be required to lift patients, stand for several hours at a time and perform bending activities. Students who have a chronic illness or condition must be maintained on current treatment and be able to implement direct patient care. The clinical nursing experience also places students under considerable mental and emotional stress as they undertake responsibilities and duties impacting patients’ lives. Students must be able to demonstrate rational and appropriate behavior under stressful conditions. Individuals should give careful consideration to the mental and physical demands of the program prior to making application. All must provide documentation of compliance with all health and safety requirements required to protect patient safety. Only students in compliance are permitted to enroll in nursing courses. Students will meet these requirements by providing the required documentation for the Health/Safety Requirements Documentation Checklist and the signed Health Declaration Form.

Health and Safety Requirements for the Nursing Program:
1. Students must submit a Health and Safety Documentation Checklist verifying completion of all requirements and maintain current status throughout the program.
2. Students must submit the Health Declaration Form signed by a licensed health care provider.
3. Students must test negative on a timed urine drug screen.
4. Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Supplemental Background Check policy. Program applications will not be accepted without a copy of an Arizona Department of Public Safety Level One Fingerprint Clearance Card. Upon conditional program admission, the student must comply with all requirements of the current MCCCD background check policy.

University Transfer Students:
Students who are planning to earn the Bachelor of Science in Nursing may obtain their prerequisite courses at the Maricopa Community Colleges. For information on courses that meet requirements for admission into a baccalaureate program, please contact a program advisor.

Practical Nurse Exit Option:
Following completion of the practical nurse level program of study, the student is eligible to apply for licensure as a practical nurse. Licensed Practical Nurses (LPN) may be employed in acute, long-term, and community-based health care settings under the direction of a registered nurse. Practical Nurses function within their legal scope of practice and use professional standards of care in illness care and health promotion activities for clients and families across the life span.

The Associate in Applied Science (AAS) Nursing Program is approved by the Arizona State Board of Nursing and accredited by the Accreditation Commission for Education in Nursing (ACEN), 3343 Peachtree Road NE, Suite 850, Atlanta, GA 30326; (404.975.5000); email: info@acennursing.org.

Course Fee Information:
Please see class schedule for information regarding course fees.

Maricopa Nursing is aligned with Nurse of the Future Competencies: Patient-Centered Care, Professionalism, Leadership, Systems-Based Practice, Informatics and Technology, Communication, Teamwork and Collaboration, Safety, Quality Improvement, and Evidence-Based Practice. These competencies focus on key stakeholders of healthcare clients, colleagues and communities. Demonstration of the competencies will signify preparation for successful transition into nursing practice and further professional development.

Admission Criteria:
1. High School diploma or GED is required for the Certificate of Completion in Practical Nursing. Applicants must signify that they meet this requirement by providing high school diploma/transcripts or GED completion OR by signing the nursing application page containing the “Declaration of High School Graduation or GED completion”. In some instances, high school diploma/transcripts or proof of GED completion may be required.
2. Formal application and admission to the program is required; all program prerequisites must be completed prior to submission. A passing score on a nursing program admission test is required to complete an application.

3. The Nursing Program Chair reserves the right to deny acceptance of an admission application if the applicant was previously dismissed for issues relating to academic integrity, unsafe patient care, and/or two (2) or more failures from any nursing program.

4. All applicants holding or receiving a certificate as a Nursing Assisting and/or license as a Practical Nurse must remain in good standing with the Board of Nursing. Once enrolled, students receiving any disciplinary actions against their certificate or license must notify the Nursing Program Chair within five (5) school days. The Nursing Program Chair reserves the right to restrict the student’s participation in clinical experiences and involvement in patient care until the certificate and/or license is valid and unrestricted.

Program Prerequisites ............................................................................................................................................. 10-20
The credit-hour range is subject to change depending on the student's educational experience

<table>
<thead>
<tr>
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<tr>
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<td></td>
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<tr>
<td>CHM130LL+</td>
<td>Fundamental Chemistry Laboratory (1) OR</td>
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</tr>
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<td></td>
<td>One year of high school chemistry</td>
<td>0-4</td>
</tr>
<tr>
<td>ENG101+</td>
<td>First-Year Composition (3)</td>
<td>OR</td>
</tr>
<tr>
<td>ENG107+</td>
<td>First-Year Composition for ESL (3)</td>
<td></td>
</tr>
<tr>
<td>MAT140+</td>
<td>College Mathematics (5)</td>
<td>OR</td>
</tr>
<tr>
<td>MAT141+</td>
<td>College Mathematics (4)</td>
<td>OR</td>
</tr>
<tr>
<td>MAT142+</td>
<td>College Mathematics (3)</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>Satisfactory completion of higher level mathematics course</td>
<td>3-5</td>
</tr>
</tbody>
</table>

Students that are admitted into the Maricopa Nursing Program for Fall 2015 and Spring 2016, AND completed MAT120/121/122 prior to Fall 2015 as an admission requirement, may complete the program without completing MAT140/141/142 as a graduation requirement, by waiver of the program director.

Required Courses ..................................................................................................................................................... 25

<table>
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<tr>
<th>Course Code</th>
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</tr>
<tr>
<td>NUR172+</td>
<td>Nursing Theory and Science II</td>
<td></td>
</tr>
<tr>
<td>NUR192+</td>
<td>Practical Nursing Transition</td>
<td></td>
</tr>
</tbody>
</table>

NURSING (REGISTERED NURSE)
ASSOCIATE OF APPLIED SCIENCE IN NURSING
(62 -75 CREDITS; CODE  3812 )
The Associate in Applied Science (AAS) in Nursing Program is available at eight of the Maricopa Community Colleges. Clinical experiences are provided in a variety of healthcare settings. Nursing Program graduates are eligible to apply for the national exam for the registered nurse license. Licensing requirements are the exclusive responsibility of the State Board of Nursing.

The Associate in Applied Science (AAS) Nursing Program is approved by the Arizona State Board of Nursing and accredited by the Accreditation Commission for Education in Nursing (ACEN), 3343 Peachtree Road NE, Suite 850, Atlanta, GA 30326; (404.975.5000); email: info@acennursing.org.

Program Offerings:
Chandler-Gilbert Community College
Estrella Mountain Community College
GateWay Community College
Glendale Community College
Mesa Community College
Paradise Valley Community College
Phoenix College
Scottsdale Community College

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Waiver of Licensure/Certification Guarantee:
Admission or graduation from the Nursing Program does not guarantee obtaining a license to practice nursing. Licensure requirements and the subsequent procedures are the exclusive right and responsibility of the Arizona State Board of Nursing. Students must satisfy the requirements of the Nurse Practice Act: Statutes, Rules and Regulations, independently of any college or school requirements for graduation.

Pursuant to A.R.S. 32-1606(B)(17), an applicant for professional or practical nurse license by examination is not eligible for licensure if the applicant has any felony convictions and has not received an absolute discharge from the sentences for all felony convictions. The absolute discharge must be received five or more years before submitting this application. If you cannot prove that the absolute discharge date is five or more years, the Board cannot process your application.

Level One Fingerprint Clearance is required for admission into the program. Applicants must present a Level One Fingerprint Clearance Card to be copied by the advisor or designee. For a Department of Public Safety Fingerprint Clearance Card application, contact MCCCD Healthcare/Nursing Advisor. If there is any question about eligibility for licensure or certification, contact the nursing education consultant at the Arizona State Board of Nursing (602.771.7800).

Health Declaration:
It is essential that nursing students be able to perform a number of physical activities in the clinical portion of the program. At a minimum, students will be required to lift patients, stand for several hours at a time and perform bending activities. Students who have a chronic illness or condition must be maintained on current treatment and be able to implement direct patient care. The clinical nursing experience also places students under considerable mental and emotional stress as they undertake responsibilities and duties impacting patients’ lives. Students must be able to demonstrate rational and appropriate behavior under stressful conditions. Individuals should give careful consideration to the mental and physical demands of the program prior to making application. All must provide documentation of compliance with all health and safety requirements required to protect patient safety. Only students in compliance are permitted to enroll in nursing courses. Students will meet these requirements by providing the required documentation for the Health/Safety Requirements Documentation Checklist and the signed Health Declaration Form.

Health and Safety Requirements for the Maricopa Nursing Program:
1. Students must submit a Health and Safety Documentation Checklist verifying completion of all requirements and maintain current status throughout the program.
2. Students must submit the Health Declaration Form signed by a licensed health care provider.
3. Students must test negative on a timed urine drug screen.
4. Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Supplemental Background Check policy. Program applications will not be accepted without a copy of an Arizona Department of Public Safety Level One Fingerprint Clearance Card. Upon conditional program admission, the student must comply with all requirements of the current MCCCD background check policy.

University Transfer Students:
Students who are planning to earn the Bachelor of Science in Nursing may obtain their prerequisite courses at the Maricopa Community Colleges. For information on courses that meet requirements for admission into a baccalaureate program, please contact a program advisor.

REGISTERED NURSE PATHWAY
ASSOCIATE IN APPLIED SCIENCE DEGREE IN NURSING PROGRAM
The Associate in Applied Science (AAS) degree in Nursing graduate is eligible to apply for licensure as a Registered Nurse (RN). The RN is educated as a generalist who delivers health care to clients and family groups and has competencies related to the art and science of nursing. The RN may be employed in a variety of acute, long term, and community-based healthcare settings. The AAS degree in Nursing provides the graduate with an educational foundation for articulation into the university setting.

Program note:
Students must earn a grade of C or better in all courses required within the program.
+ indicates course has prerequisites and/or corequisites.

Course Fee Information:
Please see class schedule for information regarding course fees.
Professional Education Certificate & Degree Programs

MaricopaNursing is aligned with Nurse of the Future Competencies: Patient-Centered Care, Professionalism, Leadership, Systems-Based Practice, Informatics and Technology, Communication, Teamwork and Collaboration, Safety, Quality Improvement, and Evidence-Based Practice. These competencies focus on key stakeholders of healthcare clients, colleagues and communities. Demonstration of the competencies will signify preparation for successful transition into nursing practice and further professional development.

Admission Criteria:
1. High School diploma or GED is required for the Associate in Applied Science degree in Nursing. Applicants must signify that they meet this requirement by providing high school diploma/transcripts or GED completion OR by signing the nursing application page containing the “Declaration of High School Graduation or GED completion”. In some instances, high school diploma/transcripts or proof of GED completion may be required.
2. Formal application and admission to the program is required; all program prerequisites must be completed prior to submission of application.
3. A passing score on a nursing program admission test is required to complete an application.
4. Applicants for Advanced Placement must receive a passing score on a practical nursing content exam for placement into Block 3.
5. The final decision rests with the Nursing Program Chair at the College to which the student is accepted.
6. The Nursing Program Chair reserves the right to deny acceptance of an admission application if the applicant was previously dismissed for issues relating to academic integrity, unsafe patient care, and/or two (2) or more failures from any nursing program.
7. All applicants holding or receiving a certificate as a Nursing Assisting and/or license as a Practical Nurse must remain in good standing with the Regulatory Board. Once enrolled, students receiving any disciplinary actions against their certificate or license must notify the Nursing Program Chair within five (5) school days. The Nursing Program Chair reserves the right to restrict the student’s participation in clinical experiences and involvement in patient care until the certificate and/or license is valid and unrestricted.

Program Prerequisites............................................................................................................................................. 10-20
The credit hour range is subject to change depending on the student’s educational experiences.

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Students that are admitted into the MaricopaNursing Program for Fall 2015 and Spring 2016, AND completed MAT120/121/122 prior to Fall 2015 as an admission requirement, may complete the program without completing MAT140/141/142 as a graduation requirement, by waiver of the program director.

Required Courses ................................................................................................................................................... 36

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<tr>
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<tbody>
<tr>
<td>NUR152+</td>
<td>Nursing Theory and Science I</td>
<td>9</td>
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<tr>
<td>NUR172+</td>
<td>Nursing Theory and Science II</td>
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</tr>
<tr>
<td>NUR252+</td>
<td>Nursing Theory and Science III</td>
<td>9</td>
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<tr>
<td>NUR283+</td>
<td>Nursing Theory and Science IV</td>
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General Education Requirements ..................................................................................................................... 16-19

<table>
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<tbody>
<tr>
<td>BIO202+</td>
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<tr>
<td>BIO205+</td>
<td>Microbiology (4)</td>
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<tr>
<td>CRE101+</td>
<td>Critical and Evaluative Reading I (3) OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equivalent by assessment</td>
<td>0-3</td>
</tr>
</tbody>
</table>
Three (3) credits of First Year Composition are met by ENG101 or ENG107 in Program Prerequisites area.

ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3) ................................................................. 3

PSY101 Introduction to Psychology .............................................................................. 3

Any approved general education course in the Humanities, Arts and Design area ...................... 2

OCCUPATIONAL SAFETY AND HEALTH TECHNOLOGY
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE

To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Industrial Technology
Chair: John Kelly

CERTIFICATE OF COMPLETION IN OCCUPATIONAL SAFETY AND HEALTH TECHNOLOGY
(24 - 27 CREDITS; CODE 5859)

The Certificate of Completion (CCL) in Occupational Safety and Health Technology program is designed to prepare a safety professional to manage health and safety programs that comply with Occupational Safety and Health Act (OSHA) standards in a variety of settings. Occupational Safety and Health professionals have specialized knowledge of state and federal rules and regulations and code books that serve as safety guidelines. They identify safety problems and develop programs to apply those rules in specific industrial setting.

Required Courses ............................................................................................................. 21-24
HMT/OSH101 Introduction to Occupational Safety, Health, and Environmental Technology .......... 3
OSH102 Introduction to Industrial Hygiene ........................................................................... 3
OSH107+ Occupational Safety Principles and Practice ........................................................ 3
OSH105AA Construction Safety (3) OR
OSH106AA Industrial Safety (3) OR
Recognized OSHA card (0) ............................................................................................ 0-3

AND
Students must select one (1) of the following three (3) tracks:

Track 1: Safety Management: ............................................................................................ 12
OSH203+ Safety Program Management I ....................................................................... 3
OSH204+ Health and Safety Program Management II ......................................................... 3
OSH206 Risk Management and Loss Control ...................................................................... 3
OSH220+ Safety and Emergency Management (3) OR
FAC/OSH240+ Facilities Special Systems and Codes (3) ................................................... 3

OR
Track 2: Safety Professional: ............................................................................................. 12
OSH203+ Safety Program Management I ....................................................................... 3
OSH218+ Ergonomics .......................................................................................................... 3
OSH220+ Safety and Emergency Management .................................................................. 3
OSH230+ Safety and Environmental Response to Hazardous Spills and Waste (3) OR
FAC/OSH240+ Facilities Special Systems and Codes (3) ................................................... 3

OR
Track 3: Construction Safety Specialist: .......................................................................... 12
OSH113+ Urban Workplace Response: First Aid/Cardiopulmonary Resuscitation (1) OR
OSH212+ Electrical Safety Arc Flash (1) ............................................................................ 1
OSH203+ Safety Program Management I ....................................................................... 3
OSH213+ Excavation, Trenching and Soil Mechanics ......................................................... 2
OSH230 Safety and Environmental Response to Hazardous Spills and Waste ................. 3
FAC/OSH240+ Facilities Special Systems and Codes ......................................................... 3

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

Restricted Electives .................................................................................................................................................. 3

Students should select three (3) credits from the following courses in consultation with a Program Advisor.

Any 100/200 level OSH or FAC prefixed courses may be selected, except courses used to satisfy the Required Courses area.

FAC+++++ Any FAC Facilities Management course(s)
IND+++++ Any IND Industry course(s)
OSH+++++ Any OSH Occupational Safety and Health course(s)
WRT+++++ Any WRT Water Resource Technology course(s)

ASSOCIATE IN APPLIED SCIENCE DEGREE IN OCCUPATIONAL SAFETY AND HEALTH TECHNOLOGY
(60 - 63 CREDITS; CODE 3762 )

The Associate in Applied Science (AAS) in Occupational Safety and Health Technology program is a two-year degree program which is designed to prepare a safety professional to manage health and safety programs that comply with Occupational Safety and Health Act (OSHA) standards in a variety of settings. Occupational Safety and Health professionals have specialized knowledge of state and federal rules and regulations and code books that serve as safety guidelines. They identify safety problems and develop programs to apply those rules in specific industrial setting.

Program Prerequisites............................................................................................................................................. 3-8
ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) ........................................................................................................3
MAT courses in program prerequisites area may be waived based on work experience as determined by Program Director.

MAT090+ Developmental Algebra (5) OR
MAT091+ Introductory Algebra (4) OR
MAT092+ Introductory Algebra (3) OR
MAT093+ Introductory Algebra/Math Anxiety Reduction (5) OR Equivalent OR Satisfactory score on District Placement exam ..............................................................................0-5

If student takes one of the Math class options from Restricted Electives area, there will be 0 credits required to fulfill Program Prerequisites.

Required Courses ................................................................................................................................................ 32-35
BIO105 Environmental Biology (4) OR
BIO160 Introduction to Human Anatomy and Physiology .................................................................................4
CHM130+ Fundamental Chemistry (3) AND
CHM130LL+ Fundamental Chemistry Laboratory (1) OR
CHM151+ General Chemistry I (3) AND
CHM151LL+ General Chemistry I Laboratory (1) .................................................................................................4
GBS110 Human Relations in Business and Industry (3) OR
MGT101 Techniques of Supervision (3) .................................................................................................................3
HMT/OSH101 Introduction to Occupational Safety, Health, and Environmental Technology ..................3
OSH102 Introduction to Industrial Hygiene ...........................................................................................................3
OSH107+ Occupational Safety Principles and Practice .......................................................................................3
OSH105AA Construction Safety (3) OR
OSH106AA Industrial Safety (3) OR
Recognized OSHA card (0) ................................................................................................................................0-3

AND Students must follow one of the following tracks:

Track 1: Safety Management ................................................................................................................................. 12
OSH203+ Safety Program Management I ...........................................................................................................3
OSH204+ Health and Safety Program Management II .........................................................................................3
OSH206 Risk Management and Loss Control .........................................................................................................3
OSH220+ Safety and Emergency Management (3) OR
FAC/OSH240+ Facilities Special Systems and Codes (3) ....................................................................................3

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Track 2: Safety Professional

OSH203+ Safety Program Management I (3) OR
OSH218+ Ergonomics (3).................................................................3
OSH220+ Safety and Emergency Management........................................3
OSH230+ Safety and Environmental Response to Hazardous Spills and Waste (3) OR
FAC/OSH240+ Facilities Special Systems and Codes (3).............................3

Track 3: Construction Specialist

OSH113 Urban Workplace Response: First Aid/Cardiopulmonary Resuscitation (1) OR
OSH212+ Electrical Safety Arc Flash (1).....................................................1
FAC/OSH240+ Facilities Special Systems and Codes......................................3
OSH203+ Safety Program Management......................................................3
OSH213+ Excavation, Trenching and Soil Mechanics....................................2
OSH230 Safety and Environment Response to Hazardous Spills and Waste ..........3

Restricted Electives

Students should select five (5) to thirteen (13) credits from the following courses in consultation with a Program Advisor.
Any 100/200 level prefixed courses may be selected, except courses used to satisfy the Required Courses area.

Any BIO, CHM, CIS, ENV, PHY, PHS, MAT prefixed courses selected must be approved by Program Director.

BIO++++++ Any BIO Biology course(s)
CHM+++++ Any CHM Chemistry course(s)
CIS+++++ Any CIS Computer Information Systems course(s)
ENV+++++ Any ENV Environmental Sciences course(s)
FAC+++++ Any FAC Facilities Management course(s)
IND+++++ Any IND Industry course(s)
OSH+++++ Any OSH Occupational Safety and Health course(s)
PHY+++++ Any PHY Physics course(s)
PHS+++++ Any PHS Physical Science course(s)
SPA+++++ Any SPA Spanish course(s)
WRT+++++ Any WRT Water Resource Technology course(s)
MAT150+ College Algebra/Functions (5) OR
MAT151+ College Algebra/Functions (4) OR
MAT152+ College Algebra/Functions (3) OR
Equivalent course OR
Satisfactory completion of a higher level mathematics course........................3-5

BLT121 Electrical Codes.............................................................................3
BLT124 Designing for the Americans with Disabilities Act (ADA)...............3
BLT142 Green Building Codes, Standards and Rating Systems......................3
HCC/RES109 CPR for Health Care Provider.............................................0.5
FSC105 Hazardous Materials/First Responder...........................................3
HCC130AA Health Care Today.................................................................0.5
HCC130AB Workplace Behaviors in Health Care.......................................0.5
HCC130AC Personal Wellness and Safety................................................0.5

General Education Requirements

COM110 Interpersonal Communication (3) OR
COM230+ Small Group Communication (3).............................................3
CRE101+ College Critical Reading (3) OR
CRE111+ Critical Reading for Business and Industry (3) OR
Equivalent by Assessment...........................................................................0-3
ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3).............................................3

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
## Professional Education Certificate & Degree Programs

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT120+</td>
<td>Intermediate Algebra (5) OR</td>
<td></td>
</tr>
<tr>
<td>MAT121+</td>
<td>Intermediate Algebra (4) OR</td>
<td></td>
</tr>
<tr>
<td>MAT122+</td>
<td>Intermediate Algebra (3) OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equivalent course OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Satisfactory completion of a higher level mathematics course OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Met by satisfactory completion of mathematics course from the Restricted Electives area</td>
<td>0-5</td>
</tr>
</tbody>
</table>

Any approved general education course from the Humanities, Arts and Design area ........................................... 3

Any approved general education course from the Social and Behavioral Sciences area ........................................... 3

### OFFICE TECHNOLOGY

**CERTIFICATE OF COMPLETION**

To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Business and Information Technologies
Chair: David Smith

**CERTIFICATE OF COMPLETION IN OFFICE TECHNOLOGY**

(18 CREDITS; CODE 5261)

The Certificate of Completion (CCL) in Office Technology can be completed in one semester. Many classes are offered on a flexible, open entry/open exit schedule. Training in this area provides students with keyboarding, language, customer service, and computer skills. A wide variety of careers exist in the office field. Office technology positions include office assistant, receptionist, and customer service representative. The position offers opportunities to learn and advance in the office environment.

**Required Courses** ................................................................................................................................................... 18

*Either OAS101AA or OAS103AA may be waived if 30 wpm (accurately) assessment is achieved. See your advisor for course exception.*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPC110</td>
<td>Computer Usage and Applications (3) OR</td>
<td></td>
</tr>
<tr>
<td>CIS105</td>
<td>Survey of Computer Information Systems (3) OR</td>
<td></td>
</tr>
<tr>
<td>CIS118AB</td>
<td>PowerPoint: Level I (1) AND</td>
<td></td>
</tr>
<tr>
<td>BPC/OAS130DK+</td>
<td>Beginning Word (1) AND</td>
<td></td>
</tr>
<tr>
<td>CIS117AM</td>
<td>Database Management: Microsoft Access - Level I (1)</td>
<td>3</td>
</tr>
<tr>
<td>CIS114DE</td>
<td>Excel Spreadsheet</td>
<td>3</td>
</tr>
<tr>
<td>GBS110</td>
<td>Human Relations in Business and Industry</td>
<td>3</td>
</tr>
<tr>
<td>OAS108</td>
<td>Business English</td>
<td>3</td>
</tr>
<tr>
<td>OAS118</td>
<td>Ten-Key by Touch</td>
<td>1</td>
</tr>
<tr>
<td>OAS101AA</td>
<td>Computer Typing I: Keyboard Mastery (1) OR</td>
<td></td>
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<tr>
<td>OAS103AA+</td>
<td>Computer Typing: Skill Building I (1)</td>
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</tr>
<tr>
<td>OAS101AB+</td>
<td>Computer Typing I: Letters, Tables and Reports</td>
<td>1</td>
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<tr>
<td>CSM/TQM101</td>
<td>Quality Customer Service</td>
<td>3</td>
</tr>
</tbody>
</table>

### ORGANIZATIONAL LEADERSHIP AND MANAGEMENT

**CERTIFICATE OF COMPLETION**

**ASSOCIATE IN APPLIED SCIENCE DEGREE**

To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Business and Information Technologies
Chair: David Smith

**CERTIFICATE OF COMPLETION IN ORGANIZATIONAL LEADERSHIP**

(18 CREDITS; CODE 5731)

The Certificate of Completion (CCL) in Organizational Leadership is designed to prepare students with knowledge and skills needed in today’s changing workplace. The program provides leadership and communication skills and techniques for planning, directing, and evaluating business situations.
This program also emphasizes procedures for effective allocation of time, money, materials, space, and personnel. An Associate in Applied Science (AAS) in Organizational Management is also available.

Program Prerequisites

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG101+</td>
<td>First-Year Composition (3) OR</td>
<td>0-3</td>
</tr>
<tr>
<td>ENG102+</td>
<td>First-Year Composition for ESL (3) OR</td>
<td>0-3</td>
</tr>
</tbody>
</table>

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BPC110</td>
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</tr>
<tr>
<td>CIS105</td>
<td>Survey of Computer Information Systems (3)</td>
<td>3</td>
</tr>
<tr>
<td>GBS110</td>
<td>Human Relations in Business and Industry (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>MGT251</td>
<td>Human Relations in Business (3)</td>
<td>3</td>
</tr>
<tr>
<td>GBS151</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>GBS233+</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>MGT175</td>
<td>Business Organization and Management (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>TQM240</td>
<td>Project Management in Quality Organizations (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>MGT101</td>
<td>Techniques of Supervision (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>MGT229</td>
<td>Management and Leadership I (3)</td>
<td>3</td>
</tr>
</tbody>
</table>

ASSOCIATE IN APPLIED SCIENCE DEGREE IN ORGANIZATIONAL MANAGEMENT

(60 CREDITS; CODE 3727)

The Associate in Applied Science (AAS) in Organizational Management program is designed with a customized curriculum specific to the student's individual needs in addition to the knowledge and skills needed in today's changing workplace. The program provides leadership and communication skills and techniques for planning, directing, and evaluating business situations, with an emphasis on effective allocation of time, money, materials, space, and personnel. A Certificate of Completion (CCL) in Organizational Leadership is also available.

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate of Completion in Organizational Leadership (5731)</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

Restricted Electives

Students must choose 19-25 industry/job related course credits from any MCCCD occupational program and/or Academic Certificate.

Industry/job related course credits must include a minimum of 9 credits with a common subject or theme. Program of study must be approved by the business department chair or designee.

General Education Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tr>
<td>CRE101+</td>
<td>College Critical Reading (3) OR</td>
<td>0-3</td>
</tr>
<tr>
<td>ENG101+</td>
<td>First-Year Composition (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>ENG107+</td>
<td>First-Year Composition for ESL (3) AND</td>
<td>3</td>
</tr>
<tr>
<td>ENG102+</td>
<td>First-Year Composition (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>ENG108+</td>
<td>First-Year Composition for ESL (3)</td>
<td>3</td>
</tr>
</tbody>
</table>

Any approved general education course in the Oral Communication area ........................................................................................................ 3
Any approved general education course in the Humanities, Arts and Design area ........................................................................................................ 3
Any approved general education course in the Mathematics area ............................................................................................................................ 3-5
Any approved general education course in the Natural Sciences area ....................................................................................................................... 4
Any approved general education course in the Social and Behavioral Sciences area ......................................................................................................... 3
PHYSICAL THERAPY ASSISTING
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of "C" or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

ASSOCIATE IN APPLIED SCIENCE DEGREE IN PHYSICAL THERAPIST ASSISTING
(73 - 87 CREDITS; CODE 3675)
The Associate in Applied Science (AAS) in the Physical Therapist Assisting program prepares students to use therapeutic modalities and procedures under the direction and supervision of a physical therapist. The physical therapist assistant works with patients who have physical impairments requiring physical therapy services to relieve pain and heal damaged tissue; and to improve range of motion, strength, and functional mobility. Physical therapy treatments include but are not limited to the application of therapeutic modalities; therapeutic exercise including stretching, range of motion, and strengthening; mobility skills including ambulation, transfers, and wheelchair mobility activities; balance exercises; and wound care management.

The Physical Therapist Assisting program is accredited by the Commission on Accreditation in Physical Therapy Education. Only graduates of an accredited training program may practice as a physical therapist assistant in the state of Arizona. Program graduates are eligible to apply for the certification examination administered by the Federation of State Boards of Physical Therapy. A passing score on this examination is required for licensure/certification to practice as a physical therapist assistant in Arizona and in many other states.

Program Note:
Students with other related health care experiences not listed on the following Program Prerequisites options may request an evaluation for course competency equivalence through the Integrated Competency Assessment Network (ICAN) by calling 480.731.8924.

Admission Criteria:
1. Formal application and admission to the program by a point system is required. See point system description in Physical Therapist Assisting Program packet in the Health Sciences Division of college.
2. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
3. Clinical Health and Safety requirements must be met. Prior to placement in the clinical setting, the student must comply with all requirements of the MCCCD clinical health and safety policy.
4. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements prior to placement in the clinical setting may result in cancellation of enrollment.
5. Forty (40) hours of volunteer/work/observation in physical therapy practice settings supervised by a licensed physical therapist or physical therapist assistant are required to apply for admission into the PTA Program. A minimum of 20 hours in an inpatient (hospital, skilled nursing facility, rehabilitation hospital) setting is required.

Program Prerequisites
Program prerequisites must be completed to make application to the program.

Successful completion of the following college courses and students must earn a grade of B or better in BIO160 or BIO201 and ENG101 or ENG107.

BIO160 Introduction to Human Anatomy and Physiology (4) OR
BIO201+ Human Anatomy and Physiology I (4) ......................................................................................................................... 4
Students selecting BIO201 must complete the prerequisite courses BIO156 or BIO181.
BIO156+ Introductory Biology for Allied Health (4) OR
BIO181+ General Biology (Majors) I (4) OR
One year high school biology with a grade of C or better (0) ............................................................................................................... 0-4
Professional Education Certificate & Degree Programs

ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) .................................................................................................................. 3

The following courses may be taken as program prerequisites or concurrent with required courses. HCC courses must be completed prior to clinical placement if taken concurrent with required courses.

HCC130 Fundamentals in Health Care Delivery (3) OR
HCC130AA Health Care Today (0.5) AND
HCC130AB Workplace Behaviors in Health Care (0.5) AND
HCC130AC Personal Wellness and Safety (0.5) AND
HCC130AD Communication and Teamwork in Health Care Organizations (0.5) AND
HCC130AE Legal Issues in Health Care (0.5) AND
HCC130AF Decision Making in the Health Care Setting (0.5) OR

Work experience or equivalent education as evaluated by the GateWay Health Care Program Core Curriculum Coordinator ........................................................................................................... 0-3

HCC145 Medical Terminology for Health Care Workers (3) OR
HCC146 Common Medical Terminology for Health Care Workers (2) ........................................................................... 2-3

Required Courses ..................................................................................................................................................... 53
PTA101+ Survey of Physical Therapy .......................................................................................................................... 1.5
PTA103+ Kinesiology .................................................................................................................................................. 3
PTA104+ Musculo-Skeletal Assessment Techniques .................................................................................................. 1.5
PTA200+ Patient Mobility Techniques ....................................................................................................................... 4
PTA202+ Therapeutic Modalities .............................................................................................................................. 5
PTA203+ Clinical Pathology ..................................................................................................................................... 3
PTA205+ Communication in Physical Therapy ......................................................................................................... 1.5
PTA206+ Clinical Practicum I ................................................................................................................................... 3
PTA207+ Clinical Practicum Seminar I ...................................................................................................................... 1
PTA208+ Rehabilitation of Special Populations ......................................................................................................... 5
PTA210+ Orthopedic Physical Therapy ..................................................................................................................... 4
PTA214+ Electromodalities ......................................................................................................................................... 2.5
PTA215+ Wound Care for the Physical Therapist Assistant ....................................................................................... 1
PTA217+ Clinical Neurology ...................................................................................................................................... 2
PTA230+ Physical Therapy Seminar ........................................................................................................................ 2
PTA280+ Clinical Practicum II .................................................................................................................................. 3
PTA281+ Clinical Practicum Seminar II .................................................................................................................. 1
PTA290+ Clinical Practicum III .................................................................................................................................. 3
PTA292+ Clinical Practicum Seminar III .................................................................................................................. 1
PTA295+ Physical Therapist Assistant Examination Review ..................................................................................... 2
PSY101 Introduction to Psychology ........................................................................................................................... 3

General Education Requirements .................................................................................................................................. 11-17
CRE101+ College Critical Reading (3) OR
CRE111+ Critical Reading for Business and Industry (3) OR

Equivalent as indicated by assessment (0) .................................................................................................................. 0-3
ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3) OR
ENG111+ Technical and Professional Writing (3) ...................................................................................................... 3

Any general education course in the Oral Communication area ...................................................................................... 3
Any general education course in the Mathematics area .................................................................................................. 3
Any general education course in the Humanities, Arts and Design area ........................................................................ 2-3
POLYSOMNOGRAPHIC TECHNOLOGY
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE

To qualify, students must earn a grade of "C" or better in all courses required within the program.

Division: Health Science
Chair: Bryan Dodd

CERTIFICATE OF COMPLETION IN POLYSOMNOGRAPHIC TECHNOLOGY
(33 -37 CREDITS; CODE 5695)

The Certificate of Completion (CCL) in Polysomnographic Technology program includes parallel clinical training in various Valley hospitals and free-standing sleep centers. Polysomnographic Technology program prepares polysomnographic technologists (sleep technologists) to assist physicians specializing in sleep medicine in the clinical assessment, physiological monitoring and testing, diagnosis, management, and treatment of sleep related disorders with the use of various diagnostic and therapeutic tools providing care to patients of all ages.

Successful completion of the CCL in Polysomnographic Technology program enables the student to take the Board of Registered Polysomnographic Technologists (BRPT) examination to become a Registered Polysomnographic Technologist (RPSGT).

Admission Criteria:
1. Currently licensed or registry eligible Respiratory Care (RCP) Technologist or a graduate of a Committee on Accreditation for Respiratory Care (CoARC) accredited Respiratory Care program OR
2. Currently registered or registry eligible electroneurodiagnostic technologist (END/EEG) or a graduate of a Commission on Accreditation of Allied Health Educational Programs (CAAHEP) accredited END/EEG program.
3. Formal application can be made at any time.
4. Formal admission to the program is required.
5. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
6. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
7. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

Required Courses .............................................................................................................................................. 33-37
HRC101+ Overview of Healthcare Compliance................................................................................................1
PSG150+ Introduction to Sleep Medicine ........................................................................................................4
PSG160+ Polysomnographic Procedures ........................................................................................................3
PSG165+ Clinical Polysomnography I ...............................................................................................................3
PSG170+ Sleep Therapeutics ..........................................................................................................................3
PSG250+ Record Scoring .................................................................................................................................3
PSG260+ Special Topics in Polysomnography ................................................................................................2
PSG265+ Clinical Polysomnography II ............................................................................................................2
PSG275+ Clinical Polysomnography III ...........................................................................................................3
PSG282AA+ Volunteerism for Polysomnographic Technology: Service Learning Experience..........................1
AND Based on selected healthcare professional certification, complete one of the required tracks below to complete the certificate.

Track 1: Registered Respiratory Care Technologist .......................................................................................... 12
EEG115+ Biomedical Electronic Technology I ..................................................................................................2
EEG116+ Biomedical Electronic Technology II ..............................................................................................3
EEG130+ Introduction to EEG ........................................................................................................................4
EEG210+ Applied Neurophysiology .................................................................................................................3
ASSOCIATE IN APPLIED SCIENCE IN POLYSOMNOGRAPHIC TECHNOLOGY
(73 - 87.5 CREDITS; CODE 3135)

The Associate in Applied Science (AAS) in Polysomnographic Technology program includes parallel clinical training in various Valley hospitals and free-standing sleep centers. Polysomnographic Technology program prepares polysomnographic technologists (sleep technologists) to assist physicians specializing in sleep medicine in the clinical assessment; physiological monitoring and testing, diagnosis, management, and treatment of sleep related disorders with the use of various diagnostic and therapeutic tools providing care to patients of all ages.

Successful completion of the AAS degree in Polysomnographic Technology program enables the student to take the Board of Registered Polysomnographic Technologists (BRPT) examination to become a Registered Polysomnographic Technologist (RPSGT).

Admission Criteria:
1. Formal application can be made at any time.
2. Formal admission to the program is required.
3. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
4. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
5. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

Program Prerequisites

Students selecting BIO201 and BIO202 must complete the prerequisite courses BIO156 or BIO181.

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<tr>
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<td>BIO160</td>
<td>Introduction to Human Anatomy and Physiology (4)</td>
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</tr>
<tr>
<td>BIO201+</td>
<td>Human Anatomy and Physiology I (4)</td>
<td>4</td>
</tr>
<tr>
<td>BIO202+</td>
<td>Human Anatomy and Physiology II (4)</td>
<td>4</td>
</tr>
<tr>
<td>BIO156+</td>
<td>Introductory Biology for Allied Health (4)</td>
<td>4</td>
</tr>
<tr>
<td>BIO181+</td>
<td>General Biology (Majors) I (4)</td>
<td>4</td>
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<tr>
<td>ENG101+</td>
<td>First-Year Composition (3)</td>
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</tr>
<tr>
<td>ENG107+</td>
<td>First-Year Composition for ESL (3)</td>
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<tr>
<td>MAT120+</td>
<td>Intermediate Algebra (5)</td>
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<td>MAT121+</td>
<td>Intermediate Algebra (4)</td>
<td>4</td>
</tr>
<tr>
<td>MAT122+</td>
<td>Intermediate Algebra (3)</td>
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</table>

The following courses may be taken as program prerequisites or concurrent with required courses. HCC courses must be completed prior to clinical if taken concurrent with required courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HCC/RES109</td>
<td>CPR for Health Care Provider (0.5)</td>
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</tr>
<tr>
<td>HCC130</td>
<td>Fundamentals in Health Care Delivery (3)</td>
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<tr>
<td>HCC130AA</td>
<td>Health Care Today (0.5)</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AB</td>
<td>Workplace Behaviors in Health Care (0.5)</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AC</td>
<td>Personal Wellness and Safety (0.5)</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AD</td>
<td>Communication and Teamwork in Health Care Organizations (0.5)</td>
<td>0.5</td>
</tr>
<tr>
<td>HCC130AE</td>
<td>Legal Issues in Health Care (0.5)</td>
<td>0.5</td>
</tr>
</tbody>
</table>

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
### Production Technology

**Certificates of Completion**

**Associate in Applied Science Degree**

To qualify, students must earn a grade of "C" or better in all courses within the program.

**Division:** Industrial Technology  
**Chair:** John Kelly

Certificate of Completion in Production Technology: CNC Technology (27-30 Credits; Code 5440)

The Certificate of Completion (CCL) in Production Technology: CNC Technology program is designed for students to obtain the skills required to be considered as a Computer Numerical Control (CNC) technician in a manufacturing environment. Students develop skills with a specialization emphasis in Computer Numerical Control (CNC), Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) Programming Technician.

**Admission Criteria:**

Math assessment score on District placement exam placing students into MAT090 or MAT091 or MAT092 or higher, or permission of Department or Division.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET109</td>
<td>Machine Trades Print Reading (3) OR</td>
<td>3</td>
</tr>
</tbody>
</table>

+ Indicates course has prerequisites and/or co-requisites.  
++ Indicates any module suffixed courses.
The Certificate of Completion (CCL) in Production Technology: Quality Assurance program is designed for students to obtain the skills required to be considered as a quality technician in a manufacturing environment.

Admission Criteria:
Math assessment score on District placement exam placing students into MAT090 or MAT091 or MAT092 or higher, or permission of Department or Division.

Program Prerequisites
MET109  Machine Trades Print Reading (3) OR
One year direct work experience with Mechanical machine drawing OR
Satisfactory placement on departmental placement exam.................................0-3

Required Courses ................................................................................................................................................... 24
MET112+  Inspection Techniques........................................................................................................................3
MET113+  Applied Geometric Dimensioning and Tolerancing ...............................................................3
MET119  Workplace Quality Systems........................................................................................................3
MET220+  Fundamentals of Coordinate Measuring Machines (CMM) ...................................................3
MET224+  Applied Statistical Process Control Methods ........................................................................3
MET231+  Manufacturing Processes and Materials ....................................................................................3
MET254+  Lean and Six Sigma Applied Concepts ..................................................................................3
MET284+  Advanced Quality Process Methods........................................................................................3

ASSOCIATE IN APPLIED SCIENCE IN PRODUCTION TECHNOLOGY
(61 -79 CREDITS; CODE 3255 )
The Associate in Applied Science (AAS) in Production Technology program prepares students for employment in various engineering, manufacturing and quality disciplines related to productivity improvement, in a variety of manufacturing industries. Students develop skills with a specialization emphasis in Computer Numerical Control (CNC), Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) Programming Technician. The program of study includes quality practices and leadership principles with an emphasis on skills and knowledge essential for technicians who will be working in the related disciplines. Upon completion of the Associate in Applied Science Degree, a student will have acquired a working knowledge of how to function as a technician and perform duties typically associated in Production Technology as a CNC technician.

Admission Criteria:
Math assessment score on District placement exam placing students into MAT090 or MAT091 or MAT092 or higher, or permission of Department or Division.

Required Courses .................................................................................................................................................... 40
MET109  Machine Trades Print Reading (3) OR
One year direct work experience with Mechanical machine drawing OR
Satisfactory placement on departmental placement exam........................................0-3
MET112+  Inspection Techniques..................................................................................................................3
MET113+  Geometric Dimensioning and Tolerancing.................................................................................3
GTC/MET206  CNC Programming.............................................................................................3
MET207+  CNC Mill: Operator Training I.................................................................3
MET208+  CNC Lathe: Operator Training I.................................................................................3

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
### Professional Education Certificate & Degree Programs

**MET215+** Advanced CNC Operation ....................................................... 3  
**MET220+** Fundamentals of Coordinate Measuring Machines (CMM) ......................... 3  
**MET231+** Manufacturing Processes and Materials ......................................... 3  
**MET236AD+** CAD/CAM Computer Numerical Control (CNC) Programming: MasterCam ........................................... 3  
**MET246AD+** Advanced CAD/CAM CNC Programming: MasterCam ......................... 3  
**MET266AD+** Solids CAD/CAM Programming: MasterCam ........................................... 3  
**MET276AD+** MasterCam Certified Programmer Mill Level I: Test Preparation: CPgM1 ........................................................................ 1  
**MET286AE+** Solid Design I: Part Modeling: Solid Works .............................................. 3  

**Restricted Electives** .................................................................................. 0-12  
*Students preparing to gain expertise in Quality Assurance may complete zero (0) to twelve (12) credits with permission of the Production Technology Program Director.*  
**MET119** Workplace Quality Systems ................................................................ 3  
**MET224+** Applied Statistical Process Control Methods ...................................... 3  
**MET254+** Lean and Six Sigma Applied Concepts ...................................................... 3  
**MET284+** Advanced Quality Process Methods .......................................................... 3  

**General Education Requirements** .......................................................... 21-27  
**ENG101+** First-Year Composition (3) OR  
**ENG107+** First-Year Composition for ESL (3) AND  
**ENG102+** First-Year Composition (3) OR  
**ENG108+** First-Year Composition for ESL (3) OR  
**ENG111+** Technical and Professional Writing (3) ..................................................6  
**CRE101+** Critical and Evaluative Reading I OR  
**CRE111+** Reading for Business and Industry OR  
Equivalent as indicated by assessment on District Placement Exam ......................... 0-3  
**MAT120** Intermediate Algebra (5) OR  
**MAT121** Intermediate Algebra (4) OR  
**MAT122** Intermediate Algebra (3) OR  
Equivalent course OR  
Satisfactory completion of a higher level mathematics course .............................. 3-5  

Any approved general education course from Oral Communication area except COM225 Public Speaking ......3  
Any approved general education course in the Humanities, Arts and Design area .............................................. 2-3  
Any approved general education course in the Social and Behavioral Science area ........................................... 3  
Any approved general education course in the Natural Science area .......................................................... 4  

**RESPIRATORY CARE**  
**ASSOCIATE IN APPLIED SCIENCE DEGREE**  
To qualify, students must earn a grade of "C" or better in all required courses within the program.  

Division: Health Science  
Chair: Bryan Dodd  

**ASSOCIATE IN APPLIED SCIENCE DEGREE IN RESPIRATORY CARE**  
*(82.5 - 99.5 CREDITS; CODE 3284)*  
The Associate in Applied Science (AAS) in Respiratory Care degree provides education in patient services to assess, provide treatment, perform diagnostic procedures, and teach patients that have cardiovascular and pulmonary problems. Curriculum includes experiences in the hospital critical care, trauma, emergency departments, and operating rooms, patient’s home, physicians’ offices, and out-patient clinics in preparation for employment. The program focuses on principles for Respiratory therapists to utilize advance technology in life support systems, administer medications, and perform many techniques to assist patients in the healing process.  

Successful completion of the AAS Degree Respiratory Care Program enables the graduate of the program to take the National Board of Respiratory Care Entry (NBRC) Level examination and the NBRC Advanced Practitioner Examination. Passing of these examinations would then make the graduate eligible to obtain their license to practice professionally.

* Indicates course has prerequisites and/or co-requisites.  
** Indicates any module suffixed courses.
Program Note:

Students with other related health care experiences not listed on the following Program Prerequisites options may request an evaluation for course competency equivalence through the GateWay Health Core Curriculum Coordinator by calling 602-286-8509.

Admission Criteria:

1. Formal application can be made at any time.
2. Formal admission to the program is required.
3. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
4. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
5. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

Program Prerequisites ............................................................................................................................................ 14-30

Students are eligible to apply to the Respiratory Care program at any time to be placed in the program queue. Program Prerequisite courses must be completed prior to the start of the program of study. The following CHM course work may be taken as a program prerequisite or concurrent with required courses. Program faculty recommend completing the CHM course work prior to entering the program.

Core Credits ............................................................................................................................................................. 14-23

BIO160 Introduction to Human Anatomy and Physiology (4) OR
BIO201+ Human Anatomy and Physiology (4) AND
BIO202+ Human Anatomy and Physiology (4) ......................................................................................................... 4-8
CHM130+ Fundamental Chemistry .......................................................................................................................... 3
CHM130+LL Fundamental Chemistry Laboratory .................................................................................................... 1
CRE101+ Critical and Evaluative Reading I (3) OR
CRE111+ Critical Reading for Business and Industry (3) OR
   Equivalent as indicated by assessment ............................................................................................................... 0-3
ENG101+ First-Year Composition (3) OR
ENG107 + First-Year Composition for ESL (3) .................................................................................................... 3

MAT120+ Intermediate Algebra (5) OR
MAT121+ Intermediate Algebra (4) OR
MAT122+ Intermediate Algebra (3) OR
   Equivalent course OR Satisfactory completion of a higher level mathematics course .................. 3-5

In addition to completing the above program prerequisites core courses, student must select one of the following two (2) options:

Option I: ................................................................................................................................................................... 0
For students who have completed an Associate in Applied Science degree or higher degree in a health science discipline from a regionally accredited institution of higher education recognized by Maricopa County Community College District.

Option 2: ............................................................................................................................................................... 5.5-7
For students who are entry level with no prior healthcare experience.
HCC130 Fundamentals in Health Care Delivery (3) OR
HCC130AA Health Care Today (0.5) AND
HCC130AB Workplace Behaviors in Health Care (0.5) AND
HCC130AC Personal Wellness and Safety (0.5) AND
HCC130AD Communication and Teamwork in Health Care Organizations (0.5) AND
HCC130AE Legal Issues in Health Care (0.5) AND
HCC130AF Decision Making in the Health Care Setting (0.5) ........................................................................... 3
HCC/RES109 CPR for Health Care Provider (0.5) OR
   American Heart Association Health Care Provider CPR certification ................................................. 0-0.5

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

HCC145 Medical Terminology for Health Care Workers (3) ......................................................... 2-3
HCC200+ Basic Client Care for Allied Health ............................................................................. 0.5

Required Courses ...................................................................................................................... 57.5
HCC208+ Health Care Leadership .............................................................................................. 1
HCC218+ Venous Access ........................................................................................................... 0.5
RES130+ Respiratory Care Fundamentals I ............................................................................... 5
RES131+ Infection Control for Respiratory Care ..................................................................... 1
RES133+ Respiratory Care Clinical Seminar ............................................................................ 3
RES134+ Advanced Respiratory Care Pharmacology ................................................................. 2
RES136+ Applied Biophysics for Respiratory Care ................................................................. 3
RES140+ Respiratory Care Fundamentals II ....................................................................... 5
RES142+ Respiratory Care Clinical I ......................................................................................... 3
RES144+ Respiratory Care Clinical ......................................................................................... 2
RES220+ Respiratory Care Fundamentals III ......................................................................... 5
RES224+ Pathophysiology for Respiratory Care .................................................................... 3
RES226+ Respiratory Care Clinical II ................................................................................... 3
RES230+ Respiratory Care Fundamentals IV ................................................................. 4
RES232+ Respiratory Care Clinical III .................................................................................... 3
RES235+ Respiratory Care Pharmacology II ........................................................................ 2
RES240+ Respiratory Physiology .......................................................................................... 3
RES270+ Neonatal and Pediatric Respiratory Care ............................................................... 2
RES280+ Respiratory Care Review ......................................................................................... 2
RES291+ Respiratory Care Advanced Life Support ............................................................... 1
RES297+ Respiratory Care Seminar ....................................................................................... 2

General Education Requirements ............................................................................................ 11-12
Three (3) credits of First Year Composition are met by ENG101 or ENG107 in the Program Prerequisites area.
ENG102+ First-Year Composition (3) ................................................................................ 3
ENG108+ First-Year Composition for ESL (3) .................................................................. 3
ENG111+ Technical and Professional Writing (3) ................................................................. 3
PSY101 Introduction to Psychology ..................................................................................... 3

Any approved general education course from the Oral Communication area except
COM225 Public Speaking ........................................................................................................ 3
Any approved general education course in the Humanities, Arts and Design area ............. 2-3

RETAIL MANAGEMENT
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Business and Information Technologies
Chair: David Smith

CERTIFICATE OF COMPLETION IN RETAIL MANAGEMENT (24 CREDITS; CODE 5286)
The Certificate of Completion (CCL) in Retail Management is designed to prepare individuals working in the Retail industry, and related fields, for the industry training needs in supervision and management, marketing, financial management, and business planning. The curriculum encompasses several business essentials and also emphasizes the skill sets needed for effective management and communication in the work environment.

Required Courses .................................................................................................................. 24
ACC111 Accounting Principles I (3) OR
ACC211 Financial Accounting (3) ......................................................................................... 3
BPC110 Computer Usage and Applications (3) OR
CIS105 Survey of Computer Information Systems (3) .............................................................. 3
ASSOCIATE IN APPLIED SCIENCE IN RETAIL MANAGEMENT
(61 - 63 CREDITS; CODE 3048)

The Associate in Applied Science (AAS) in Retail Management degree is designed to prepare individuals working in the retail management, food industry, and related fields, for the mid-level management position challenges of the future. The curriculum encompasses business essentials and also emphasizes the skill sets needed for effective management and communication in the work environment. Instruction will provide the background and knowledge necessary for students to develop the judgment skills they must exercise as business managers.

**Required Courses**

Choose one of the following three accounting sequences:

- ACC111 Accounting Principles I (3) AND
- ACC240+ Uses of Accounting Information II (3) OR
- ACC111 Accounting Principles I (3) AND
- ACC212+ Managerial Accounting (3) OR
- ACC211 Financial Accounting (3) AND
- ACC212+ Managerial Accounting (3) OR
- BPC110 Computer Usage and Applications (3) OR
- CIS105 Survey of Computer Information Systems (3) OR
- GBS110 Human Relations in Business & Industry (3) OR
- MGT101 Techniques of Supervision (3) OR
- MGT229 Management and Leadership I (3) OR
- MGT179 Utilizing the Human Resources Department (3) OR
- MGT276 Personnel/Human Resources Management (3) OR
- MKT271 Principles of Marketing

**Restricted Electives**

Student must complete additional nine (9) to fifteen (15) credits from GBS, MGT, and/or MKT prefixed courses (except courses used to satisfy Required Courses area nor excluded below) to complete a minimum of 61 total program credits. Must include at least one MKT course.

- GBS+++++ Any GBS General Business course(s)
- MGT+++++ Any MGT Management course(s) except MGT180
- MKT+++++ Any MKT Marketing course(s) except MKT268

**General Education Requirements**

COM100 Introduction to Human Communication
CRE101+ Critical and Evaluative Reading I (3) OR
ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) AND

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3) OR
ENG111+ Technical and Professional Writing (3)...........................................................................................6
ENG102 or ENG108 recommended for students pursuing a BAS degree at an Arizona university.

SBU200 Society and Business.........................................................................................................................3

Any approved general education course in the Humanities, Arts and Design area........................................3
Any approved general education course in the Mathematics area................................................................3-5
Any approved general education course in the Natural Sciences area...........................................................4

**SURGICAL TECHNOLOGY**
**CERTIFICATE OF COMPLETION**
**ASSOCIATE IN APPLIED SCIENCE DEGREE**
To qualify, students must earn a grade of "C" or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

**CERTIFICATE OF COMPLETION IN SURGICAL TECHNOLOGY**
(43 - 64.5 CREDITS; CODE 5673)
The Certificate of Completion (CCL) in Surgical Technology Program is designed for students with an interest in working in the surgical setting and caring for patients that are undergoing a surgical procedure. Students will apply manual dexterity and knowledge of surgical technology under the direction of a surgeon, and in conjunction with the surgical team. At the completion of the program, graduates may seek employment in a hospital, surgical center, or other outpatient settings.

Program Note:
Students with other related health care experiences not listed on the following Program Prerequisites options may request an evaluation for course competency equivalence through the Integrated Competency Assessment Network (ICAN) by calling (480) 731-8924.

Admission Criteria:
1. Formal application and admission to the program.
2. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
3. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
4. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

Program Prerequisites.................................................................................................................................. 12-30.5
BIO160 Introduction to Human Anatomy and Physiology (4) OR
BIO201+ Human Anatomy and Physiology I (4) AND
BIO202+ Human Anatomy and Physiology II (4).............................................................................................4-8

Students selecting BIO201 and BIO202 must complete the prerequisite courses BIO156 or BIO181.
BIO156+ Introductory Biology for Allied Health (4) OR
BIO181+ General Biology (Majors) I (4) OR
One year high school biology with a grade of C or better (0).......................................................................0-4
BIO162 Microbiology Concepts for Allied Health (2) OR
BIO205+ Microbiology (4)............................................................................................................................2-4
BPC/CIS+++++ Any BPC/CIS prefix course........................................................................................................1

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

HCC164+ Pharmacology for Allied Health ................................................................. 0.5
HCC200+ Basic Client Care for Allied Health .......................................................... 0.5

MAT090+ Developmental Algebra (5) OR
MAT091+ Introductory Algebra (4) OR
MAT092+ Introductory Algebra (3) OR
MAT093+ Introductory Algebra/Math Anxiety Reduction (5) OR Satisfactory score on district placement exam
OR
Satisfactory completion of a higher level mathematics course ........................................... 0-5
PHY101+ Introduction to Physics .................................................................................. 4
RDG091+ College Preparatory Reading (3) OR
RDG100+ Successful College Reading (3) OR
Placement in CRE101 or CRE111 on District placement test ...................................................... 0-3

Students must also select one of the following two options.

Option I: (Credits 39-46.5)......................................................................................... 0
Option I is for students who do NOT have a Certified Registered Central Service Technician (CRCST) certification through the International Association of Healthcare Central Service Material Management (IAHCSMM).
Completion of an Associate in Applied Science degree or higher degree in a health science discipline from a regionally accredited institution of higher education recognized by Maricopa County Community College District.

HCC130 or HCC130AA-AF and HCC145 or HCC146 may be waived by GateWay Health Core Curriculum Coordinator (602-286-8509) based on relevant industry experience or equivalent or course education.

HCC130 Fundamentals in Health Care Delivery (3) OR
HCC130AA Health Care Today (0.5) AND
HCC130AB Workplace Behaviors in Health Care (0.5) AND
HCC130AC Personal Wellness and Safety (0.5) AND
HCC130AD Communication and Teamwork in Health Care Organizations (0.5) AND
HCC130AE Legal Issues in Health Care (0.5) AND
HCC130AF Decision Making in the Health Care Setting (0.5) OR
Permission of GateWay Health Core Curriculum Coordinator (0) ........................................ 0-3
HCC/RES109 CPR for Health Care Provider (0.5) OR
Proof of Current American Heart Association Health Care Provider CPR Certification (0) .......... 0-0.5

HCC145 Medical Terminology for Health Care Workers (3) OR
HCC146 Common Medical Terminology for Health Care Workers (2) OR
Permission of GateWay Health Core Curriculum Coordinator (0) ............................................ 0-3

+ HCS/SGT100 Fundamentals of Surgical Services ....................................................... 5
+ HCS/SGT101 Medical Terminology for Surgical Services .......................................... 1
+ HCS/SGT102 Basic Surgical Instrumentation for Surgical Services.......................... 2
+ HCS/SGT152 Advanced Surgical Instruments for Surgical Services.......................... 2

RDG100AB Successful College Reading - Notetaking and Studying for Success (1) OR
Course may be waived by program director if student has completed a bachelor’s degree or higher (0) ........................................................ ........................................ 0-1

+ SGT135 Instrument Handling I ..................................................................................... 1
+ SGT155 Instrument Handling II ........................................................ ........................... 1
+ SGT156 Hospital Central Service Practicum For Surgical Technology ....................... 1
+ SGT165 Surgical Procedures I ...................................................................................... 4
+ SGT180 Pharmacology for Surgical Technology I ....................................................... 1
+ SGT200 Operating Room Practicum I ......................................................................... 1
+ SGT205 Operating Room Practicum II .......................................................................... 2

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

+ SGT210 Surgical Procedures II ................................................................. 4
+ SGT215 Pharmacology for Surgical Technology II .................................... 1
+ SGT220 Operating Room Practicum III .................................................... 3
+ SGT225 Operating Room Practicum IV .................................................... 3
+ SGT227 Operating Room Practicum V .................................................... 3
+ SGT260 Surgical Procedures III ............................................................. 2
+ SGT275 Certification Examinations Preparation ..................................... 2

**Option II: (Credits 39-46.5) ................................................................. 5-5.5**

Option II is for students who have a Certified Registered Central Service Technician (CRCST) certification through the International Association of Healthcare Central Service Material Management (IAHCSMM).

Students who have been admitted into Option II are required to take Credit by Evaluation for five (5) credits through the program director in lieu of enrolling in HCS/SGT100. (5)

HCC130 or HCC130AA-AF and HCC145 or HCC146 may be waived by GateWay Health Core Curriculum Coordinator (602-286-8509) based on relevant industry experience or equivalent or course education.

HCC130 Fundamentals in Health Care Delivery (3) OR
HCC130AA Health Care Today (0.5) AND
HCC130AB Workplace Behaviors in Health Care (0.5) AND
HCC130AC Personal Wellness and Safety (0.5) AND
HCC130AD Communication and Teamwork in Health Care Organizations (0.5) AND
HCC130AE Legal Issues in Health Care (0.5) AND
HCC130AF Decision Making in the Health Care Setting (0.5) OR
Permission of GateWay Health Core Curriculum Coordinator (0) .......................... 0-3

HCC/RES109 CPR for Health Care Provider (0.5) OR
Proof of Current American Heart Association Health Care Provider CPR Certification (0) .................. 0-0.5

HCC145 Medical Terminology for Health Care Workers (3) OR
HCC146 Common Medical Terminology for Health Care Workers (2) OR
Permission of GateWay Health Core Curriculum Coordinator (0) .......................... 0-3

+ HCS/SGT101 Medical Terminology for Surgical Services .......................... 1
+ HCS/SGT102 Basic Surgical Instrumentation for Surgical Services ............... 2
+ HCS/SGT152 Advanced Surgical Instruments for Surgical Services ............... 2

RDG100AB Successful College Reading - Notetaking and Studying for Success (1) OR
Course may be waived by program director if student has completed a bachelor`s degree or higher (0) 0-1

+ SGT135 Instrument Handling I ............................................................... 1
+ SGT155 Instrument Handling II ............................................................. 1
+ SGT156 Hospital Central Service Practicum For Surgical Technology ............ 1
+ SGT165 Surgical Procedures I .............................................................. 4
+ SGT180 Pharmacology for Surgical Technology I .................................... 1
+ SGT200 Operating Room Practicum I .................................................... 1
+ SGT205 Operating Room Practicum II ................................................... 2
+ SGT210 Surgical Procedures II ............................................................. 4
+ SGT215 Pharmacology for Surgical Technology II .................................... 1
+ SGT220 Operating Room Practicum III .................................................. 3
+ SGT225 Operating Room Practicum IV .................................................. 3
+ SGT227 Operating Room Practicum V ................................................... 3
+ SGT260 Surgical Procedures III ........................................................... 2
+ SGT275 Certification Examinations Preparation ..................................... 2

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
ASSOCIATE IN APPLIED SCIENCE DEGREE IN SURGICAL TECHNOLOGY
(60 - 87.5 CREDITS; CODE 3673)

The Associate in Applied Science (AAS) in Surgical Technology program is designed for students with an interest in working in the surgical setting and caring for patients that are undergoing a surgical procedure. Students will apply manual dexterity and knowledge of surgical technology under the direction of a surgeon, and in conjunction with the surgical team. At the completion of the program, graduates may seek employment in a hospital, surgical center, or other outpatient settings.

Program Note:
Students with other related health care experiences not listed on the following Program Prerequisites options may request an evaluation for course competency equivalence through the Integrated Competency Assessment Network (ICAN) by calling (480) 731-8924.

Admission Criteria:
1. Formal application and admission to the program.
2. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
3. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
4. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

Program Prerequisites ...............................................................................................................................12-30.5
BIO160 Introduction to Human Anatomy and Physiology (4) OR
BIO201+ Human Anatomy and Physiology I (4) AND
BIO202+ Human Anatomy and Physiology II (4) ............................................................4-8
Students selecting BIO201 and BIO202, or BIO205 must complete BIO156 or BIO181.
BIO156+ Introductory Biology for Allied Health (4) OR
BIO181+ General Biology (Majors) I (4) OR
One year high school biology with a grade of C or better (0) ..............................................0-4
BIO162 Microbiology Concepts for Allied Health (2) OR
BIO205+ Microbiology (4) ........................................................................................................2-4
BPC/CIS+++++ Any BPC/CIS Business-Personal Computers or Computer Information Systems course ..........1
HCC164+ Pharmacology for Allied Health .................................................................................0.5
HCC200+ Basic Client Care for Allied Health .........................................................................0.5
MAT090+ Developmental Algebra (5) OR
MAT091+ Introductory Algebra (4) OR
MAT092+ Introductory Algebra (3) OR
MAT093+ Introductory Algebra/Math Anxiety Reduction (5) OR
Satisfactory score on district placement exam OR
Satisfactory completion of a higher level mathematics course ..............................................0-5
PHY101+ Introduction to Physics .................................................................................................4
RDG091+ College Preparatory Reading (3) OR
RDG100+ Successful College Reading (3) OR
Placement in CRE101 or CRE111 on District approved placement test ................................0-3

Students must also select one of the following two options.

Option I: (Credits: 39-46.5) ...............................................................................................................................0
Completion of an Associate in Applied Science degree or higher degree in a health science discipline from a regionally accredited institution of higher education recognized by Maricopa County Community College District.

Option I is for students who do NOT have a Certified Registered Central Service Technician (CRCST) certification through the International Association of Healthcare Central Service Material Management (IAHCSMM).

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

HCC130 or HCC130AA-AF and HCC145 or HCC146 may be waived by GateWay Health Core Curriculum Coordinator (602-286-8509) based on relevant industry experience or equivalent or course education.

HCC130 Fundamentals in Health Care Delivery (3) OR
HCC130AA Health Care Today (0.5) AND
HCC130AB Workplace Behaviors in Health Care (0.5) AND
HCC130AC Personal Wellness and Safety (0.5) AND
HCC130AD Communication and Teamwork in Health Care Organizations (0.5) AND
HCC130AE Legal Issues in Health Care (0.5) AND
HCC130AF Decision Making in the Health Care Setting (0.5) OR
Permission of GateWay Health Core Curriculum Coordinator (0) ........................................................................ 0-3

HCC/RES109 CPR for Health Care Provider (0.5) OR
Proof of Current American Heart Association Health Care Provider CPR Certification (0) .................................................. 0-0.5

HCC145 Medical Terminology for Health Care Workers (3) OR
HCC146 Common Medical Terminology for Health Care Workers (2) OR
Permission of GateWay Health Core Curriculum Coordinator (0) ........................................................................ 0-3

+ HCS/SGT100 Fundamentals of Surgical Services .............................................................................................................. 5
+ HCS/SGT101 Medical Terminology for Surgical Services ...................................................................................................... 1
+ HCS/SGT102 Basic Surgical Instrumentation for Surgical Services ......................................................................................... 2
+ HCS/SGT152 Advanced Surgical Instruments for Surgical Services ......................................................................................... 2

RDG100AB Successful College Reading - Notetaking and Studying for Success (1) OR
Course may be waived by program director if student has completed a bachelor’s degree or higher (0) ........................................................................ 0-1

+ SGT135 Instrument Handling I .................................................................................................................................................. 1
+ SGT155 Instrument Handling II .................................................................................................................................................. 1
+ SGT156 Hospital Central Service Practicum For Surgical Technology ......................................................................................... 1
+ SGT165 Surgical Procedures I ...................................................................................................................................................... 4
+ SGT180 Pharmacology for Surgical Technology I ......................................................................................................................... 1
+ SGT200 Operating Room Practicum I ......................................................................................................................................... 1
+ SGT205 Operating Room Practicum II ......................................................................................................................................... 2
+ SGT210 Surgical Procedures II ...................................................................................................................................................... 4
+ SGT215 Pharmacology for Surgical Technology II ......................................................................................................................... 1
+ SGT220 Operating Room Practicum III ......................................................................................................................................... 3
+ SGT225 Operating Room Practicum IV ......................................................................................................................................... 3
+ SGT227 Operating Room Practicum V ......................................................................................................................................... 3
+ SGT260 Surgical Procedures III ..................................................................................................................................................... 2
+ SGT275 Certification Examinations Preparation ............................................................................................................................. 2

Option II: (Credits: 39-46.5) .......................................................................................................................... 5-5.5
Option II is for students who have a Certified Registered Central Service Technician (CRCST) certification through the International Association of Healthcare Central Service Material Management (IAHCSMM).

Students who have been admitted into Option II are required to take Credit by Evaluation for five (5) credits through the program director in lieu of enrolling in HCS/SGT100. (5)

HCC130 or HCC130AA-AF and HCC145 or HCC146 may be waived by GateWay Health Core Curriculum Coordinator (602-286-8509) based on relevant industry experience or equivalent or course education.

HCC130 Fundamentals in Health Care Delivery (3) OR
HCC130AA Health Care Today (0.5) AND
HCC130AB Workplace Behaviors in Health Care (0.5) AND
HCC130AC Personal Wellness and Safety (0.5) AND
HCC130AD Communication and Teamwork in Health Care Organizations (0.5) AND

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

HCC130AE Legal Issues in Health Care (0.5) AND
HCC130AF Decision Making in the Health Care Setting (0.5) OR
Permission of GateWay Health Core Curriculum Coordinator (0) ..........................................................0-3

HCC/RES109 CPR for Health Care Provider (0.5) OR
Proof of Current American Heart Association Health Care Provider CPR Certification (0) ......................0-0.5

HCC145 Medical Terminology for Health Care Workers (3) OR
HCC146 Common Medical Terminology for Health Care Workers (2) OR
Permission of GateWay Health Core Curriculum Coordinator (0) ..........................................................0-3

+ HCS/SGT101 Medical Terminology for Surgical Services .................................................................1
+ HCS/SGT102 Basic Surgical Instrumentation for Surgical Services ....................................................2
+ HCS/SGT152 Advanced Surgical Instruments for Surgical Services .....................................................2

RDG100AB Successful College Reading - Notetaking and Studying for Success (1) OR
Course may be waived by program director if student has completed a bachelor’s degree or higher (0) 0-1

+ SGT135 Instrument Handling I ..............................................................................................................1
+ SGT155 Instrument Handling II .............................................................................................................1
+ SGT156 Hospital Central Service Practicum For Surgical Technology ................................................1
+ SGT165 Surgical Procedures I ..............................................................................................................4
+ SGT180 Pharmacology for Surgical Technology I ...............................................................................1
+ SGT200 Operating Room Practicum I .....................................................................................................1
+ SGT205 Operating Room Practicum II ...................................................................................................2
+ SGT210 Surgical Procedures II ..............................................................................................................4
+ SGT215 Pharmacology for Surgical Technology II .............................................................................1
+ SGT220 Operating Room Practicum III .................................................................................................3
+ SGT225 Operating Room Practicum IV ...................................................................................................3
+ SGT227 Operating Room Practicum V ...................................................................................................3
+ SGT260 Surgical Procedures III ............................................................................................................2
+ SGT275 Certification Examinations Preparation 2 General Education Requirements ..........................17-23

ENG101+     First Year Composition (3) OR
ENG107+     First Year Composition for ESL (3) AND
ENG102+     First Year Composition (3) OR
ENG108+     First Year Composition for ESL (3) .....................................................................................6

Any approved general education course from the Oral Communication area except COM225 Public Speaking.
Recommended courses are:
COM100     Introduction to Human Communication (3) OR
COM110     Interpersonal Communication (3) OR
COM230     Small Group Communication (3) ............................................................................................3
CRE101+    Critical and Evaluative Reading (3) OR
CRE111+    Critical Reading for Business and Industry (3) OR
Equivalent as indicated by assessment ....................................................................................................0-3

MAT120+    Intermediate Algebra (5) OR
MAT121+    Intermediate Algebra (4) OR
MAT122+    Intermediate Algebra (3) OR
Equivalent course or satisfactory completion of a higher level mathematics course .....................3-5

SOC101     Introduction to Sociology (3) OR
PSY101     Introduction to Psychology (3) ..............................................................................................3

Any approved General Education course in the Humanities, Arts and Design area .....................2-3
SURGICAL TECHNOLOGY FOR THE OPERATING ROOM NURSE (FORMERLY PERIOPERATIVE NURSING)

CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Health Sciences
Chair: Bryan Dodd

CERTIFICATE OF COMPLETION IN SURGICAL TECHNOLOGY FOR THE OPERATING ROOM NURSE
(21 CREDITS; CODE 5338)
The Certificate of Completion (CCL) in Surgical Technology for the Operating Room Nurse program is designed to provide a basic foundation of knowledge for the registered nurse interested in working in the operating room setting. Based on safety of patient care, the registered nurse will become knowledgeable of the “Association of Operating Room Nurses (AORN) Standards of Practice,” perform operating room techniques in the scrub and circulator role and gain exposure to the general surgery arena. The didactic and lab information is provided in a face to face format. Clinical experience will allow the student to gain experience in the scrub and circulating role and learn the circulator’s role in caring for the patient in pre-op holding, the operating room, and post operative care environments. Post graduation the registered nurse may sit for the Certified Nurse Operating Room (CNOR) certification, an accredited credentialing program for perioperative registered nurses.

Program Note:
Students with other related health care experiences not listed on the following Program Prerequisites options may request an evaluation for course competency equivalence through the Integrated Competency Assessment Network (ICAN) by calling 480.731.8924.

Admission Criteria:
2. Formal application and admission to the program.
3. Background Check Requirements: Admission to an Allied Health program requires that students be in compliance with the Maricopa County Community College District Background Check standards. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD background check policy.
4. Clinical Health and Safety requirements must be met. Upon conditional program enrollment, the student must comply with all requirements of the MCCCD clinical health and safety policy.
5. Inability to comply with Background Check requirements and/or Clinical Health and Safety requirements at the start of classes may result in cancellation of enrollment.

Required Courses ................................................................................................................................................21

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PON105</td>
<td>Surgical Technology for the Operating Room Nurse</td>
<td>2</td>
</tr>
<tr>
<td>PON210+</td>
<td>PeriOperative Principles I</td>
<td>3</td>
</tr>
<tr>
<td>PON212+</td>
<td>PeriOperative Principles II</td>
<td>3</td>
</tr>
<tr>
<td>PON214+</td>
<td>PeriOperative Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>PON218+</td>
<td>PeriOperative Clinical Practice I</td>
<td>3</td>
</tr>
<tr>
<td>PON220+</td>
<td>PeriOperative Clinical Practice II</td>
<td>3</td>
</tr>
<tr>
<td>PON/SGT230+</td>
<td>Surgical Technology Materials Update</td>
<td>3</td>
</tr>
</tbody>
</table>

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
WATER RESOURCES TECHNOLOGIES
CERTIFICATES OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of “C” or better in all courses within the program.

Division: Industrial Technology
Chair: John Kelly

CERTIFICATE OF COMPLETION IN WASTEWATER TREATMENT
(26 CREDITS; CODE 5136)
The Certificate of Completion (CCL) in Wastewater Treatment program is designed to provide students with knowledge and skills to meet the challenges of working in a Wastewater Treatment Plant and a Wastewater Collection System. Courses are designed to prepare students by developing skills in the operation and maintenance of wastewater treatment plants and wastewater collection systems. This program will also instruct students in procedures for effective preparation, analysis and interpretation of wastewater samples, and the treatment of wastewater for disease control.

Admission Criteria:
A high school diploma OR GED equivalency is required.

<table>
<thead>
<tr>
<th>Program Prerequisites</th>
<th>0-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT081+ Basic Arithmetic (4) OR</td>
<td></td>
</tr>
<tr>
<td>MAT082+ Basic Arithmetic (3) OR</td>
<td></td>
</tr>
<tr>
<td>MAT083+ Basic Arithmetic Expanded (5) OR</td>
<td></td>
</tr>
<tr>
<td>Equivalent course OR</td>
<td></td>
</tr>
<tr>
<td>placement into MAT092 or higher on District placement exam</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPC110 Computer Usage and Applications (3) OR</td>
<td></td>
</tr>
<tr>
<td>CIS105 Survey of Computer Information Systems (3)</td>
<td></td>
</tr>
<tr>
<td>OSH106AA Industrial Safety (3)</td>
<td></td>
</tr>
<tr>
<td>WRT100+ Introduction to Water Resources</td>
<td></td>
</tr>
<tr>
<td>WRT115+ Water Technology Calculations</td>
<td></td>
</tr>
<tr>
<td>WRT121+ Operation Wastewater Treatment Plants</td>
<td></td>
</tr>
<tr>
<td>WRT131+ Wastewater Collection Systems Operation and Maintenance</td>
<td></td>
</tr>
<tr>
<td>WRT140 Water Quality for Treatment Industry</td>
<td></td>
</tr>
<tr>
<td>WRT140LL Water Quality for Treatment Industry Laboratory</td>
<td></td>
</tr>
<tr>
<td>WRT190AA Water Technologies Seminar Level I</td>
<td></td>
</tr>
<tr>
<td>WRT204+ Water/Wastewater Maintenance/Mechanical Systems</td>
<td></td>
</tr>
</tbody>
</table>

CERTIFICATE OF COMPLETION IN WATER RESOURCES TECHNOLOGIES: HYDROLOGIC STUDIES
(26 CREDITS; CODE 5717)
*As of Fall 2016, this program is not accepting new students. (MORITORIUM)
The Certificate of Completion (CCL) in Water Resources Technologies: Hydrologic Studies program contains theoretical and practical hands-on training in the monitoring of water quality and quantity. The program includes operation, calibration and maintenance of water monitoring instruments. The program will prepare students with other science degrees interested in the Level I certification for the American Institute of Hydrology.

<table>
<thead>
<tr>
<th>Program Prerequisites</th>
<th>0-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT081+ Basic Arithmetic (4) with a grade of “C” or higher OR</td>
<td></td>
</tr>
<tr>
<td>MAT082+ Basic Arithmetic (3) with a grade of “C” or higher OR</td>
<td></td>
</tr>
<tr>
<td>MAT083+ Basic Arithmetic Expanded (5) with a grade of “C” or higher OR Equivalent course OR</td>
<td></td>
</tr>
<tr>
<td>placement into MAT092 or higher on District placement exam</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPC110 Computer Usage and Applications (3) OR</td>
<td></td>
</tr>
<tr>
<td>CIS105 Survey of Computer Information Systems (3)</td>
<td></td>
</tr>
<tr>
<td>OSH106AA Industrial Safety (3)</td>
<td></td>
</tr>
</tbody>
</table>
Professional Education Certificate & Degree Programs

WRT100+ Introduction to Water Resources ................................................................. 3
WRT130+ Groundwater Hydrology ............................................................................. 3
WRT140 Water Quality for Treatment Industry ......................................................... 3
WRT140LL+ Water Quality for Treatment Industry Laboratory ............................... 1
WRT150+ Introduction to Surface Water Data Collection ......................................... 3
WRT240+ Water Quality ............................................................................................ 3
WRT240LL+ Water Quality Field Techniques ............................................................ 1

CERTIFICATE OF COMPLETION IN WATER TREATMENT
(26 CREDITS; CODE 5142)
The Certificate of Completion (CCL) in Water Treatment program is designed to provide students with knowledge and skills to meet the challenges of working in the Water Treatment and Distribution field. Courses are designed to prepare students by developing skills in the operation and maintenance of a water treatment plant and a water distribution system. This program will also instruct students in effective preparation, analysis and interpretation of water samples, along with the public control components of the water cycle.

Program Prerequisites ............................................................................................... 0-5
MAT081+ Basic Arithmetic (4) OR
MAT082+ Basic Arithmetic (3) OR
MAT083+ Basic Arithmetic Expanded (5) OR Equivalent course OR
placement into MAT092 or higher on District placement exam........................... 0-5

Required Courses .................................................................................................. 29
BPC110 Computer Usage and Applications (3) OR
CIS105 Survey of Computer Information Systems (3) .............................................. 3
OSH106AA Industrial Safety (3) ................................................................................. 3
WRT100+ Introduction to Water Resources ................................................................. 3
WRT110+ Principles of Water Treatment Plant Operations ...................................... 3
WRT115+ Water Technology Calculations .................................................................. 3
WRT134 Water Distribution System Operation and Maintenance ............................ 3
WRT140 Water Quality for Treatment Industry .......................................................... 3
WRT140LL+ Water Quality for Treatment Industry Laboratory ............................... 1
WRT190AA Water Technologies Seminar Level I ..................................................... 1
WRT204+ Water/Wastewater Maintenance/Mechanical Systems ............................ 3

ASSOCIATE OF APPLIED SCIENCE DEGREE IN WATER RESOURCES TECHNOLOGIES
(63-72 CREDITS; CODE 3830)
The Associate in Applied Science (AAS) in Water Resources Technologies program is designed to prepare students in theoretical and practical hands-on training in the monitoring of water quality and quantity as well as in water, wastewater, and industrial wastewater treatment. The emphasis is on federal, state, county, and city regulations affecting water quality and quantity management in addition to water/wastewater treatment. The students take part in the operation, calibration, and maintenance of water monitoring field instruments and water and wastewater treatment monitor field equipment.

Admission Criteria:
A high school diploma or GED equivalency is required.

Required Courses .................................................................................................. 41-45

Students must select one (1) of three (3) tracks:
Track I: Hydrologic Studies ................................................................................. 45
WRT100+ Introduction to Water Resources ................................................................. 3
WRT140 Water Quality for Treatment Industry ......................................................... 3
WRT140LL+ Water Quality for Treatment Industry Laboratory ............................... 1
WRT50+ Introduction to Surface Water Data Collection ............................................. 3
OSH106AA Industrial Safety (3) ................................................................................. 3

* Indicates course has prerequisites and/or co-requisites.
** Indicates any module suffixed courses.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPC110</td>
<td>Computer Usage and Applications (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>CIS105</td>
<td>Survey of Computer Information Systems (3)</td>
<td>3</td>
</tr>
<tr>
<td>WRT130+</td>
<td>Groundwater Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>WRT130LL+</td>
<td>Groundwater Field Techniques</td>
<td>3</td>
</tr>
<tr>
<td>WRT240+</td>
<td>Water Quality</td>
<td>3</td>
</tr>
<tr>
<td>WRT240LL+</td>
<td>Water Quality Field Techniques</td>
<td>3</td>
</tr>
<tr>
<td>WRT117+</td>
<td>Geographic Information Systems (GIS)</td>
<td>3</td>
</tr>
<tr>
<td>WRT125+</td>
<td>Surveying for Water Resources</td>
<td>4</td>
</tr>
<tr>
<td>WRT250+</td>
<td>Surface Water Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>WRT250LL+</td>
<td>Surface Water Field Techniques</td>
<td>2</td>
</tr>
<tr>
<td>WRT260</td>
<td>Applied Hydrology: Groundwater, Surface Water and Water Quality</td>
<td>4</td>
</tr>
</tbody>
</table>

**Track II: Water Treatment:** ................................................................. 41

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRT100+</td>
<td>Introduction to Water Resources</td>
<td>3</td>
</tr>
<tr>
<td>WRT140+</td>
<td>Water Quality for Treatment Industry</td>
<td>3</td>
</tr>
<tr>
<td>WRT140LL+</td>
<td>Water Quality for Treatment Industry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>WRT190AA+</td>
<td>Water Technologies Seminar Level I</td>
<td>1</td>
</tr>
<tr>
<td>OSH106AA</td>
<td>Industrial Safety (3)</td>
<td>3</td>
</tr>
<tr>
<td>BPC110</td>
<td>Computer Usage and Applications (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>CIS105</td>
<td>Survey of Computer Information Systems (3)</td>
<td>3</td>
</tr>
<tr>
<td>WRT110+</td>
<td>Principles of Water Treatment Plant Operations</td>
<td>3</td>
</tr>
<tr>
<td>WRT115+</td>
<td>Water Technology Calculations</td>
<td>3</td>
</tr>
<tr>
<td>WRT134+</td>
<td>Water Distribution System Operation and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>WRT204+</td>
<td>Water/Wastewater Maintenance/Mechanical Systems</td>
<td>3</td>
</tr>
<tr>
<td>WRT106</td>
<td>Small Water System Operation and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>WRT114+</td>
<td>Mineral Control</td>
<td>3</td>
</tr>
<tr>
<td>WRT205+</td>
<td>Power and Instrumentation</td>
<td>3</td>
</tr>
</tbody>
</table>

**Track III: Wastewater Treatment:** .......................................................... 41

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRT100+</td>
<td>Introduction to Water Resources</td>
<td>3</td>
</tr>
<tr>
<td>WRT140+</td>
<td>Water Quality for Treatment Industry</td>
<td>3</td>
</tr>
<tr>
<td>WRT140LL+</td>
<td>Water Quality for Industry Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>WRT190AA+</td>
<td>Water Technologies Seminar Level I</td>
<td>1</td>
</tr>
<tr>
<td>OSH106AA</td>
<td>Industrial Safety (3)</td>
<td>3</td>
</tr>
<tr>
<td>BPC110+</td>
<td>Computer Usage and Applications (3) OR</td>
<td>3</td>
</tr>
<tr>
<td>CIS105+</td>
<td>Survey of Computer Information Systems (3)</td>
<td>3</td>
</tr>
<tr>
<td>WRT115+</td>
<td>Water Technology Calculations</td>
<td>3</td>
</tr>
<tr>
<td>WRT121+</td>
<td>Operation of Wastewater Treatment Plants</td>
<td>3</td>
</tr>
<tr>
<td>WRT131+</td>
<td>Wastewater Collection Systems Operation and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>WRT204+</td>
<td>Water/Wastewater Maintenance/mechanical Systems</td>
<td>3</td>
</tr>
<tr>
<td>WRT103+</td>
<td>Industrial Pretreatment</td>
<td>3</td>
</tr>
<tr>
<td>WRT124+</td>
<td>Sludge and Solids Handling</td>
<td>3</td>
</tr>
<tr>
<td>WRT205+</td>
<td>Power and Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>WRT126+</td>
<td>Wastewater Treatment Plant Administration</td>
<td>3</td>
</tr>
</tbody>
</table>

**Restricted Electives** ............................................................................. 3

*Students should select three (3) credits from the following courses in consultation with a Program Advisor. Courses taken in other program requirements may not be used to fulfill the Restricted Electives except for SSH111.*

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEN+</td>
<td>Any AEN Alternate Energy course(s)</td>
</tr>
<tr>
<td>ELE+</td>
<td>Any Electronics course(s)</td>
</tr>
<tr>
<td>FAC+</td>
<td>Any FAC Facilities Management course(s)</td>
</tr>
<tr>
<td>OSH+</td>
<td>Any OSH Occupational Safety and Health course(s)</td>
</tr>
</tbody>
</table>

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

SSH+++++ Any SSH Sustainability Course(s)
SUS+++++ Any SUS Sustainability Course(s)
WLD+++++ Any WLD Welding Course(s)
WRT+++++ Any WRT Water Resource Technology course(s)
AAA/CPD150 Strategies for College Success .................................................................3

A total of 3 credits may be taken from any of the following internship courses:
WRT270A+ Water Resources Internship (1) OR
WRT270AB+ Water Resources Internship (2) OR
WRT270AC+ Water Resources Internship (3) ...................................................................................3

General Education Requirements ...........................................................................................................22-27

Any approved general course in the Oral Communication Area, except COM225.
The following courses are recommended:
BIO105 Environmental Biology (4) OR
CHM130+ Fundamental Chemistry (3) AND
CHM130LL+ Fundamental Chemistry Laboratory (1) OR
CHM130AA Fundamental Chemistry with Lab (4) OR
GLG110 Geological Disasters and the Environment (3) AND
GLG111 Geological Disasters and the Environment Lab (1) ..................................................4

Any approved general education course in the Oral Communication Area, except COM225 .................3
COM100 Introduction to Human Communication (3) OR
COM110 Interpersonal Communication (3) OR
COM230+ Small Group Communication (3) ......................................................................................3

CRE101+ College Critical REading (3) OR
CRE111+ Critical Reading for Business and Industry (3) OR
Equivalent by assessment on District placement exam ........................................................................0-3
ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) AND
ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3) OR
ENG111+ Technical and Professional Writing (3) .................................................................................6
MAT150+ College Algebra/Functions (5) OR
MAT151+ College Algebra/Functions (4) OR
MAT152+ College Algebra/Functions (3) OR
Satisfactory completion of a higher level mathematics course (3-5) ................................................3-5

Any approved general education course from the Humanities, Arts and Design area .........................3
SSH111 is recommended as it satisfies both the Humanities, Arts and Design area and the Restricted Electives area.

Any approved general education course from the Social-Behavioral Sciences area ..............................3
APPRENTICESHIP
# APPRENTICESHIP CERTIFICATE AND DEGREE PROGRAMS

Department for Construction Trades: Business and Industry
Apprenticeship Programs Coordinator: Anna Lopez

## CONSTRUCTION TRADES: CARPENTRY

**CERTIFICATE OF COMPLETION**  
**ASSOCIATE IN APPLIED SCIENCE DEGREE**

To qualify, students must earn a grade of “C” or better in all required courses.

**CERTIFICATE OF COMPLETION IN CONSTRUCTION TRADES: CARPENTRY**  
**(24-48 CREDITS; CODE 5395)**

The Certificate of Completion (CCL) in Construction Trades: Carpentry program is designed to provide knowledge and skills in the carpentry trade. These include concrete formwork, framing, exterior finish, interior finish, and interior system, roof and basic metal framing, stair forms, bridge construction and transit level laser.

**Program Accreditation/Certification or Licensure Information:**

**Admission Criteria:**
Admission to the program by the following registered apprenticeship program: Southwest Carpenters Training Fund.

**Program Prerequisites:** None

**Required Course Credits**

24 - 48

Students should select between twenty-four (24) to forty-eight (48) credits from the following courses in consultation with the Apprenticeship Program Coordinator:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRP101</td>
<td>Orientation - Carpentry</td>
<td>3</td>
</tr>
<tr>
<td>CRP102</td>
<td>Safety/Health Certifications for Carpentry</td>
<td>3</td>
</tr>
<tr>
<td>CRP103</td>
<td>Tool/Equipment Application</td>
<td>3</td>
</tr>
<tr>
<td>CRP104</td>
<td>Basic Wall Framing</td>
<td>3</td>
</tr>
<tr>
<td>CRP121</td>
<td>Print Reading for Carpentry</td>
<td>3</td>
</tr>
<tr>
<td>CRP122</td>
<td>Bridge Construction</td>
<td>3</td>
</tr>
<tr>
<td>CRP123</td>
<td>Wall Forming</td>
<td>3</td>
</tr>
<tr>
<td>CRP124</td>
<td>Foundations and Flatwork</td>
<td>3</td>
</tr>
<tr>
<td>CRP231</td>
<td>Basic Roof Framing</td>
<td>3</td>
</tr>
<tr>
<td>CRP232</td>
<td>Stair &amp; Ramp Forming</td>
<td>3</td>
</tr>
<tr>
<td>CRP233</td>
<td>Basic Metal Framing</td>
<td>3</td>
</tr>
<tr>
<td>CRP234</td>
<td>Transit Level/Laser</td>
<td>3</td>
</tr>
<tr>
<td>CRP241</td>
<td>Gang Forms/Columns</td>
<td>3</td>
</tr>
<tr>
<td>CRP242</td>
<td>Doors/Door Hardware</td>
<td>3</td>
</tr>
<tr>
<td>CRP243</td>
<td>Scaffold Erector Qualification</td>
<td>3</td>
</tr>
<tr>
<td>CRP244</td>
<td>Cabinet Installation</td>
<td>32</td>
</tr>
</tbody>
</table>

**Program Competencies**

1. Interpret trade terms, industry and apprentice roles and responsibilities, trade skills and work processes used in the construction industry. (CRP101)
2. Identify apprenticeship hiring practices, employment/unemployment, benefits package, training requirements, proper workplace etiquette including anti-harassment policy, suitable attire, positive attitude and work ethic. (CRP101)
3. Explain the environmental and sustainability aspect of green building practices, codes, rating systems and government policies. (CRP101)
4. Demonstrate safe work practices, use of personal protective equipment (PPE), fall protection methods/hazards/equipment and applicable Occupational Safety & Health Administration (OSHA) regulations. (CRP101, CRP102, CRP122, CRP123, CRP241)
5. Identify State regulations for the safe operation of equipment, hand and power tools, tool/equipment components and functions including operating procedures and precautions, including OSHA regulations for safety and health. (CRP101, CRP102, CRP103, CRP123, CRP124, CRP231, CRP232, CRP233, CRP241, CRP242, CRP244)

6. Apply formulas and calculate estimates, linear dimensions, lengths, quantities, unit conversion, scales and measuring tapes, the Pythagorean Theorem. (CRP101, CRP103, CRP104, CRP121, CRP123, CRP124, CRP231, CRP232, CRP233, CRP242, CRP244)

7. Utilize proper site access/egress, maintenance of tools and materials and awareness of emergency evacuation procedures. (CRP101, CRP233)

8. Identify hazard placards, symbols, labels, documents, safety data sheets and interpret chemical labeling. (CRP102)

9. Identify proper first aid and cardiopulmonary resuscitation (CPR)/ automated external defibrillator (AED) techniques needed in health emergencies including levels of emergencies. (CRP102)

10. Identify lift truck types and components/hardware, maintenance, storage, applicable OSHA regulations, safety hazards and precautions for equipment, various forms, scaffolds, proper safety inspection and operation. (CRP102, CRP124, CRP241, CRP243)

11. Interpret drawings and identify terms, proper construction methods, tools and equipment to calculate horizontal/vertical layout and categorize print according to specific characteristics. (CRP103, CRP104, CRP121, CRP122, CRP123, CRP124, CRP231, CRP232, CRP233, CRP243, CRP244)

12. Apply appropriate tool/equipment manipulative techniques, framing components and material types to complete wall/roof construction including proper Atlas or Symons wall forms, fastener placement, bracing, and driving techniques. (CRP103, CRP104, CRP123, CRP233)

13. Assemble and disassemble scaffolds, boom/scissor/aerial lift components implementing applicable OSHA regulations pertaining to safe working load limits, erection, inspections and operation. (CRP103, CRP104, CRP123, CRP243)

14. Identify drawing methods used to create prints and label standard views used in orthographic projection including conventional lines, symbols and dimensioning methods, location of beginning and ending measuring points. (CRP121, CRP122)

15. Identify parts, tools, components and define the nomenclature, codes, and types of concrete box girder bridges and forms. (CRP122)

16. Identify the purpose and use of cofferdams, the difference of precast and pre-stressed bridge construction and construction sequence. (CRP122)

17. Demonstrate locating of layout footing, abutment and pier details and the purpose of release agents and importance of properly cured concrete. (CRP122)

18. Practice set up of building line at ninety degrees, optical equipment and level and use sight target to elevate and level formwork. (CRP124)

19. Identify terms and characteristics of form systems including types, function and application, proper layout procedures/techniques using building lines, take-off lists and elevation, installation techniques for edge form, inverted T foundation, ceiling joists, curb and gutter projects. (CRP124, CRP231)

20. Identify gable roof elements, hardware, terms, building codes, and safety considerations used on commercial construction including cut lists, angle layouts. CRP(231, CRP233)

21. Identify terms, definitions, types and characteristics of stairways, cabinets and form systems, including requirements for compliance with the Americans with Disabilities Act (ADA) regulations. (CRP232, CRP244)

22. Demonstrate proper method to install and secure roof truss sections including measuring and cutting techniques. (CRP233)

23. Label transit and laser level components including optical principles, level types, characteristics, operating principles and methods. (CRP234)

24. Identify classes, types, and sizes of typical doors including hardware, lockset installation, cutting method for door hinges, applicable building and fire codes. (CRP242)

25. Identify types, sizes, terms, material, components, hardware for wall cabinets including proper installation, alignment and inspection. (CRP244)
ASSOCIATE IN APPLIED SCIENCE IN CONSTRUCTION TRADES: CARPENTRY
(60 - 78 CREDITS; CODE 3424)

The Associate in Applied Science (AAS) in Construction Trades: Carpentry program is designed to provide a well-rounded education to the journeyman carpenter/student that will enable the student to enter into supervision or management in the construction industry.

Program note: Students must earn a grade of “C” or better in all courses within the program. + indicates course has prerequisites and/or co-requisites.

Program Accreditation/Certification or Licensure Information:
Journeyman status through the Arizona Commerce Authority, Apprenticeship Services Division, U.S. Department of Labor, Bureau of Apprenticeship and Training.

Admission Criteria:
Program Accreditation/Certification or Licensure Information: Journeyman status through the Arizona Department of Economic Security, Apprenticeship Services Division, U.S. Department of Labor, Bureau of Apprenticeship and Training.

Required Course Credits.................................................................................................................................... 27-51
Certificate of Completion in Construction Trades: Carpentry (5395) ................................................................. 24-48
BPC/CIS+++++ Any BPC/CIS Business-Personal Computers or Computer Information Systems course(s)...........3

Restricted Electives ............................................................................................................................................... 0-11
Students should choose 0-11 credits from the following list of courses to complete a minimum of 60 credits for the AAS degree. Any 100/200 level prefixed courses may be selected, except courses used to satisfy the Required Courses area.

BLT+++++ Any BLT Building Safety and Construction technology course(s)
BPC+++++ Any BPC Business Personal Computers course(s)
CAD+++++ Any CAD Computer Aided Drafting course(s)
CNS+++++ Any CNS Construction course(s)
CRP+++++ Any CRP Carpentry: Apprenticeship course(s)
GBS+++++ Any GBS General Business course(s)
IND+++++ Any IND Industry course(s)
MGT+++++ Any MGT Management course(s)
OSH+++++ Any OSH Occupational Safety and Health course(s)
SPA+++++ Any SPA Spanish course(s)
TDR+++++ Any TDR Trade related course(s)
WLD+++++ Any WLD Welding Technology course(s)

General Education Requirements ..........................................................................................................................22-27

General Education Core Credits: ......................................................................................................................12-17

First-Year Composition Credits: ....................................................................................................................6
+ ENG101  First-Year Composition (3) OR
+ ENG107  First-Year Composition for ESL (3) AND
+ ENG102  First-Year Composition (3) OR
+ ENG108  First-Year Composition for ESL (3) OR
+ ENG111  Technical and Professional Writing (3)..................................................................6

Oral Communication Credits: ..........................................................................................................................3
Any approved general education course from the Oral Communication area except COM225 Public Speaking.

Critical Reading Credits:...............................................................................................................................0-3
+ CRE101  College Critical Reading (3) OR
+ CRE111  Critical Reading for Business and Industry (3) OR
Equivalent as indicated by assessment

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Mathematics Credits: ................................................................................................................................................... 3-5
+ MAT120 Intermediate Algebra (5) OR
+ MAT121 Intermediate Algebra (4) OR
+ MAT122 Intermediate Algebra (3) OR
equivalent course or satisfactory completion of a higher level mathematics course

General Education Distribution Credits: ...................................................................................................................... 10

Humanities, Arts and Design Credits: ............................................................................................................................ 3
Any approved general education course from the Humanities, Arts and Design area................................................ 3

Social and Behavioral Sciences Credits: ....................................................................................................................... 3
Any approved general education course from the Social and Behavioral Sciences area.

Natural Sciences Credits: ................................................................................................................................................ 4
Any approved general education course from the Natural Sciences area.

Program Competencies
1. Interpret trade terms, industry and apprentice roles and responsibilities, trade skills and work processes used in the construction industry. (CRP101)
2. Identify apprenticeship hiring practices, employment/unemployment, benefits package, training requirements, proper workplace etiquette including anti-harassment policy, suitable attire, positive attitude and work ethic. (CRP101)
3. Explain the environmental and sustainability aspect of green building practices, codes, rating systems and government policies. (CRP101)
4. Demonstrate safe work practices, use of personal protective equipment (PPE), fall protection methods/hazards/equipment and applicable Occupational Safety & Health Administration (OSHA) regulations. (CRP101, CRP102, CRP122, CRP123, CRP241)
5. Identify State regulations for the safe operation of equipment, hand and power tools, tool/equipment components and functions including operating procedures and precautions, including OSHA regulations for safety and health. (CRP101, CRP102, CRP103, CRP123, CRP124, CRP231, CRP232, CRP233, CRP241, CRP242, CRP244)
6. Apply formulas and calculate estimates, linear dimensions, lengths, quantities, unit conversion, scales and measuring tapes, the Pythagorean Theorem. (CRP101, CRP103, CRP104, CRP121, CRP122, CRP231, CRP232, CRP233, CRP242, CRP244)
7. Utilize proper site access/egress, maintenance of tools and materials and awareness of emergency evacuation procedures. (CRP101, CRP233)
8. Identify hazard placards, symbols, labels, documents, safety data sheets and interpret chemical labeling. (CRP102)
9. Identify proper first aid and cardiopulmonary resuscitation (CPR)/automated external defibrillator (AED) techniques needed in health emergencies including levels of emergencies. (CRP102)
10. Identify lift truck types and components/hardware, maintenance, storage, applicable OSHA regulations, safety hazards and precautions for equipment, various forms, scaffolds, proper safety inspection and operation. (CRP102, CRP124, CRP241, CRP243)
11. Interpret drawings and identify terms, proper construction methods, tools and equipment to calculate horizontal/vertical layout and categorize print according to specific characteristics. (CRP103, CRP104, CRP121, CRP122, CRP123, CRP124, CRP231, CRP232, CRP233, CRP243, CRP244)
12. Apply appropriate tool/equipment manipulative techniques, framing components and material types to complete wall/roof construction including proper Atlas or Symons wall forms, fastener placement, bracing, and driving techniques. (CRP103, CRP104, CRP123, CRP243)
13. Assemble and disassemble scaffolds, boom/scissor/aerial lift components implementing applicable OSHA regulations pertaining to safe working load limits, erection, inspections and operation. (CRP103, CRP104, CRP123, CRP243)
14. Identify drawing methods used to create prints and label standard views used in orthographic projection including conventional lines, symbols and dimensioning methods, location of beginning and ending measuring points. (CRP121, CRP122)
Professional Education Certificate & Degree Programs

15. Identify parts, tools, components and define the nomenclature, codes, and types of concrete box girder bridges and forms. (CRP122)
16. Identify the purpose and use of cofferdams, the difference of precast and pre-stressed bridge construction and construction sequence. (CRP122)
17. Demonstrate locating of layout footing, abutment and pier details and the purpose of release agents and importance of properly cured concrete. (CRP122)
18. Practice set up of building line at ninety degrees, optical equipment and level and use sight target to elevate and level formwork. (CRP124)
19. Identify terms and characteristics of form systems including types, function and application, proper layout procedures/techniques using building lines, take-off lists and elevation, installation techniques for edge form, inverted T foundation, ceiling joists, curb and gutter projects. (CRP124, CRP231)
20. Identify gable roof elements, hardware, terms, building codes, and safety considerations used on commercial construction including cut lists, angle layouts. CRP(231, CRP233)
21. Identify terms, definitions, types and characteristics of stairways, cabinets and form systems, including requirements for compliance with the Americans with Disabilities Act (ADA) regulations. (CRP232, CRP244)
22. Demonstrate proper method to install and secure roof truss sections including measuring and cutting techniques. (CRP233)
23. Label transit and laser level components including optical principles, level types, characteristics, operating principles and methods. (CRP234)
24. Identify classes, types, and sizes of typical doors including hardware, lockset installation, cutting method for door hinges, applicable building and fire codes. (CRP242)
25. Identify types, sizes, terms, material, components, hardware for wall cabinets including proper installation, alignment and inspection. (CRP244)

CONSTRUCTION TRADES: CONSTRUCTION MANAGEMENT
CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of “C” or better in all required courses.

CERTIFICATE OF COMPLETION IN CONSTRUCTION TRADES: CONSTRUCTION MANAGEMENT
(26 CREDITS; CODE 5595 )
The Certificate of Completion (CCL) in Construction Trades: Construction Management program is designed to train and upgrade skills of people working in the construction industry as foremen, supervisors, construction business owners, and construction superintendents. Training is included in the areas of leadership and motivation, oral and written communications, problem solving, contracts and documents, planning and scheduling, cost awareness and production control, sustainability, project safety and improvement. The skills acquired in this program can be applied to work in highway departments, engineering and architectural firms, and material sales firms, as well as the construction industry.

Required Course Credits ........................................................................................................................................ 20
ABC/MEC120  Basic Calculations for Construction .............................................................. 1.5
BPC110  Computer Usage and Application .......................................................... 3
GBS110  Human Relations in Business and Industry ..................................................... 3
IND135  Interpersonal Skills and Leadership in Construction ........................................ 1
IND137  Issues and Resolutions ............................................................................. 1
IND138  Introduction to Project Management and Resource Control ...................... 1
IND139  Construction Documents ........................................................................ 1
IND140  Construction Scheduling and Time Management ..................................... 1
IND141  Estimating and Cost Control ...................................................................... 1
IND145  Sustainable Construction Supervisor ................................................... 1.5
HMT/OSH101  Introduction to Occupational Safety, Health, and Environmental Technology ...... 3
OSH105  Construction Safety ........................................................................ 2

Restricted Electives ................................................................................................................................. 6

Students should select any combination of courses for a total of six credits:
COM110  Interpersonal Communication ................................................................. 3
COM230  Small Group Communication .................................................................... 3
MAT112+  Mathematical Concepts/Applications (3) OR

* Indicates course has prerequisites and/or co-requisites.
** Indicates any module suffixed courses.
CONSTRUCTION TRADES: ELECTRICITY
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE

To qualify, students must earn a grade of “C” or better in all required courses.

The Certificate of Completion (CCL) in Construction Trades: Electricity program is designed to provide knowledge and skills in the electrical building trade. These include use of tools, installation of circuitry, equipment, and special service systems, reading blueprints, and a basic understanding of electronics and electronic devices. Students are admitted to the Certificate of Completion (CCL) in Construction Trades: Electricity program only through the Phoenix Electrical Joint Apprenticeship Training Committee.

Program note:
Students must earn a grade of C or better for all courses required within the program (+) indicates course has prerequisite and/or co-requisites

Program Accreditation/Certification or Licensure Information:
Journeyman status through the Arizona Department of Commerce, Apprenticeship Services Division, U.S. Department of Labor, Bureau of Apprenticeship and Training.

Admission Criteria:
Formal application and admission to the program by the following registered apprenticeship program: Phoenix Electrical Joint Apprenticeship Training Committee.

Required Course Credits: .................................................................................................................................... 30-60

Phoenix Electrical Joint Apprenticeship Credits: ........................................................................................................ 30-60

Students should select from thirty (30) to sixty (60) credits from the following courses based on their apprenticeship standing upon program enrollment and in consultation with the Phoenix Electrical Joint Apprenticeship Training Committee Apprenticeship Program Coordinator.

ELA111+ Construction Electricity I................................................................. 6
ELA112+ Construction Electricity II............................................................... 6
ELA113+ Introduction to National Electrical Code (NEC)............................ 3
ELA123+ Construction Electricity III............................................................. 6
ELA124+ Construction Electricity IV............................................................ 6
ELA125+ National Electric Code I................................................................. 3
ELA235+ Advanced Construction Electricity I.............................................. 6
ELA236+ Advanced Construction Electricity II............................................. 6
ELA238+ National Electric Code II............................................................... 3
ELA246+ National Electric Code III............................................................. 3
ELA247+ Advanced Construction Electricity III.......................................... 6
ELA248+ Advanced Construction Electricity IV.......................................... 6

Program Competencies
1. Solve mathematical problems related to electrical circuit voltage, wattage, amperage, and resistance. (ELA112)
2. Identify and properly use the professional equipment and tools of electricians. (ELA111, ELA112)
3. Convert measurements between English and metric units. (ELA112, ELA248)
4. Interpret readings from electrical test instruments. (ELA123)
5. Locate and interpret sections of the National Electrical Code regulations as they apply to specific electrical installation jobs. (ELA111)
6. Explain the theory, type, and operating principles of motors including troubleshooting and repairing motors. (ELA235, ELA236)
7. Calculate the materials needed for a specific electrical installation including, but not limited to, conduit, conductors, overload protection and outlets. (ELA112)
8. Describe the components and applications of motor controls in electrical installations. (ELA236)
9. Describe the operational theory and construction of semiconductors, transistors, amplifiers, and oscillators. (ELA247)
10. Given a set of blueprints for a construction job, read and interpret all plans and views as they relate to the electrical installation. (ELA112, ELA123)
11. Demonstrate how to use the National Electrical Code (NEC) for proper and safe electrical installations. (ELA113, ELA125, ELA238, ELA246)
12. Install all components of an electrical system, and special equipment systems including fire alarm, heating, and cooling systems. (ELA124, ELA125, ELA238, ELA246)
13. Explain OSHA electrical inspection procedures. (ELA238)
14. Identify common causes of accidents and fatalities in specific hazardous areas of construction and describe hazard abatement techniques. (ELA246)
15. Describe the safety procedures observed when working in a nuclear power generating location. (ELA246, ELA247)
16. Install, troubleshoot and repair alarm systems including locating and repairing cable faults. (ELA125)
17. Apply and demonstrate the applications and installation requirements for photovoltaic systems according to the National Electrical Code (NEC). (ELA246)

ASSOCIATE IN APPLIED SCIENCE IN CONSTRUCTION TRADES: ELECTRICITY
(60 - 87 CREDITS; CODE 3428)
The Associate in Applied Science (AAS) in Construction Trades: Electricity degree is designed to provide apprentices and journeymen with a broadened educational background and leadership skills so that students completing the associate degree program may be better equipped to enter supervisory and managerial positions.

Program note:
Students must earn a grade of “C” or better for all courses required within the program.

Program Prerequisites:
None

Admission Criteria:
Students are admitted to this program through: Phoenix Electrical Joint Apprenticeship Training Committee selection process.

Required Course Credits........................................................................................................ 30-60
Certificate of Completion in Construction Trades: Electricity (5428).................................................. 30-60
Restricted Electives ...................................................................................................................... 0-8
Students should choose zero (0) to eight (8) credits from the following list of courses to complete a minimum of 60 credits for the AAS degree based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship- Program Coordinator. Any 100-200 level prefixed courses may be selected, except courses used to satisfy the Required Courses area.

General Education Requirement Credits ...................................................................................... 22-27

General Education Core Credits ................................................................................................... 12-17

First-Year Composition Credits .................................................................................................. 6
  + ENG101 First-Year Composition (3) OR
  + ENG107 First-Year Composition for ESL (3) AND
  + ENG102 First-Year Composition (3) OR
  + ENG108 First-Year Composition for ESL (3) OR
  + ENG111 Technical and Professional Writing (3)
Oral Communication Credits
COM100 Introduction to Human Communication (3) OR
COM110 Interpersonal Communication (3) OR
+ COM230 Small Group Communication (3) 3

Critical Reading Credits
+ CRE101 College Critical Reading (3) OR
+ CRE111 Critical Reading for Business and Industry (3) OR
Equivalent by assessment on District Placement Exam. 0-3

Mathematics Credits
+ MAT120 Intermediate Algebra (5) OR
+ MAT121 Intermediate Algebra (4) OR
+ MAT122 Intermediate Algebra (3) OR
Equivalent course or satisfactory completion of a higher level mathematics course. 3-5

General Education Distribution Credits

Humanities and Fine Arts Credits
Any approved general education course from the Humanities, Arts and Design area. 3

Social and Behavioral Sciences
Any approved general education course from the Social-Behavioral Sciences area. Credits: 3

Natural Sciences Credits
Any approved general education course from the Natural Sciences area. 4

Program Competencies
1. Solve mathematical problems related to electrical circuit voltage, wattage, amperage, and resistance. (ELA112)
2. Identify and properly use the professional equipment and tools of electricians. (ELA111, ELA112)
3. Convert measurements between English and metric units. (ELA112, ELA248)
4. Interpret readings from electrical test instruments. (ELA123)
5. Locate and interpret sections of the National Electrical Code regulations as they apply to specific electrical installation jobs. (ELA111)
6. Explain the theory, type, and operating principles of motors including troubleshooting and repairing motors. (ELA235, ELA236)
7. Calculate the materials needed for a specific electrical installation including, but not limited to, conduit, conductors, overload protection and outlets. (ELA112)
8. Describe the components and applications of motor controls in electrical installations. (ELA236)
9. Describe the operational theory and construction of semiconductors, transistors, amplifiers, and oscillators. (ELA247)
10. Given a set of blueprints for a construction job, read and interpret all plans and views as they relate to the electrical installation. (ELA112, ELA123)
11. Demonstrate how to use the National Electrical Code (NEC) for proper and safe electrical installations. (ELA113, ELA125, ELA238, ELA246)
12. Install all components of an electrical system, and special equipment systems including fire alarm, heating, and cooling systems. (ELA124, ELA125, ELA238, ELA246)
13. Explain OSHA electrical inspection procedures. (ELA238)
14. Identify common causes of accidents and fatalities in specific hazardous areas of construction and describe hazard abatement techniques. (ELA246)
15. Describe the safety procedures observed when working in a nuclear power generating location. (ELA246, ELA247)
16. Install, troubleshoot and repair alarm systems including locating and repairing cable faults. (ELA125)
17. Apply and demonstrate the applications and installation requirements for photovoltaic systems according to the National Electrical Code (NEC). (ELA246)
CONSTRUCTION TRADES: GENERAL CONSTRUCTION WORKER
CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of "C" or better in all required courses.

CERTIFICATE OF COMPLETION IN CONSTRUCTION TRADES: GENERAL CONSTRUCTION WORKER
(11.5 CREDITS; CODE 5809 N)
The Certificate of Completion (CCL) in Construction Trades: General Construction Worker program is designed to train construction workers in safety policies and procedures related to road and maintenance work. Training includes introductory courses in the areas heavy equipment operations, electricity, plumbing, welding, surveying, landscape maintenance, traffic control technician, and concrete finishing.

Admission Criteria:
Formal application and admission to the program is required through the Maricopa County Department of Transportation.

Required Course Credits ....................................................................................................................................... 4.5
ABC/MEC119+ Basic Safety .................................................................................................................................. 1
ABC/MEC/PNT120+ Basic Calculations for Construction .................................................................................... 1.5
HEO101+ Introduction to Heavy Equipment Operations ...................................................................................... 1
HEO/MEC/PNT123+ Introduction to Blueprints ................................................................................................. 1

Restricted Electives .................................................................................................................................................. 7
All students must select seven (7) credits from the following courses:
ABC/MEC/PNT121+ Introduction to Hand and Power Tools ................................................................................... 1
ABC/HEO/MEC122+ Rigging Safety and Equipment ............................................................................................. 1
AGS264 Irrigation and Water Management ........................................................................................................... 3
CET101+ Surveying I ........................................................................................................................................... 3
ELA111+ Construction Electricity I ....................................................................................................................... 4
HEO106+ Tractors .................................................................................................................................................... 1
HEO115+ Aerial Lift Truck Operation and Safety ................................................................................................. 1
HEO/PPT117+ Forklift Operations ....................................................................................................................... 1
HEO125+ Heavy Equipment Operations: Rollers ................................................................................................. 1
PCM152+ Concrete Pour and Finishing ................................................................................................................ 5
TDR102+ Construction Soft Skills 1: Workplace Skills ......................................................................................... 1
TTD 101+ Truck Trailer Driving I ....................................................................................................................... 3
WLD100+ Welding Level 1 .................................................................................................................................. 1

CONSTRUCTION TRADES: HEAT AND FROST INSULATION
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of "C" or better in all required courses.

CERTIFICATE OF COMPLETION IN CONSTRUCTION TRADES: HEAT AND FROST INSULATION
(28 - 45 CREDITS; CODE 5180)
The Certificate of Completion (CCL) in Construction Trades: Heat and Frost Insulation program is designed to provide apprentice insulators with trade related classroom training as required by the U.S. Department of Labor, Bureau of Apprenticeship Training, and the State of Arizona, Apprenticeship Division. It is a program consisting of courses in trade calculations, safety, piping insulation skills, fabrication, shop layout, and pattern making, supervision, blueprints and firestopping.

Program Accreditation/Certification or Licensure Information:
Journeyman status through the Arizona Department of Commerce, Apprenticeship Services Division, U.S. Department of Labor, Bureau of Apprenticeship and Training.
Professional Education Certificate & Degree Programs

Admission Criteria:
Admission to the program by the following registered apprenticeship program: Arizona Heat and Frost Insulators Joint Apprenticeship and Training Committee.

Required Course Credits .............................................................. 28-42
Students should select from twenty-five (25) to forty-two (42) credits from the following courses based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship Program Coordinator.

HFA101+ Introduction to Insulation .............................................. 5
HFA102+ Insulation Tools and Equipment: Use and Care .................. 3
HFA110+ Math for Heat and Frost Technology ................................. 5
HFA115+ Fundamental Insulation Skills: Piping I .......................... 5
HFA150+ Shop Fabrication: Layout and Pattern-Making for Insulators I .............................................. 5
HFA204 Use and Care of Tools and Scaffolding .......................... 2
HFA215+ Fundamental Insulation Skills: Piping II ......................... 5
HFA250+ Shop Fabrication: Layout and Pattern-making for Insulators II .............................................. 5
HFA260+ Blueprints and Firestopping ............................................. 5
HFA270+ Supervision for Foreman ................................................. 5

ASSOCIATE IN APPLIED SCIENCE IN CONSTRUCTION TRADES: HEAT AND FROST INSULATION (60 -75 CREDITS; CODE 3009)
The Associate in Applied Science (AAS) in Construction Trades: Heat and Frost Insulation degree is designed to provide apprentices and journeyman with a broadened educational background and leadership skills so that students completing the associate degree program may be better equipped to enter supervisory managerial positions.

Admission Criteria:
Students are admitted to this program through the Heat, Frost, and Asbestos Insulators Joint Apprenticeship and Training Committee (HFA JATC) selection process.

Required Course Credits .............................................................. 31-48
Certificate of Completion in Construction Trades: Heat and Frost Insulation (5180) .............................................. 28-45
BPC/CIS+++++Any BPC/CIS course(s) ........................................... 3

Restricted Electives ................................................................. 0-7
Students should select from zero (0) to seven (7) credits from the following courses to complete a minimum of 60 credits for the AAS degree based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship- Program Coordinator. Any 100/200 level prefixed courses may be selected, except courses used to satisfy the Required Courses area.

BLT+++++ Any BLT Building Safety and Construction course(s)
BPC+++++ Any BPC Business Personal Computers course(s)
CAD+++++ Any CAD Computer Aided Drafting course(s)
CNS+++++ Any CNS Construction course(s)
GBS+++++ Any GBS General Business course(s)
HFA+++++ Any HFA Heat and Frost Technology course(s)
IND+++++ Any IND Industry course(s)
MGT+++++ Any MGT Management course(s)
OSH+++++ Any OSH Occupational Safety and Health course(s)
SPA+++++ Any SPA Spanish course(s)
TDR+++++ Any TDR Trade related course(s)
WLD+++++ Any WLD Welding Technology course(s)

General Education Requirements .................................................. 22-27
Any approved general education course from the Oral Communication area except COM225 Public Speaking.
Recommended courses are:
COM100 Introduction to Human Communication (3) OR
COM110 Interpersonal Communication (3) OR

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
### Professional Education Certificate & Degree Programs

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COM230</td>
<td>Small Group Communication</td>
<td>3</td>
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<tr>
<td>CRE101+</td>
<td>College Critical Reading</td>
<td>OR</td>
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</tr>
</tbody>
</table>

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.

Any approved general education course in the Humanities and Fine Arts area | 3  
Any approved general education course in the Social and Behavioral Sciences area | 3  
Any approved general education course in the Natural Sciences area | 4  

### CONSTRUCTION TRADES: IRONWORKING

**CERTIFICATE OF COMPLETION**  
**ASSOCIATE IN APPLIED SCIENCE DEGREE**

To qualify, students must earn a grade of “C” or better in all required courses.

**CERTIFICATE OF COMPLETION IN CONSTRUCTION TRADES: IRONWORKING**  
**(25 - 50 CREDITS; CODE 5436)**

The Certificate of Completion (CCL) in Construction Trades: Ironworking program is designed to provide comprehensive coursework for Ironworking Apprentices to prepare them for employment in the construction industry. Training will cover all facets of ironworking including blueprint reading, structural steel erection, reinforcing and post-tensioning, rigging, architectural iron work, safety, light industrial construction and welding.

**Program Accreditation/Certification or Licensure Information:**  
Journeyman status through the Arizona Department of Commerce, Registered Apprenticeship Services Division, U.S. Department of Labor, Bureau of Apprenticeship and Training.

**Admission Criteria:**

Admission to the program by the following registered apprenticeship program: Arizona Field Ironworkers Apprenticeship and Training Program.

**Required Course Credits**

Students should select from twenty-five (25) to fifty (50) credits from the following courses based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship Program Coordinator.

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<th>Course Code</th>
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<td>IRW130+</td>
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<tr>
<td>IRW150+</td>
<td>Rigging I</td>
<td>3</td>
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</tbody>
</table>
ASSOCIATE IN APPLIED SCIENCE IN CONSTRUCTION TRADES: IRONWORKING
(60 - 80 CREDITS; CODE 3436)

The Associate in Applied Science (AAS) in Construction Trades: Ironworking degree is designed to provide apprentices and journeymen with a broadened educational background and leadership skills so that students completing the associate degree program may be better equipped to enter supervisory managerial positions.

Admission Criteria:
Admission to the program by the following registered apprenticeship program: Arizona Field Ironworkers Apprenticeship and Training Program.

Required Course Credits
Certificate of Completion in Construction Trades: Ironworking (5436).............................. 25-50
BPC/CIS+++++ Any BPC/CIS course(s).................................................................................. 3

Restricted Electives
Students should choose 0-10 credits from the following list of courses to complete a minimum of 60 credits for the AAS degree. Any 100-200 level prefixed courses may be selected, except courses used to satisfy the Required Courses area.

BLT+++++ Any BLT Building Safety and Construction course(s)
BPC+++++ Any BPC Business Personal Computers course(s)
CAD+++++ Any CAD Computer Aided Drafting course(s)
CNS+++++ Any CNS Construction course(s)
GBS+++++ Any GBS General Business course(s)
IND+++++ Any IND Industry course(s)
IRW+++++ Any IRW Ironworking course(s)
MGT+++++ Any MGT Management course(s)
OSH+++++ Any OSH Occupational Safety and Health course(s)
SPA+++++ Any SPA Spanish course(s)
TDR+++++ Any TDR Trade related course(s)
WLD+++++ Any WLD Welding Technology course(s)

General Education Requirements
COM100 Introduction to Human Communication (3) OR
COM110 Interpersonal Communication (3) OR
COM230 Small Group Communication (3)........................................................................... 3
CRE101+ College Critical Reading (3) OR
CRE111+ Critical Reading for Business and Industry (3) OR
Equivalent as indicated by assessment.............................................................................. 0-3
ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) AND
ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3) OR
ENG111+ Technical and Professional Writing (3)................................................................. 6

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

MAT120+  Intermediate Algebra (5) OR
MAT121+  Intermediate Algebra (4) OR
MAT122+  Intermediate Algebra (3) OR
Equivalent course or satisfactory completion of a higher level mathematics course ...........3-5

Any approved general education course in the Humanities and Fine Arts area ....................................................3
Any approved general education course in the Social and Behavioral Sciences area ....................................................3
Any approved general education course in the Natural Sciences area .........................................................4

CONSTRUCTION TRADES: MECHANICAL TRADES: PIPEFITTING
CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of "C" or better in all required courses.

CERTIFICATE OF COMPLETION IN CONSTRUCTION TRADES - MECHANICAL TRADES: PIPEFITTING
(24 - 48 CREDITS; CODE 5716)
The Certificate of Completion (CCL) in Construction Trades - Mechanical Trades: Pipefitting program is designed to provide knowledge and skills in the residential, commercial, industrial, and institutional pipefitting trade. Course work includes safety, material selection, basic and advanced pipefitting calculations and principles of science. Students will also be competent in sources and treatment of public, private, and individual gas, water, heating, waste, and specialized pipefitting systems, cross connection protection, pipe identification, and blueprint reading. Course work also includes rigging, basic and advanced fabrication, pipe cutting, valves and specialized piping systems, cross connection protection, pipe identification, blueprint reading and pipefitting code. Additional related training will include basic electricity and troubleshooting.

Program Accreditation/Certification or Licensure Information:
Journeyman status through the Arizona Department of Commerce, Apprenticeship Services Division, U.S. Department of Labor, Bureau of Apprenticeship and Training.

Admission Criteria:
Admission to the program by the following registered apprenticeship program: Interstate Mechanical Contractors, Inc.

Required Course Credits .................................................................................................................................. 24-48
Students should select from twenty (20) to forty (40) credits from the following courses based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship Program Coordinator.

IMC112+  Introduction to Mechanical Trades Construction ................................................................. 6
IMC114+  Overview of Mechanical Trades: Sheet Metal, Pipefitting, Plumbing ........................................ 6
IMC122+  Multiple Trades Cross Training: Tubes, Fittings and Piping Systems ........................................... 6
IMC124+  Multiple Trades Cross Training: Standards .............................................................................. 6
IMC235+  Mechanical Trades Construction: Pipefitting Intermediate Principles and Concepts .................... 6
IMC238+  Mechanical Trades Construction: Pipefitting Advanced Principles and Concepts ......................... 6
IMC245+  Mechanical Trades Construction: Pipefitting Advanced Skill Building ........................................ 6
IMC248+  Mechanical Trades Construction: Pipefitting Advanced Applications and Techniques .................. 6

CONSTRUCTION TRADES - MECHANICAL TRADES: PLUMBING
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of "C" or better in all required courses.

CERTIFICATE OF COMPLETION IN CONSTRUCTION TRADES: MECHANICAL TRADES: PLUMBING
(20 - 48 CREDITS; CODE 5536 N)
The Certificate of Completion (CCL) in Construction Trades - Mechanical Trades: Plumbing program is designed to provide knowledge and skills in the residential, commercial, industrial, and institutional plumbing trade. Course work includes safety, material selection, installation of plumbing systems, basic and advanced plumbing calculations and principles of science.
Students will also be competent in sources and treatment of public, private, and individual gas, water, heating, waste, and specialized piping systems, cross connection protection, blueprint reading and plumbing code. Additional related training will include basic electricity and troubleshooting related to the plumbing trade.

Program Accreditation/Certification or Licensure Information:
Journeyman status through the Arizona Department of Commerce, Apprenticeship Services Division, U.S. Department of Labor, Bureau of Apprenticeship and Training.

**Admission Criteria:**
Admission to the program by the following registered apprenticeship program: Interstate Mechanical Contractors, Inc. OR Metro Phoenix Plumbing, Heating and Cooling Contractors (MPHCC) non-apprenticeship program.

**Required Course Credits:**

Students need to select the appropriate apprenticeship program option:

**Option 1:** Students should select from twenty-four (24) to forty-eight (48) credits from the following courses based on their apprenticeship standing upon program enrollment and in consultation with Interstate Mechanical Contractors, Inc. Apprenticeship Program Coordinator.

- IMC112+ Introduction to Mechanical Trades Construction ................................................................. 6
- IMC114+ Overview of Mechanical Trades: Sheet Metal, Pipefitting, Plumbing ............................................. 6
- IMC122+ Multiple Trades Cross Training: Tubes, Fittings and Piping Systems ..................................................... 6
- IMC124+ Multiple Trades Cross Training: Standards .................................................................................. 6
- IMC231+ Mechanical Trades Construction: Plumbing Intermediate Principles and Concepts .................. 6
- IMC236+ Mechanical Trades Construction: Plumbing Advanced Principles and Concepts .................... 6
- IMC241+ Mechanical Trades Construction: Plumbing Advanced Skill Building....................................... 6
- IMC246+ Mechanical Trades Construction: Plumbing Advanced Applications and Techniques ........... 6

**Option 2:** Students should select from twenty (20) to forty (40) credits from the following courses based on their apprenticeship standing upon program enrollment and in consultation with Metro Phoenix Plumbing, Heating and Cooling Contractors (MPHCC) Apprenticeship Program Coordinator.

- MEC105+ Residential and Industrial Plumbing I ............................................................................................... 5
- MEC107+ Residential and Industrial Plumbing II ............................................................................................. 5
- MEC108+ Residential and Industrial Plumbing II ............................................................................................. 5
- MEC118+ Residential and Industrial Plumbing IV ............................................................................................ 5
- MEC205+ Residential and Industrial Plumbing V .............................................................................................. 5
- MEC207+ Residential and Industrial Plumbing VI ............................................................................................ 5
- MEC208+ Residential and Industrial Plumbing VII ........................................................................................... 5
- MEC218+ Residential and Industrial Plumbing VIII ........................................................................................ 5

**ASSOCIATE IN APPLIED SCIENCE IN CONSTRUCTION TRADES - MECHANICAL TRADES: PLUMBING**

(60-78 CREDITS; CODE 3069)
The Associate in Applied Science (AAS) in Construction Trades - Mechanical Trades: Plumbing degree is designed to provide apprentices and journeymen with a broadened educational background and leadership skills so that students completing the associate degree program may be better equipped to enter supervisory and managerial positions.

**Admission Criteria:**
Formal application and admission to the program is required by the following registered apprenticeship program: Interstate Mechanical Contractors, Inc.
1841 E. Washington Street, Phoenix, Arizona 85034
Tel: (602) 257-1319

OR

Non-apprenticeship program:
Metro Phoenix Plumbing, Heating and Cooling Contractors (PHCC)
7635 West Hope Drive, Peoria, Arizona 85345
Tel: (623) 486-3324

**+** Indicates course has prerequisites and/or co-requisites.

**++** Indicates any module suffixed courses.
CONSTRUCTION TRADES - MECHANICAL TRADES: SHEET METAL
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of "C" or better in all required courses.

The Certificate of Completion (CCL) in Construction Trades - Mechanical Trades: Sheet Metal program is designed to provide knowledge in the Sheet Metal trade which will enable the student to apply master skills as a sheet metal worker. Course work will include: safety, basic sheet metal principles, trade calculations, piping practices, blueprint reading, refrigeration fundamentals, mechanical systems and heat pumps. Students will be competent in fabrication, triangulation, gutters, downspouts, chimneys, insulation and moisture prevention. The Sheet Metal and Air Conditioning Contractors National Association's (SMACNA) manuals and standards will be supplemental materials used in the classroom. Additionally students will examine factors involved in estimating labor and materials, equipment and delivery.
Program Accreditation/Certification or Licensure Information:
Journeyman status through the Arizona Department of Commerce, Apprenticeship Services Division, U.S. Department of Labor, Bureau of Apprenticeship and Training.

Admission Criteria:
Admission to the program by the following registered apprenticeship program: Interstate Mechanical Corporation (IMCOR)

Required Course Credits ..................................................................................................................................... 30
Students should select from twenty-four (24) to forty-eight (48) credits from the following courses based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship Program Coordinator.

IMC112+ Introduction to Mechanical Trades Construction ........................................................................................................ 6
IMC114+ Overview of Mechanical Trades: Sheet Metal, Pipefitting, Plumbing ........................................................................ 6
IMC122+ Multiple Trades Cross Training: Tubes, Fittings and Piping Systems ........................................................................ 6
IMC124+ Multiple Trades Cross Training: Standards .................................................................................................................... 6
IMC233+ Mechanical Trades Construction: Sheet Metal Intermediate Principles and Concepts ........................................ 6
IMC237+ Mechanical Trades Construction: Sheet Metal Advanced Principles and Concepts .............................................. 6
IMC243+ Mechanical Trades Construction: Sheet Metal Advanced Skill Building ................................................................. 6
IMC247+ Mechanical Trades Construction: Sheet Metal Advanced Applications and Techniques ........................................ 6

ASSOCIATE IN APPLIED SCIENCE IN CONSTRUCTION TRADES - MECHANICAL TRADES: SHEET METAL
(60 -78 CREDITS; CODE 3077)
The Associate in Applied Science (AAS) in Construction Trades - Mechanical Trades: Sheet Metal program is designed to provide knowledge in the Sheet Metal trade which will enable the student to apply master skills as a sheet metal worker. Course work will include: safety, basic sheet metal principles, trade calculations, piping practices, blueprint reading, refrigeration fundamentals, mechanical systems and heat pumps. Students will be competent in fabrication, triangulation, gutters, downspouts, chimneys, insulation and moisture prevention. The Sheet Metal and Air Conditioning Contractors National Association’s (SMACNA) manuals and standards will be supplemental materials used in the classroom. Additionally, students will examine factors involved in estimating labor and materials, equipment and delivery.

Admission Criteria:
Formal application and admission to the program is required by the following apprenticeship committee: Interstate Mechanical Contractors, Inc.
1841 E. Washington Street Phoenix, Arizona 85034

Required Course Credits ..................................................................................................................................... 27-51
Certificate of Completion in Construction Trades - Mechanical Trades: Sheet Metal (5545) ............................................ 24-48
BPC/CIS+++++ Any BPC/CIS Business-Personal Computers OR Computer Information Systems course(s) ........ 3
Restricted Electives .............................................................................................................................................. 0-12
Students should choose zero (0) to twelve (12) credits from the following list of courses to complete a minimum of 60 credits for the AAS degree based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship-Program Coordinator. Any 100-200 level prefixed courses may be selected, except courses used to satisfy the Required Courses area.

BLT+++++ Any BLT Building Safety and Construction technology course(s)
BPC+++++ Any BPC Business Personal Computers course(s)
CAD+++++ Any CAD Computer Aided Drafting course(s)
CNS+++++ Any CNS Construction course(s)
ELC+++++ Any GBS General Business course(s)
EPS+++++ Any IND Industry course(s)
GBS+++++ Any MEC Mechanical Trades course(s)
MGT+++++ Any MGT Management course(s)
OSH+++++ Any OSH Occupational Safety and Health course(s)
SPA+++++ Any SPA Spanish course(s)
WLD+++++ Any WLD Welding Technology course(s)
CONSTRUCTION TRADES: MILLWRIGHTING
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of “C” or better in all required courses.

CERTIFICATE OF COMPLETION IN CONSTRUCTION TRADES: MILLWRIGHTING
(16 - 34 CREDITS; CODE 5415 )
The Certificate of Completion (CCL) in Construction Trades: Millwrighting program is designed to provide knowledge and skills in the millwrighting trade. Coursework includes courses in millwrighting and welding. Specifically, the courses train apprentices to safely handle both shop and field jobs, to lay out and erect industrial machinery, to operate welding equipment, and to design, install, turbines, optics, conveyor systems, solar installation, and operate systems inherent to the millwrighting trade. Upon the completion of this apprenticeship program, students are considered journey men in the millwrighting trade.

Program Accreditation/Certification or Licensure Information:
Journeyman status through the Arizona Department of Commerce, Apprenticeship Services Division, U.S. Department of Labor, Bureau of Apprenticeship and Training.

Admission Criteria:
Registered apprentice status in the State of Arizona with a trade-specific sponsoring organization.

Required Course Credits .................................................................................................................. 16-34
Students should select from sixteen (16) to thirty-four (34) credits from the following courses based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship Program Coordinator.

MWR101+ Introduction to Millwrighting I .................................................................................. 2
MWR102+ Introduction to Millwrighting II: OSHA Safety .................................................................. 2
MWR103+ Machinery Installation and Erection I ................................................................……….. 2
MWR104+ Machinery Installation and Erection II ................................................................………….. 2
MWR105+ Millwrighting General Skills ........................................................................................... 2
MWR106+ Math for Millwrighting, Hand, Power and Precision Tools ........................................... 2
MWR107+ Drives, Pulleys and Belts .................................................................................................. 2
MWR108+ Blueprint Reading for Millwrighting I ............................................................................. 2
MWR109+ Turbine Familiarization ................................................................................................... 2
MWR201+ Optics and Machining Alignment ..................................................................................... 2
MWR202+ Conveyor Systems .......................................................................................................... 2

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
ASSOCIATE IN APPLIED SCIENCE IN CONSTRUCTION TRADES: MILLWRIGHTING
(60 - 64 CREDITS; CODE 3440)
The Associate in Applied Science (AAS) in Construction Trades: Millwrighting degree is designed to provide apprentices and journeymen with a broadened educational background and leadership skills so that students completing the associate degree program may be better equipped to enter supervisory and managerial positions.

Admission Criteria:
Registered apprentice status in the State of Arizona with a trade-specific sponsoring organization.

Required Course Credits................................................................. 19-37
Certificate of Completion in Construction Trades: Millwright (5415)................................................................. 16-34
BPC/CIS+++++ Any BPC Business-Personal Computers or CIS Computer Information System course(s).........3

Restricted Electives ............................................................................. 0-19
Students should choose zero (0) to nineteen (19) credits from the following list of courses to complete a minimum of 60 credits for the AAS degree based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship- Program Coordinator. Any 100-200 level prefixed courses may be selected, except courses used to satisfy the Required Courses area.

BLT+++++ Any BLT Building Safety and Construction course(s)
BPC+++++ Any BPC Business Personal Computers course(s)
CAD+++++ Any CAD Computer Aided Drafting course(s)
CNS+++++ Any CNS Construction course(s)
GBS+++++ Any GBS General Business course(s)
IND+++++ Any IND Industry course(s)
MGT+++++ Any MGT Management course(s)
MWR+++++ Any MWR Millwrighting course(s)
OSH+++++ Any OSH Occupational Safety and Health course(s)
SPA+++++ Any SPA Spanish course(s)
TDR+++++ Any TDR Trade related course(s)
WLD+++++ Any WLD Welding Technology course(s)

General Education Requirements .......................................................... 22-27
COM100 Introduction to Human Communication (3) OR
COM110 Interpersonal Communication (3) OR
COM230 Small Group Communication (3)........................................3

CRE101+ College Critical Reading (3) OR
CRE111+ Critical Reading for Business and Industry (3) OR
Equivalent by assessment on District Placement Exam..........................0-3
ENG101+ First-Year Composition (3) OR

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
Professional Education Certificate & Degree Programs

ENG107+ First-Year Composition for ESL (3) AND
ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3) OR
ENG111+ Technical and Professional Writing (3).................................................................6

MAT120+ Intermediate Algebra (5) OR
MAT121+ Intermediate Algebra (4) OR
MAT122+ Intermediate Algebra (3) OR
Equivalent course OR
Equivalent course or satisfactory completion of a higher level mathematics course...........3-5

Any approved general education course in the Humanities and Fine Arts area ....................................................3
Any approved general education course in the Social and Behavioral Sciences area ...........................................3
Any approved general education course in the Natural Sciences area.................................................................4

CONSTRUCTION TRADES: PAINTING AND DRYWALLING
CERTIFICATE OF COMPLETION
ASSOCIATE IN APPLIED SCIENCE DEGREE
To qualify, students must earn a grade of "C" or better in all required courses.

CERTIFICATE OF COMPLETION IN CONSTRUCTION TRADES: PAINTING AND DRYWALLING
(16-30.5 CREDITS; CODE 5407)
The Certificate of Completion (CCL) in Construction Trades: Painting and Drywalling program is designed to provide knowledge and skills in the painting and drywalling trade. Apprentices in this program receive training in the skills needed to paint from ladders and scaffolds, prepare and paint various types of surfaces, and handle all types of painting equipment. Upon completion of this program, apprentices are considered to be journeymen in the painting and drywalling trade.

Program Accreditation/Certification or Licensure Information:
Journeyman status through the Arizona Commerce Authority, Apprenticeship Services Division, U.S. Department of Labor, Bureau of Apprenticeship and Training.

Admission Criteria:
Admission to the program by the following registered apprenticeship program: Phoenix Painters and Drywall Joint Apprenticeship and Training Committee.

Required Course Credits..........................................................................................................................16-30.5
Students should select from sixteen (16) to thirty and a half (30.5) credits based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship Program Coordinator.

ABC/MEC120 Basic Calculations for Construction .................................................................1.5
ABC/MEC121 Introduction to Hand and Power Tools .............................................................1
BPC100AB Business-Personal Computers II..............................................................................0.5
IND150 Construction Foreman........................................................................................................2
MEC/HEO/PNT123 Introduction to Blueprints I.................................................................1
GTC/MIT/OSH106 Industrial Safety.........................................................................................2
PNT105 Painting and Drywalling Orientation..............................................................................1

Students must select one (1) of two (2) tracks:

Track 1: Painter-Decorator .................................................................................................................21.5
ABC118+ OSHA Standards and Regulations........................................................................1.5
PNT101+ Basic Painting..................................................................................................................4
PNT102+ Painting and Decorating.................................................................................................4
PTN104+ Special Decorative Finishes/Advanced Ladders and Scaffolding.........................4

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
ASSOCIATE IN APPLIED SCIENCE IN CONSTRUCTION TRADES: PAINTING AND DRYWALLING  
(60 CREDITS; CODE 3444)

The Associate in Applied Science (AAS) in Construction Trades: Painting and Drywalling degree is designed to provide apprentices and journeymen with a broadened educational background and leadership skills so that students completing the associate degree program may be better equipped to enter supervisory and managerial positions.

Admission Criteria:
Students are admitted to this program through: Phoenix Painters and Drywall Joint Apprenticeship and Training Committee selection process.

Required Course Credits ........................................................................................................ 19-33.5
Certificate of Completion in Painting and Drywalling (S407) ......................................................... 16-30.5
BPC/CIS+++++ Any BPC Business-Personal Computers or CIS Computer Information Systems course(s) ..........3

Restricted Electives .................................................................................................................. 6-19
Students should choose six (6) to nineteen (19) credits from the following list of courses to complete a minimum of 60 credits for the AAS degree based on their apprenticeship standing upon program enrollment and in consultation with Apprenticeship- Program Coordinator. Any 100-200 level prefixed courses may be selected, except courses used to satisfy the Required Courses area.

BLT+++++ Any BLT Building Safety and Construction Technology course(s)
BPC+++++ Any BPC Business Personal Computers course(s)
CAD+++++ Any CAD Computer Aided Drafting course(s)
CNS+++++ Any CNS Construction course(s)
GBS+++++ Any GBS General Business course(s)
PNT+++++ Any PNT Painting and Drywalling course(s)
IND+++++ Any IND Industry course(s)
MGT+++++ Any MGT Management course(s)
OSH+++++ Any OSH Occupational Safety and Health course(s)
SPA+++++ Any SPA Spanish course(s)
TDR+++++ Any TDR Trade Related course(s)
WLD+++++ Any WLD Welding Technology course(s)

General Education Requirements .............................................................................................. 22-27
COM100  Introduction to Human Communication (3) OR
COM110  Interpersonal Communication (3) OR
COM230  Small Group Communication (3) .................................................................................. 3
CRE101+  College Critical Reading (3) OR
CRE111+  Critical Reading for Business and Industry (3) OR
          Equivalent by assessment on District Placement Exam ................................................. 0-3
Professional Education Certificate & Degree Programs

+ Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.

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ENG101+ First-Year Composition (3) OR
ENG107+ First-Year Composition for ESL (3) AND
ENG102+ First-Year Composition (3) OR
ENG108+ First-Year Composition for ESL (3) OR
ENG111+ Technical and Professional Writing (3) ................................................................. 6

MAT120+ Intermediate Algebra (5) OR
MAT121+ Intermediate Algebra (4) OR
MAT122+ Intermediate Algebra (3) OR
Equivalent course or satisfactory completion of a higher level mathematics course .......... 3-5

Any approved general education course in the Humanities and Fine Arts area .............. 3
Any approved general education course in the Social and Behavioral Sciences area .......... 3
Any approved general education course in the Natural Sciences area ............................ 4

CONSTRUCTION TRADES: PRE-APPRENTICESHIP
CERTIFICATE OF COMPLETION
To qualify, students must earn a grade of “C” or better in all required courses.

CERTIFICATE OF COMPLETION IN CONSTRUCTION TRADES: PRE - APPRENTICESHIP
(12 CREDITS; CODE 5746 N)
The Certificate of Completion (CCL) in Construction Trades: Pre-Apprenticeship program is designed to train and upgrade skills of people interested in entering construction trades registered apprenticeship programs. Training is included in the areas OSHA-10 certification and introductory courses in the areas of hand and power tools, math, blueprint reading, rigging, materials handling and green construction overview. Soft skills training includes problem solving, communication and computer basics. The skills acquired in this program can be applied toward advance placement in a participating registered apprenticeship program which may require a background check and/or drug testing.

Program Note:
Upon completion of this program, application for registered apprenticeship status may require a background check and/or drug testing.

Admission Criteria:
Currently enrolled in junior/senior year in high school or high school diploma or GED.

Required Course Credits ........................................................................................................ 12
All Students Must Select eight and a half (8.5) credits from the following courses:

ABC/PNT118+ OSHA Standards and Regulations ................................................................. 1.5
ABC/MEC/PNT120+ Basic Calculations for Construction ...................................................... 1.5
ABC/MEC/PNT121+ Introduction to Hand and Power Tools ................................................. 1
ABC/HEO/MEC122+ Rigging Safety and Equipment ................................................................. 1
ABC123+ Introduction to Construction Drawings ............................................................... 0.5
CNS290AB+ Construction Internship .................................................................................. 2
TDR102+ Construction Soft Skills I: Workplace Skills ......................................................... 1

High School Junior/Seniors Must Select: ............................................................................. 3.5
AAA/CPD150 Strategies for College Success ................................................................. 3
ABA106+ Introduction to Materials Handling .................................................................... 0.5

Post High School Students Must Select: ............................................................................. 3.5
BPC100 Business Personal Computers ........................................................................ 2
CNS102 Foundations for Apprenticeship ........................................................................ 1
CNS110+ Green Construction Overview ........................................................................ 0.5

* Indicates course has prerequisites and/or co-requisites.
++ Indicates any module suffixed courses.
### ACCOUNTING (ACC)

**ACC105**  3 Credits  3 Periods  
**Payroll, Sales and Property Taxes**  
Tax reporting for payroll, sales and personal property. Prerequisites: None.

**ACC111**  3 Credits  3 Periods  
**Accounting Principles I**  
Fundamental theory of accounting principles and procedures. Prerequisites: None.

**ACC115**  2 Credits  3 Periods  
**Computerized Accounting**  
Mastery of a microcomputer accounting system including the general ledger, accounts receivable, accounts payable and payroll. Prerequisites: ACC107 or higher level accounting course or permission of instructor.

**ACC121**  3 Credits  3 Periods  
**Income Tax Preparation**  
Preparation of and practical experience in preparing individual federal income tax returns using computer software. Prerequisites: None.

**ACC230**  3 Credits  3 Periods  
**Uses of Accounting Information I**  
Introduction to the uses of accounting information for internal and external purposes with emphasis on financial statement analysis. Prerequisites: Grade of “C” or better in ACC111 or ACC211, or a grade of “C” or better in (ENG101 and MAT151 and CRE101), or equivalent, or satisfactory score on District placement exam.

**ACC240**  3 Credits  3 Periods  
**Uses of Accounting Information II**  
Introduction to the uses of accounting information for internal and external purposes with emphasis on analysis for use by management. Prerequisites: ACC230.

### ADMINISTRATION OF JUSTICE STUDIES (AJS)

**AJS101**  3 Credits  3 Periods  
**SUN# AJS1101 Introduction to Criminal Justice**  
An introduction to crime and society’s responses to it. Examines the nature and causes of crime, the criminal law, constitutional safeguards, and the organization and operation of the criminal justice system including the police, courts, jails, prisons, probation and parole departments, and community corrections agencies. Covers the history of the criminal justice system, terminology and career opportunities. Prerequisites: None.

**AJS142**  3 Credits  3 Periods  
**Transportation and Border Security**  
Basic overview of modern border and transportation security challenges, as well as different methods employed to address these challenges. Historical timeline to present time for transportation-related terrorist threats. Topics associated with border security and security for transportation infrastructure. National and international acts of terrorism, detection of threats to various transportation systems. Interdependency between various agencies to protect borders. Explanation of functions of agencies in border security, as well as effective strategies for agencies to use. Knowledge level understanding of the variety of challenges inherent in transportation and border security. Prerequisites: None.
AJS143 3 Credits 3 Periods
Intelligence Analysis and Security Management
Basic overview of modern intelligence gathering and analysis pertinent to homeland security and other threats facing government and private sectors. Historical timeline to present time of United States (US) intelligence gathering techniques and agencies. Different agencies tasked with intelligence gathering, and their assigned roles in the government process. Composition of intelligence units as well as the relationship between different agencies and their specialties. Ways in which intelligence is shared to brief policy makers and threats to national security are identified in a timely manner. Techniques and management, as well as the political process and oversight of the intelligence community. Successes and failures of intelligence agencies in modern United States history. Prerequisites: None.

AJS195 3 Credits 3 Periods
International and Domestic Terrorism
An overview of the history, structure, goals, and activities of domestic and international terrorist groups. Explores theories explaining terrorism and reviews methods used to combat it. Prerequisites: None.

ANTHROPOLOGY (ASB/ASM)

ASB102 3 Credits 3 Periods
Culture in a Globalizing World
Principles of cultural and social anthropology with illustrative materials from a variety of cultures. The nature of culture; social, political and economic systems; religion, esthetics and language. Prerequisites: None.

ASB222 3 Credits 3 Periods
Buried Cities and Lost Tribes: Old World
Introduction to archaeology through discoveries and the researchers who made them. Emphasis on methods of archaeological fieldwork and what these discoveries reveal about humanity, including the nature of archaeological inquiry, the development of human social groups, the changing role of religion in evolving societies, the origins of agriculture, the origins of settled lifeways, the rise of cities and complex societies, political strife across different cultures and the forces which tend to fragment societies. Examples drawn from Africa, Asia, Europe, the Pacific Islands, and Australia. Prerequisites: None.

ASB223 3 Credits 3 Periods
Buried Cities and Lost Tribes: New World
Introduction to archaeology through discoveries and the researchers who made them. Emphasis on methods of archaeological fieldwork and what these discoveries reveal about humanity including the nature of archaeological inquiry, the development of human social groups, the changing role of religion in evolving societies, the origins of agriculture, the origins of settled lifeways, the rise of cities and complex societies, political strife across different cultures and the forces which tend to fragment societies. Examples drawn from North America, Central America, and South America. Prerequisites: None.

ASB245 3 Credits 3 Periods
Indians of the Southwest
Comparative study of the cultures, including the histories and present status, of Indians of the Southwest. Prerequisites: None.

ASM104 4 Credits 5 Periods
Bones, Stones, and Human Evolution
Study of human evolution and variation; including fossil hominids and their tools, primate anatomy and behavior, human genetics, and the environment and human biology. Prerequisites: None.
ART (ART)

ART111 3 Credits 6 Periods
SUN# ART1111 Drawing I
Fundamental principles of drawing. Emphasis on composition and facility in objective and expressive representation, using variety of drawing media. Prerequisites: None.

ART122 3 Credits 6 Periods
Drawing and Composition II
Emphasis on composition and exploration of drawing media. Prerequisites: ART111.

ART151 3 Credits 6 Periods
Sculpture I
Exploration of sculptural form and expression in clay, plaster, stone, wood and metal. Prerequisites or Corequisites: ART115 or permission of instructor.

ART152 3 Credits 6 Periods
Sculpture II
Emphasis on control of sculptural media. Prerequisites: ART151.

ART161 3 Credits 6 Periods
Ceramics I
Introduction to ceramic materials and techniques of hand construction, decorating, glazing and throwing on potters' wheel. Prerequisites: None.

ART162 3 Credits 6 Periods
Ceramics II
Major emphasis on wheel throwing, glaze making and decorating techniques. Prerequisites: ART161.

ART298AC 3 Credits 3 Periods
Special Projects
Organized and tailored around the interests and needs of the individual student. Structured to provide an atmosphere of individualized research and study paralleled by professional expertise and guidance. Professional-type facilities and equipment available for student use. Allows the best aspects of independent study and individualized learning to be combined to maximize student development. Prerequisites: Permission of Program Director or instructor.

ART HUMANITIES (ARH)

ARH101 3 Credits 3 Periods
SUN# ART1101 Prehistoric through Gothic Art
History of art from prehistoric through medieval Periods. Prerequisites: None.

ARH102 3 Credits 3 Periods
SUN# ART1102
Renaissance through Contemporary Art
History of art from around the world from the Renaissance through contemporary Periods. Prerequisites: None.

AUTOMOTIVE (AUT)

AUT103AA 6 Credits 10 Periods
Automotive Electrical Systems
Basic principles and fundamentals of automotive electricity and electrical systems. Training in diagnosis; service and reconditioning procedures of automotive starting, charging and ignition; and electrical circuits and components. Prerequisites: None.
AUT104AA  3 Credits  5 Periods
**Automotive Fuel Systems**
Theory and operation of fuel injection, engine control management, turbo charging and fuel systems, training in diagnosis, service and reconditioning procedures. Prerequisites: AUT103AA, or AUT103AB, or permission of instructor.

AUT105AA  3 Credits  5 Periods
**Engine Performance and Diagnosis**
The theory and fundamentals of automotive engine management troubleshooting and oscilloscope testing as it pertains to diagnosis and tune-up of the modern day automobile. Emphasis on interpretation of oscilloscope patterns and Scantool Data as they relate to engine performance. Prerequisites: (AUT103AA or AUT103AB) and AUT104AA, or permission of instructor.

AUT106AC  3 Credits  5 Periods
**Engine Overhaul and Reconditioning: Heads and Valves**
Diagnostic and service skills essential to service and repair of the cylinder head and valve train of contemporary automotive engines. Includes valve, guide, and seat reconditioning and service. Does not include block and crankshaft service. Prerequisites: AUT103AA or permission of instructor.

AUT107AD  4 Credits  7 Periods
**Automotive Air Conditioning**
The theory and principles of refrigeration and air conditioning. Training in diagnosis, servicing, and reconditioning procedures of automotive air conditioning systems including electronic system controls. Prerequisites: AUT103AA.

AUT108AB  4 Credits  7 Periods
**Front-End Suspension, Steering, and Alignment**
The fundamentals and principles of suspension and steering systems. Diagnosis, service, and reconditioning procedures. Laboratory emphasis on front-end service and alignment. Prerequisites: None.

AUT109AC  4 Credits  7 Periods
**Automotive Brake Systems**
Designed for beginning automotive students. Fundamentals of drum, disc, and ABS brakes. Includes training in diagnosis, testing, service, and repair. Prerequisites: None.

AUT110AC  4 Credits  7 Periods
**Automotive Power Trains**
Designed for beginning automotive students. Operation, diagnosis, service, and repair of the automotive power train. Includes clutches, torque converters, standard and automatic transmissions and transaxles, front and rear drive axles, drive shafts, differentials and transfer case. Prerequisites: None.

AUT123  LEC 6 Credits  LEC 6 Periods /  LAB 0 Credits  LAB 4 Periods
**Automatic Transmissions**
Theory of operation and servicing procedures for current automatic transmissions. Prerequisites: (AUT103AA and AUT104AA) or permission of instructor.

AUT123AA  LEC & LAB  4 Credits  8 Periods
**Automatic Transmissions**
Theory of operation and servicing procedures for current domestic automatic transmissions; includes diagnostics and testing of mechanical, electrical, and hydraulic components. Prerequisites: None
### AUT130  4 Credits  7 Periods
**Automotive Quick Service**
Use of standard service publications; performance of commonly used service operations following published service procedures; emphasis on good attitude development and safety habits about automotive service. Prerequisites: None.

### AUT203  3 Credits  5 Periods
**Electrical Accessories**
Theory and principles of wiring diagrams, accessories circuits, turn signals and warning systems. Circuit trouble-shooting and service of gauges, indicators, power windows and seats, deck latches and windshield wipers. Computerized electronic devices. Prerequisites: AUT103AA or permission of instructor.

### AUT210AA  3 Credits  5 Periods
**Automotive Emission Systems**
Automotive emissions control systems and methods of emissions measurement. Diagnostic practices as suggested by the manufacturers and the related service of emissions control devices. Prerequisites: (AUT103AA and AUT104AA), or permission of instructor.

### AUT215AA  4 Credits  7 Periods
**Automotive and Electrical/Electronic Systems II**
Electrical accessory circuits including horns, wipers, defoggers, automatic door locks, power mirrors, power windows and power seats. Focuses on introduction to body computers, advanced lighting circuits and instrumentation, and chassis electronic control systems. Includes training in diagnosis, testing, service, and repair. Prerequisites: AUT103AA, or AUT103AB, or permission of Instructor.

### AUT240  2 Credits  3 Periods
**Hybrid Vehicle Overview**
Automotive hybrid vehicle design and operation. Safety practices as suggested by manufacturers for servicing hybrid vehicles. Prerequisites: Permission of Department or Division

### AUT270AA  1 Credits  1 Period
**Automotive Technology Internship**
Automotive work experience in the automotive service industry. 80 hours of designated work per credit. Maximum of four (4) credits can be earned by taking combinations of AUT270AA, or AUT270AB, or AUT270AC. Prerequisites: AUT130.

### AUT270AC  3 Credits  3 Periods
**Automotive Technology Internship**
Automotive work experience in the automotive service industry. 80 hours of designated work per credit. Maximum of four (4) credits earned by taking combinations of AUT270AA, or AUT270AB, or AUT270AC. Prerequisites: Permission of Department or Division

### AUT298AA  1 Credit  1 Period
**Special Projects**
Organized and tailored around the interests and needs of the individual student. Structured to provide an atmosphere of individualized research and study paralleled by professional expertise and guidance. Professional-type facilities and equipment available for student use. Allows the best aspects of independent study and individualized learning to be combined to maximize student development. Prerequisites: Permission of Program Director or instructor.
BIOLOGY (BIO)

BIO100  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods
**Biology Concepts**
A one-semester introductory course covering basic principles and concepts of biology. Methods of scientific inquiry and behavior of matter and energy in biological systems are explored. Field trips may be required at students’ expense. Prerequisites: None.

BIO101  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods
**Introduction to Human Genetics for Non-Majors**
Selected biological topics, including methods used by biologists to make discoveries and evaluate scientific data. Field trips may be required at students’ expense. Prerequisites: None.

BIO105  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods
**Environmental Biology**
Fundamentals of ecology and their relevance to human impact on natural ecosystems. Field trips may be required at students’ expense. Prerequisites: None.

BIO109  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods
**Natural History of the Southwest**
Study of the common plants and animals of the Southwest including their distribution, adaptation, behavior, and ecology. Introduction to basic field and laboratory techniques used in the study of natural history. Specific field problems presented dealing with plant and animal analysis and ecological interrelationships. Prerequisites: None.

BIO145  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods
**Marine Biology**
A survey of marine environments and their biotic communities with emphasis on the natural history of marine organisms. Prerequisites: None.

BIO156  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods
**Introductory Biology for Allied Health**
An introductory biology course for allied health majors with an emphasis on humans. Topics include fundamental concepts of cell biology, histology, microbiology and genetics. Prerequisites: Grade of “C” or better in RDG091 or eligibility for CRE101 as indicated by appropriate reading placement test score. One year high school chemistry or one semester of college-level chemistry recommended.

BIO160  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods
**Introduction to Human Anatomy and Physiology**
Principles of scientific method. Structural organization, homeostasis and control mechanisms of the body. Specific chemistry concepts. Structure and function of the major systems of the body. Prerequisites: None.

BIO181  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods
**General Biology (Majors) I SUN#1181**
The study and principles of structure and function of organisms at the molecular and cellular levels. A detailed exploration of the chemistry of life, the cell, and genetics. Prerequisites: Grade of “C” or better in RDG091 or eligibility for CRE101 as indicated by appropriate reading placement test score. One year of high school or one semester of college-level biology and chemistry is strongly recommended.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Type</th>
<th>Credits</th>
<th>Lecture Periods</th>
<th>Laboratory Credits</th>
<th>Laboratory Periods</th>
<th>Description</th>
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<tbody>
<tr>
<td>BIO182</td>
<td>LEC</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>General Biology (Majors) II SUN#1182 The study and principles of structure and function of living things at cellular, organismic, and higher levels of organization. A detailed exploration of the mechanisms of evolution, biological diversity, biology of organisms, and ecology. Prerequisites: A grade of “C” or better in BIO181 or BIO181XT. Course Note: BIO182 may require field trips.</td>
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<tr>
<td>BIO192</td>
<td>LEC</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>Discussion, guided practice and problem solving related to a topically focused area of biology. Prerequisites: None. Corequisites: Any 100-level BIO Biology course or permission of Instructor. Course Note: BIO192 may be repeated for credit.</td>
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<tr>
<td>BIO201</td>
<td>LEC</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>Human Anatomy and Physiology I SUN#2201 Study of structure and function of the human body. Topics include cells, tissues, integumentary system, skeletal system, muscular system, and nervous system. Prerequisites: (A grade of “C” or better in BIO156 or BIO156XT or BIO181 or BIO181XT or one year of high school biology) and a grade of “C” or better in RDG091 or higher or eligibility for CRE101 as indicated by reading placement test score. CHM130 or higher or one year of high school chemistry suggested but not required.</td>
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<tr>
<td>BIO202</td>
<td>LEC</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>Human Anatomy and Physiology II SUN#2202 Continuation of structure and function of the human body. Topics include endocrine, circulatory, lymphatic, respiratory, digestive, urinary and reproductive systems; and fluid and electrolyte balance. Prerequisites: A grade of “C” or better in BIO201.</td>
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<tr>
<td>BIO205</td>
<td>LEC</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>Microbiology SUN#2205 Study of microorganisms and their relationship to health, ecology, and related fields. Prerequisites: (A grade of “C” or better in BIO156 or BIO156XT or BIO181 or BIO181XT or one year of high school biology) and a grade of “C” or better in RDG091 or higher or eligibility for CRE101 as indicated by reading placement test score. CHM130 or higher or one year of high school chemistry suggested but not required.</td>
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<tr>
<td>BIO292</td>
<td>LEC</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>Discussion, guided practice and problem solving related to advanced topics in biology. Prerequisites: None. Corequisites: Any 200-level BIO Biology course or permission of Instructor. Course Note: BIO292 may be repeated for credit.</td>
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<tr>
<td>BIO295AA</td>
<td>LAB</td>
<td>1</td>
<td></td>
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<td>Original scientific investigation of biological phenomenon. Prerequisites: (BIO156 or BIO181) and permission of Instructor. Course Note: BIO295AA requires a minimum of 80 hours of independent laboratory and/or field study. BIO295AA may be repeated for credit.</td>
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<tr>
<td>BIO295AB</td>
<td>LAB</td>
<td>2</td>
<td></td>
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<td>Original scientific investigation of biological phenomenon. Prerequisites: (BIO156 or BIO181) and permission of Instructor. Course Note: BIO295AB requires a minimum of 160 hours of independent laboratory and/or field study. BIO295AB may be repeated for credit.</td>
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<tr>
<td>BIO295AC</td>
<td>LAB</td>
<td>3</td>
<td></td>
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<td></td>
<td>Original scientific investigation of biological phenomenon. Prerequisites: (BIO156 or BIO181) and permission of Instructor. Course Note: BIO295AC requires a minimum of 240 hours of independent laboratory and/or field study. BIO295AC may be repeated for credit.</td>
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### BUSINESS-PERSONAL COMPUTERS (BPC)

<table>
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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Periods</th>
<th>Description</th>
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</table>
| BPC100      | 2       | 2       | Business-Personal Computers
Introduction to the use of personal computers in the business environment. Computer hardware components, operating system functions and concepts. Procedures for running and using business application software to produce documents and spreadsheets. Prerequisites: None. |
| BPC101AA    | 1       | 2       | Introduction to Computers I
Computer software applications for the personal computer including electronic spreadsheet and word processing, keyboarding review and a desktop environment. Prerequisites: None. |
| BPC110      | 3       | 4       | Computer Usage and Applications
Introduction to business and personal computer operations and usage. Software applications for analyzing and solving business problems including word processing, spreadsheet, database, and presentation graphics. Prerequisites: None. |
| BPC130DK    | 1       | 2       | Beginning Word
Using Word for Windows to create, edit, and print documents. Prerequisites: Ability to keyboard a minimum of 20 wpm or permission of instructor. |
| BPC135DK    | 2       | 2       | Word: Level I
Using Word word processing software to create and name files, edit text, format, and print a variety of documents. Prerequisites: None. |
| BPC170      | 3       | 4       | Computer Maintenance: A+ Exam Prep Level I
Explore technical aspects of personal computers, including system components, installation, system configuration, peripheral devices, and notebooks. Emphasis placed on hardware installation, maintenance, mobile devices, and hardware troubleshooting. Helps prepare students for the CompTIA A+ examinations. Prerequisites: CIS105 or permission of instructor. |
| BPC270      | 3       | 4       | Computer Maintenance II: A+ Technician Prep
Explore advanced technical aspects of maintaining and servicing computers. Emphasis placed on OS installation, maintenance, mobile devices, security, software troubleshooting, and on proper usage of tools, safety procedures, and professionalism. Helps prepare students for the CompTIA A+ examinations. Prerequisites: BPC170 with grade of C or better, or permission of instructor. |

### CARPENTRY (CRP)

<table>
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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Periods</th>
<th>Description</th>
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</table>
| CRP101      | 3       | 3       | Orientation – Carpentry
Fundamental trade skills, employee-employer roles and responsibilities, and safe work practices needed for entry level performance in the construction industry. Emphasis on attaining standard industry safety credentials, practical experience using construction terminology, math and basic measuring techniques. Training for jobsite hazard recognition, accident prevention, safe tool and equipment operation. |
| CPR102      | 3       | 3       | Safety/Health Certifications for Carpentry
Awareness of construction hazard communication systems, fall protection, proper tool/equipment operation with an emphasis on individual responsibility for workplace safety and health in carpentry. Exposure to health emergency scenarios and proper selection, inspection, use, and operation of fall protection systems, tools, and powered lift truck equipment. |
CRP103  3 Credits  3 Periods  
Tool and Equipment Applications  
Selection and use of the proper tools/equipment for various construction applications including preparation of materials. Material calculations to minimize waste and increase productivity. Selection, inspection, use and operations of tools and aerial lifts and scaffold safety.

CPR104  3 Credits  3 Periods  
Basic Wall Framing  
Theory, methods, and procedures required to frame basic walls. Hands-on practice using proper tool techniques and appropriate materials. Introduction to print reading, basic wall layout, plating procedures, framing assembly and bracing.

CRP121  3 Credits  3 Periods  
Print Reading for Carpenters  
Introduction to print reading skills for carpenters. Developing ability to interpret two-dimensional views, standard drawing methods, pictorial elements, visual and verbal communication cues. Recognizing parts of drawings, locating building and insulation features, calculating dimensions, and using views to determine construction methods.

CPR122  3 Credits  3 Periods  
Bridge Construction  
Overview of basic bridge construction including exterior and interior girders, edge forms, bulkheads and hinge forms. Job-built and precast formwork methods, panel construction, assembly and hardware installation tasks. Review of related safety, math and print reading.

CRP123  3 Credits  3 Periods  
Wall Forming  

CPR124  3 Credits  3 Periods  
Foundations and Flatwork  
Design and function of several types of foundations and concrete flatwork. Overview of methods, techniques and procedures for formwork layout, elevation, and construction including jobsite safety, print interpretation, material identification and basic use of builders' level.

CRP231  3 Credits  3 Periods  
Basic Roof Framing  
Introduction to basic gable roof framing, terminology, characteristics and construction methods. Interpretation of print views and drawing elevations for job planning, rafter systems and layout details. Review of basic rise, run, rafter angles and length calculations.

CPR232  3 Credits  3 Periods  
Stair & Ramp forming  
Methods, procedures and practices used to form stair and ramp structures including configuration and dimensions. Review of Stinger riser and stair thread calculations, state and federal building codes.

CRP233  3 Credits  3 Periods  
Basic Metal Framing  
Overview of residential metal framing theory and construction techniques. Interpretation of prints for job planning and estimation of materials. Layout and detail of wall plates, measuring techniques, calculating principles, wall and roof assembly and installation techniques.
CPR234  3 Credits  3 Periods
Transit Level/Laser
Detailing, layout and construction of abutments used in the heavy highway industry. Overview of assembly components, key terms and abutment anatomy; footings; piers and retaining walls. Techniques for laying out keyway centerline and footing formwork construction.

CRP241  3 Credits  3 Periods
Gang Forms/Columns
Formwork types, applications and construction methods for gang and column forms using built and manufactured forming systems. Heavy timber gang forms and use of taper ties, bracing, and bulkhead tables.

CPR242  3 Credits  3 Periods
Doors/Door Hardware
Installation process for several types of security and exit door hardware. Print interpretation, codes, door schedules, symbols, and hardware recognition.

CRP243  3 Credits  3 Periods
Scaffold Erector Qualification
Safety and terminology related to scaffold built applications, elevated platform use, span and loading criteria, access and egress, stability, and structural connections and inspections.
Project drawing review for locating dimensions, determining layout and scaffold material requirements. Erection/dismantling sequence for the development of job planning, preparation skills and applied math.

CPR244  3 Credits  3 Periods
Cabinet Installation
Cabinet installation from establishing the design layout to attaching countertops. Print interpretation, job planning, scribing techniques, and proper installation sequence.

CHEMISTRY (CHM)

CHM090  1 Credit  1 Period
Preparation for Fundamental Chemistry
A developmental course designed to review basic math and chemistry principles of students deficient or insecure in these areas. Stresses individualized instruction and "hands-on" experience. Serves to prepare the student for CHM130. Prerequisites: None.

CHM091  0.5 Credits  0.5 Periods
Preparatory Chemistry
Review of basic concepts of chemistry emphasized in non-degree biology courses. Concepts of matter, energy, and chemical characteristics of atoms. Structure and function of inorganic and organic molecules. Prerequisites: None.

CHM130  3 Credits  3 Periods
SUN# CHM1130 Fundamental Chemistry
A survey of the fundamentals of general chemistry. Emphasis on essential concepts and problem solving techniques. Basic principles of measurement, chemical bonding, structure and reactions, nomenclature, and the chemistry of acids and bases. Preparation for students taking more advanced courses in chemistry. Designed to meet needs of students in such diverse areas as agriculture, nursing, home economics, physical education and water technology. Prerequisites: A grade of "C" or better in [CHM090 or MAT090 or MAT091 or MAT092 or (MAT092AA and MAT092AB) or MAT093 or (MAT103AA and MAT103AB) or higher or satisfactory score on math placement exam] and [RDG091 or higher or eligibility for CRE101 as indicated by appropriate reading placement test score].
CHM130LL        1 Credit 3 Periods
SUN# CHM1130
Fundamental Chemistry Laboratory
Laboratory experience in support of CHM130. Prerequisites or Corequisites: A grade of “C” or better in CHM130.

CHM150 4 Credits 4 Periods
General Chemistry I
Detailed study of principles of chemistry for science majors and students in pre-professional curricula. Prerequisites: (CHM130 and CHM130LL), or (one year of high school chemistry with a grade of C or better taken within the last five years), and completion of intermediate algebra or equivalent. Completion of all prerequisites within the last two years is recommended. (Students may receive Credits for only one of the following: CHM150 or CHM151.)

CHM151 3 Credits 3 Periods
SUN# CHM1151 General Chemistry I
Detailed study of principles of chemistry for science majors and students in pre-professional curricula. Prerequisites: (CHM130 and CHM130LL), or (one year of high school chemistry with a grade of C or better taken within the last five years), and completion of intermediate algebra or equivalent. Completion of all prerequisites within the last two years is recommended. (Students may receive Credits for only one of the following: CHM150 or CHM151.)

CHM151LL 1 Credit 3 Periods      SUN# CHM1151 General Chemistry I Laboratory
Laboratory experience in support of CHM150 or CHM151. Prerequisites or Corequisites: A grade of “C” or better in CHM150 or CHM151.

CHM152 3 Credits 3 Periods      SUN# CHM1152 General Chemistry II
A study of the chemical properties of the major groups of elements, equilibrium theory, thermodynamics, electrochemistry, and other selected topics. Completion of CHM152LL required to meet the Natural Science requirement. Prerequisites A grade of "C" or better in [(CHM150 or CHM151) and CHM151LL], or CHM150AA, or CHM151AA. Completion of prerequisites within the last two years recommended.

CHM152LL 1 Credit 3 Periods      SUN# CHM1152 General Chemistry II Laboratory
Laboratory experience in support of CHM152. Prerequisites: CHM151LL or permission of instructor. Prerequisites or Corequisites: A grade of “C” or better in CHM152. Course Notes: Student may receive credit for only one of the following: CHM152 and CHM152LL, or CHM152AA.

CHM230 3 Credits 3 Periods      SUN# CHM2230 Fundamental Organic Chemistry
Chemistry of representative groups of organic compounds, emphasizing biological applications. Prerequisites: (CHM130 and CHM130LL), or (CHM151 and CHM151LL). Completion of (CHM130 and CHM130LL) or (CHM151 and CHM151LL) within the last two years recommended. (Course content is designed to meet the needs of students in such areas as agriculture, home economics, nursing, pre-physician assistant, and physical education among others.)

CHM230LL 1 Credit 3 Periods      SUN# CHM2230 Fundamental Organic Chemistry Laboratory
Laboratory experience in support of CHM 230. Prerequisites: CHM130LL, or CHM151LL, or equivalent. Prerequisites or Corequisites: CHM230.

CHM260 3 Credits 3 Periods Fundamental Biochemistry
Structures, properties, and functions of proteins, enzymes, nucleic acids, carbohydrates and lipids; the utilization and synthesis of these materials by living systems and the relationship of the processes to energy production and utilization. Designed for students in agriculture, dental hygiene, home economics, nursing, and physical therapy. Prerequisites: A grade of “C” or better in (CHM230 and CHM230LL) or (CHM235 and CHM235LL). Completion of prerequisites within the last two years recommended.
CHM260LL  1 Credit 3 Periods Fundamental Biochemistry Laboratory
Laboratory experience in support of CHM260. Prerequisites: A grade of “C” or better in CHM260. Completion of prerequisites within the last two years recommended. Prerequisites or Corerequisites: A grade of “C” or better in CHM260. Completion of prerequisites within the last two years recommended.

CISCO NETWORKING TECHNOLOGY (CNT)
CNT150AA  4 Credits  6 Periods
Cisco - Routing and Switching Essentials
Architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. Configuration and troubleshooting routers and switches and resolving common issues with RIPv1, RIPvng, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks. Preparation for Cisco certification examination. Prerequisites: CNT140AA or permission of instructor.

CNT160AA  4 Credits  6 Periods
Scaling Networks
Architecture, components, and operations of routers and switches in large and complex networks. Configuring routers and switches for advanced functionality. Configuring and troubleshooting routers and switches and resolving common issues with OSPF, EIGRP, and STP in both IPv4 and IPv6 networks. Developing the knowledge and skills needed to implement a WLAN in a small-to-medium network. Preparation for Cisco certification examination. Prerequisites: CNT150AA or permission of Instructor.

CNT170AA  4 Credits  6 Periods
Cisco - Connecting Networks
Wide Area Network (WAN) technologies and network services required by converged applications in a complex network. Criteria selection of network devices and WAN technologies to meet network requirements. Configuring and troubleshooting network devices, and resolving common issues with data link protocols issues, and developing the knowledge and skills needed to implement Internet Protocol Security (IPSec) and Virtual Private Network (VPN) operations. Preparation for Cisco certification examination. Prerequisites: CNT160AA or permission of Instructor.

COMMUNICATION (COM)
COM100  3 Credits  3 Periods
SUN# COM1100 Introduction to Human Communication
Theory and practice of communication skills in public, small group, and interpersonal settings. Includes study of the speech communication process. Prerequisites: None.

COM110  3 Credits  3 Periods
SUN# COM1110 Interpersonal Communication
Theory and practice of communication skills which affect day-to-day interactions with other persons. Topics may include using verbal and nonverbal symbols, interactive listening, resolving interpersonal conflict, developing and maintaining personal and professional relationships. Prerequisites: None.

COM225  3 Credits  3 Periods
Public Speaking
Designed to enhance the student’s ability to present public speeches confidently and competently. Also designed to improve information literacy and critical thinking skills. Prerequisites: ENG101, or ENG107, or equivalent.

COM230  3 Credits  3 Periods
SUN# COM2271 Small Group Communication
Principles and processes of small groups and development of skills for participation and leadership in small group settings. Practice in problem solving, decision making, and information sharing. Prerequisites: None.
Course Listings 2017-2018

**COM259 3 Credits 3 Periods**
**Communication in Business and Professions**
Interpersonal, group, and public communication in business and professional organizations. Emphasis on oral communication. Prerequisites: ENG101, or ENG107, or equivalent.

**COM263 3 Credits 3 Periods**
**Elements of Intercultural Communication**
Basic concepts, principles, and skills for improving oral communication between persons from different minority, racial, ethnic, and cultural backgrounds. Prerequisites: None.

**COM282AA 1 Credit 1 Period**
**COM282AB 2 Credits 2 Periods**
**COM282AC 3 Credits 3 Periods**
**Volunteerism for Speech Communication: A Service Learning Experience**
Service-learning field experience within private/public agencies, educational institutions, and citizen volunteer groups. Prerequisites: Permission of Instructor. Course Notes: COM282AA-AC may be repeated for a total of four (4) COM282 Credits hours; may not repeat specific agency assignment for more than two (2) Credits hours. Standard grading available according to procedures outlined in catalog.

**COMPUTER INFORMATION SYSTEMS (CIS)**

**CIS100 0.5 Credits 0.5 Periods**
**Internet: A Tool for Learning**
Use of the Internet to promote learning. Focus on Internet services and access. Information provided on browsing, Internet addresses, naming conventions, search concepts and techniques, using bookmarks and capturing information. Prerequisites: None.

**CIS102 1 Credit 1 Period**
**Interpersonal and Customer Service Skills for IT Professionals**
Examines behaviors necessary to develop and support an effective client service organization. Focuses on methods of increasing the effectiveness of help-desk professionals when responding to a range of customer conditions. Prerequisites: None.

**CIS105 3 Credits 4 Periods**
**SUN# CIS1120 Survey of Computer Information Systems**
Overview of computer technology, concepts, terminology, and the role of computers in society. Discussion of social and ethical issues related to computers. Use of word processing, spreadsheet, database, and presentation software. Includes programming and use of the Internet. Exploration of relevant emerging technologies. Prerequisites: None.

**CIS107 3 Credits 4 Periods**
**The Electronic Game Industry**
Introduction to the electronic game industry, including history, market, distribution and publishing channels, business models, team roles, and career landscape. Technical topics covered include software engineering, artificial intelligence, game physics, computer graphics, and networking. Prerequisites: CIS105, or permission of instructor.

**CIS108 1 Credit 2 Periods**
**Electronic Portfolio Development**
Compile, reflect on, and select prior learning experiences and artifacts. Design, produce, and publish an online portfolio that documents prior learning. Includes techniques for presenting the electronic portfolio for evaluation. Prerequisites: (CIS105 or BPC110), or permission of instructor.

**CIS112AA 1 Credit 2 Periods**
**Report Generator: Crystal Reports I**
Creating end-user reports using report wizards and templates. Prerequisites: None.
CIS114AE  1 Credit  2 Periods
Excel: Level I
Computer spreadsheet skills for solving business problems using Excel, including calculations, forecasting, and projections. Prerequisites: None.

CIS114BE  1 Credit  2 Periods
Excel: Level II
Additional Excel spreadsheet techniques, including macro programming, database searching, extraction, and linking to obtain prescribed reports and graphs. Prerequisites: CIS114AE or permission of instructor.

CIS114CE  1 Credit  1 Period
Excel: Level III
Additional Excel spreadsheet techniques, including complex macros, statistics, and matrix manipulation. Project design using multiple, integrated spreadsheets. Prerequisites: CIS114BE or permission of instructor.

CIS114DE  3 Credits  5 Periods
Excel Spreadsheet
Computer spreadsheet skills for solving business problems using Excel, including calculations, forecasting, projections, macro programming, database searching, extraction, linking, statistics, and matrix manipulation. Production of graphs and reports. Project design using multiple, integrated spreadsheets. Prerequisites: None.

CIS117AM  1 Credit  2 Periods
Database Management: Microsoft Access - Level I
Introduction to the basic elements of a current version of the Microsoft Access database management program, for casual and beginning users. Prerequisites: None.

CIS117BM  1 Credit  2 Periods
Database Management: Microsoft Access - Level II
Exploration of additional components of the Microsoft Access database management program. Prerequisites: CIS117AM or permission of instructor.

CIS117CM  1 Credit  1 Period
Database Management: Microsoft Access - Level III
Application of the features of the Microsoft Access program to some common database management problems. Prerequisites: CIS117BM.

CIS117DM  3 Credits  5 Periods
Microsoft Access: Database Management
Introduction to the basic elements, exploration of additional components and common database management problems related to the Microsoft Access program. Combines the contents of CIS117AM and CIS117BM and CIS117CM. Prerequisites: None.

CIS118AB  1 Credit  2 Periods
PowerPoint: Level I
Use of PowerPoint software to produce professional-quality presentation visuals. Prerequisites: None.

CIS118BB  1 Credit  2 Periods
PowerPoint: Level II
Use of PowerPoint software add movement and sound to desktop presentations to enhance audience attention. Prerequisites: CIS118AB.
**Course Listings 2017-2018**

**CIS118CB** 1 Credit 1 Period
**PowerPoint: Level III**
Use of PowerPoint software for advanced desktop presentation techniques, including advanced animation and sound sequences. Prerequisites: CIS118BB.

**CIS120AF** 1 Credit 2 Periods
**Computer Graphics: Adobe Photoshop: Level I**
Provides students with the capability to use Adobe Photoshop graphics software on a computer. Basic foundation course in the use of electronic techniques to select, manipulate, and edit images, for graphic design and image correction. Prerequisites: None.

**CIS120AJ** 1 Credit 2 Periods
**Introduction to Digital Photo Editing**
Introduction to digital photography and image editing. Digital photo editing use of electronic techniques to select, manipulate, and edit images. Prerequisites: None.

**CIS120BF** 1 Credit 1 Period
**Computer Graphics: Adobe Photoshop: Level II**
Provides students with the capability to use Adobe Photoshop graphics software on a computer. Includes working with masks, channels and layers, and combining raster and vector graphics. Prerequisites: CIS120AF.

**CIS120CF** 1 Credit 1 Period
**Computer Graphics: Adobe Photoshop: Level III**
Provides students with the capability to use Adobe Photoshop graphics software on a computer. Includes color printing, color management, creation of graphics for the Web. Prerequisites: CIS120BF.

**CIS120DB** 3 Credits 4 Periods
**Computer Graphics: Adobe Illustrator**
Provides students with the capability to use Adobe Illustrator graphics software on a computer. Basic foundation course in the use of electronic techniques to create, manipulate, and edit images, text, abstract art, graphics design, color graphics and business charts; determine file formats appropriate for web and print; utilize tools to optimize graphics and create a PDF file. Prerequisites: None.

**CIS120DC** 3 Credits 4 Periods
**Adobe Flash Level I: Digital Animation**
Focuses on entry-level skill expectations for digital animation using Adobe Flash. Covers basic animation techniques used in the creation, manipulation, and editing of Flash animation graphics. Helps students prepare for the Adobe certifications related to Adobe Flash. Prerequisites: None.

**CIS120DF** 3 Credits 4 Periods
**Adobe Photoshop Level I: Digital Imaging**
Focuses on entry-level skill expectations for digital imaging using Adobe Photoshop. Helps students prepare for the Adobe Certifications related to Photoshop. Prerequisites: None.

**CIS120DG** 3 Credits 4 Periods
**Fireworks: Web Graphics**
Use of graphics software to create and edit vector and bitmap (raster) graphics. Creation and manipulation of paths and special effects. Covers slices, buttons, pop-up menus, navigation bars, and animations for use in websites. Prerequisites: None.
CIS121AB  1 Credit  2 Periods
**Microsoft Command Line Operation**
Use of the Microsoft command line interface: basic concepts, internal and external commands, subdirectories, and editor. Prerequisites: None.

CIS121AE  1 Credit  2 Periods
**Windows Operating System: Level I**
Specific topics include Windows basics, navigating and customizing the desktop, maintaining hardware and software, improving performance, configurations, securing your computer, taskbar, organizing, searching and managing folders and files, installing and uninstalling applications, Internet Explorer fine tuning, security, and searching, including advanced search techniques, keyboard shortcuts, and current topics. Prerequisites: None.

CIS126AA  1 Credit  2 Periods
**UNIX Operating System: Level I**
Use of the UNIX operating system: system components, built-in commands, files and directories, editors, and UNIX Shell and command lines. Prerequisites: None.

CIS126AL  1 Credit  2 Periods
**Linux Operating System I**
Introduction to the Linux Operating system. Develop knowledge and skills required to install, configure a Linux-based workstation including basic network functions. Prerequisites: None.

CIS126BA  1 Credit  1 Period
**UNIX Operating System: Level II**
Installation, configuration, and maintenance of the UNIX operating system. Prerequisites: CIS126AA.

CIS126BL  1 Credit  1 Period
**Linux Operating System II**
Introduction to the Linux Operating system. Develop knowledge and skills required to configure a Linux-based workstation including basic printing functions. Learn basic command line and Graphical User Interface (GUI) desktop environment utilities and applications. Prerequisites: CIS126AL or permission of instructor.

CIS126CA  1 Credit  1 Period
**UNIX Operating System: Level III**
Create login scripts and batch files, and maintain system communications. Prerequisites: CIS126BA.

CIS126CL  1 Credit  1 Period
**Linux Operating System III**
Introduction to the Linux Operating system. Develop knowledge and skills required to install and configure applications, and to troubleshoot a Linux-based workstation including basic network functions. Learn basic command line and Graphical User Interface (GUI) desktop environment utilities and applications. Prerequisites: CIS126BL or Permission of Instructor.

CIS126DA  3 Credits  4 Periods
**UNIX Operating System**
Use of a UNIX operating system including system components, built-in commands, files, and directories, editors, and UNIX shell and command lines. Installation, configuration, and maintenance of a UNIX operating system. Create scripts and batch files, and maintain system communications. Prerequisites: None.
Course Listings 2017-2018

CIS126DL  3 Credits  4 Periods
Linux Operating System
Introduction to the Linux Operating system. Develop knowledge and skills required to install, configure and troubleshoot a Linux-based workstation including basic network functions. Learn basic command line and Graphical User Interface (GUI) desktop environment utilities and applications. Fundamental abilities to achieve the entry-level industry certification covered. Prerequisites: None.

CIS128  3 Credits  4 Periods
Databases in Practice Management
Use of a Practice Management Database (Electronic Health Record software) for installation and maintenance of an Electronic Health Record. Application of policies and procedures for data control, security, privacy, and confidentiality of health information in electronic health information management systems. Prerequisites: None.

CIS128AA  1 Credit  2 Periods
Introduction to Electronic Health Record Systems
Introduction to the use of Electronic Health Record Management software for data entry and management of Electronic Health Records. Prerequisites: None.

CIS133AA  1 Credit  2 Periods
Internet/Web Development Level I-A
Overview of the Internet and its resources. Hands-on experience with various Internet communication tools. Prerequisites: None.

CIS133DA  3 Credits  4 Periods
Internet/Web Development Level I
Overview of the Internet/WWW and its resources. Hands-on experience with various Internet/WWW communication, resource discovery, and information retrieval tools. Web page development also included. Prerequisites: None.

CIS150  3 Credits  4 Periods
Programming Fundamentals
Structured program design and logic tools. Use of computer problems to demonstrate and teach concepts using appropriate programming language. Prerequisites: CIS105, or permission of instructor.

CIS150AB  3 Credits  4 Periods
Object-Oriented Programming Fundamentals
Structured and Object-Oriented design and logic tools. Use of computer problems to demonstrate and teach concepts using an appropriate programming language. Prerequisites: CIS105 or permission of instructor.

CIS151  3 Credits  4 Periods
Computer Game Development -Level I
Introduction to object-oriented game development, game design, and game theory. Use of computer software to demonstrate and teach concepts using an appropriate game development platform to model real-time simulations and create computer games using object oriented tools. Introduction to developing PC games, educational software, and training software using windows based object oriented developments tools. Prerequisite: CIS105 or permission of instructor.

CIS159  3 Credits  4 Periods
Visual Basic Programming I
Use of the Visual Basic programming language to solve problems using suitable examples from business or other disciplines. Prerequisites: CIS105 or permission of instructor.
CIS162AB  3 Credits  4 Periods  
C++: Level I  
Introduction to C++ programming including general concepts, program design, development, data types, operators, expressions, flow control, functions, classes, input and output operations, debugging, structured programming, and object-oriented programming. Prerequisites: CIS105, or permission of instructor.

CIS162AD  3 Credits  4 Periods  
C#: Level I  
Introduction to C# programming including general concepts, program design, development, data types, operators, expressions, flow control, functions, classes, input and output operations, debugging, structured programming, and object-oriented programming. Prerequisites: CIS105, or permission of instructor.

CIS163AA  3 Credits  4 Periods  
Java Programming: Level I  
Introduction to Java programming. Includes features needed to construct Java Applets, Java Applications, control structures, methods, arrays, character and string manipulation, graphics, and object-oriented programming. Prerequisites: CIS105 or permission of instructor.

CIS166  3 Credits  4 Periods  
Web Scripting/Programming  
Software development for Web sites, including client-side script and Common Gateway Interface (CGI) scripting. Covers Web-based transaction processing and use of databases in conjunction with the Web. Includes security issues. Prerequisites: CIS133CA or CIS133DA or permission of instructor.

CIS175EA  1 Credit  2 Periods  
Introduction to Structured Query Language  
Introduction to Structured Query Language. Focuses on the query operation, including data collection, grouping and multi-table queries. Prerequisites: None.

CIS183AH  3 Credits  4 Periods  
Microsoft Office  
Utilization of the Microsoft Office integrated software program. Utilizing electronic spreadsheet, word processing, data base, telecommunication, and graphics components to solve business problems. Prerequisites: None.

CIS190  3 Credits  4 Periods  
Introduction to Local Area Networks  
Overview of local area networks. Emphasis on the elements of a local area network, current issues and products, and use of a local area network. Includes terminology, hardware and software components, connectivity, resource monitoring and sharing, electronic mail and messaging, and security issues. Prerequisites: CIS105, or permission of instructor.

CIS224  3 Credits  4 Periods  
Project Management Microsoft Project for Windows  
Introduction to project management concepts while working with MS Project to solve complex project management networks, including creating Gantt and PERT charts, tracking project progress, planning for restrictions, and integrating MS Project with other software packages such as Excel, Word, Powerpoint, and cc Mail. Prerequisites: None.

CIS225  3 Credits  4 Periods  
Business Systems Analysis and Design  
Investigation, analysis, design, implementation and evaluation of business computer systems. Prerequisites: Any programming language or permission of Instructor.
CIS225AB  3 Credits  4 Periods
Object-Oriented Analysis and Design
Methodologies and notations for fundamental object-oriented analysis and design including use cases, objects, classes, stereotypes, and relationships. Object-oriented iterative process for system development. A continuous application development exercise for applying the analysis and design concepts. Prerequisites: Any programming language or permission of Instructor.

CIS228  3 Credits  4 Periods
Advanced Databases for Practice Management
Advanced installation, configuration and use of Practice Management Database (Electronic Health Record software) for implementation and maintenance of for vendor specific and open source Electronic Health Records (EHRs). Configuration of policies and procedures for data control, security, privacy, and confidentiality of health information in electronic health information management systems. Prerequisites: CIS128 or permission of Instructor.

CIS238  3 Credits  4 Periods
Advanced UNIX System Administration
System administration tasks using one or more versions of UNIX. Topics include: installing the operation system, configuring peripherals, security, monitoring system performance, networking, and troubleshooting. Prerequisites: CIS126DA, or permission of instructor.

CIS250  3 Credits  4 Periods
Management of Information Systems
The study of business information systems and its management, communication, e-business strategies, emerging technologies, database concepts, and project management. Overview of systems analysis and design. Learn about the competitive and strategic uses of information systems and how they are transforming organizations and their management. Prerequisites: CIS105.

CIS270  3 Credits  4 Periods
Essentials of Network and Information Security
Threats to security of information systems; responsibilities and basic tools for information security, including communication security, infrastructure security, organizational security and basic cryptography. Introduction to the language of network security and hardware, software and firmware components of an information security system for local, metropolitan, enterprise, and wide area networks. Helps prepare participants for the Comptia Security+ exam and the GIAC Security Essentials Certificate (GSEC). Prerequisites: CNT150, or (MST150 or MST150 any module), or permission of instructor.

CIS290AA  1 Credit  6 Periods
CIS290AB  2 Credits  12 Periods
CIS290AC  3 Credits  18 Periods
Computer Information Systems Internship
Work experience in business or industry. Prerequisites: Permission of instructor.

CIS296WA  1 Credit  5 Periods
Cooperative Education
Work-college experiences that involve the combined efforts of educators and employers to accomplish an outcome related to the career objectives of the students. Prerequisites: Completion of at least twelve (12) college Credits, minimum 2.6 grade point average, and be able to obtain a position related to student's academic or career goals (student's present job may qualify); or permission of instructor. Corequisites: Must be concurrently enrolled in at least one class which is related to student's major or career interest or with permission of the instructor.
CIS298AA        1 Credit         1 Period
CIS298AB        2 Credits        2 Periods
CIS298AC        3 Credits        3 Periods

Special Projects
Organized and tailored around the interests and needs of the individual student. Structured to provide an atmosphere of individualized research and study paralleled by professional expertise and guidance. Professional-type facilities and equipment are made available for student use. Allows the best aspects of independent study and individualized learning to be combined to maximize student development. Prerequisites: Permission of program director or instructor.

CONSTRUCTION AND CULTURE (CNS)

CNS102        1 Credit         1 Period

Foundations for Apprenticeship
The demographics and industry projections of the building and construction trades. Structure and purpose of registered apprenticeship. Apprenticeship roles and responsibilities. Overview of fluctuation in employment and finances inherent to the construction trades. Emphasis on preparation for periods of high and low employment debt management within registered apprenticeship.

CNS110        0.5 Credit       0.5 Period

Green Construction Overview
Overview of "green construction". Green energy vs. green building, U.S. Green Building Council (USGBC) and the building life cycle, five main areas of green building standards, Leadership in Energy and Environmental Design (LEED) accreditation, and LEED certification.

CNS290AB       2 Credits        10 Periods

Construction Internship
Construction internship office/field experience with private / public agencies or citizen volunteer groups.

COUNSELING AND PERSONAL DEVELOPMENT (CPD)

CPD150        3 Credits        3 Periods

Strategies for College Success
Focus on increasing student success through college orientation and personal growth, study skills development, and educational and career planning. Prerequisites: None. [This course is part of the First Year Experience- SUCCESS 101 Program]

CPD160        3 Credits        3 Periods

Introduction to Multiculturalism
Description: Examination of the multiple cultures and subcultures within the contemporary United States. Personal exploration of awareness and appreciation of multiculturalism. Activities for experiencing diverse cultural perspectives. Critical thinking skills for recognizing, analyzing, and mediating cultural and psychological factors impacting conflict and accord between diverse cultures through written and oral discourse.

COURT REPORTING (CCE/CTR)

CTR101        6 Credits        10 Periods

Court Reporting: Machine Shorthand Theory Block I
Basic Court Reporting machine shorthand theory. Prerequisites: 45 wpm keyboarding or permission of Department or Division. Corequisites: CTR197.

CTR102        6 Credits        10 Periods

Court Reporting: Machine Shorthand Theory Block II
Introduction of court briefs, and phrases. Prerequisites: CTR101 or permission of Department or Division or Program Director.
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CTR105  1 Credit  1 Period
Court Reporting: Punctuation and Grammar
Application of the rules of punctuation, grammar, spelling, and capitalization to sentences, paragraphs, and transcripts through systematic testing and/or projects. Prerequisites: None.

CTR106  Credits 1 Period Court Reporting: Legal Terminology
Civil/criminal law, the judicial system, legal terminologies, and researching legal citations. Prerequisites: None.

CTR107  1 Credit 1 Period
Court Reporting: Medical Terminology
Body systems and functions. Psychological and physical diseases and drugs. Methods of researching medical information. Prerequisites: None.

CTR197  1 Credit 5 Periods
Court Reporting Lab
Court reporting practice/transcription as assigned under supervision. Prerequisites: None. Corequisites: CTR101.

CTR209  3 Credits 5 Periods
Judicial Procedures for Court Reporting
Professional procedures, techniques, ethics, and introduction to video applications for judicial court reporters. Proper transcription methods and correct formatting styles for transcript production. Prerequisites: CTR2251 permission of Department or Division.

CTR211  1 Credit 5 Periods
Judicial Internship
A minimum of 50 hours participation in an actual courtroom deposition setting. Transcript production required. Prerequisites: CTR209 and passing one 200wpm Q/A speed test with a minimum of 95% accuracy or permission of Department or Division.

CTR215  3 Credits 3 Periods
Computer-Aided Transcription
Computer terminology, trouble-shooting and basic maintenance of a computer-aided transcription (CAT) system. Court reporting system set-up, maintenance and operation. Realtime system applications in specific environments. Production of transcripts from dictation and with a computer-aided transcription system. Prerequisites: (CTR101 and BPC101AA) or permission of Department or Division.

CTR251  14 Credits 20 Periods
Court Reporting Speed Building Block III
Instruction, dictation, and readback in speeds of 80-100 wpm in Literary Material; 100-120 wpm in Jury Charge Material; 120-140 wpm in Question/Answer Testimony Material with a minimum of 95% accuracy. Prerequisites: CTR102 or permission of Department or Division.

CTR252  4 Credits 20 Periods
Court Reporting Speed Building Block IV
Instruction, dictation, and readback in speeds of 120-140 wpm in Literary Material; 140-160 wpm in Jury Charge Material; 160-180 wpm in Question/Answer Testimony Material with a minimum of 95% accuracy. Prerequisites: CTR251 or permission of Department or Division.

CTR253  4 Credits 20 Periods
Court Reporting Speed Building Block V
Instruction, dictation, and readback in speeds of 160-180 wpm in Literary Material; 180-200 wpm in Jury Charge Material; 200-225 wpm in Question/Answer Testimony Material with a minimum of 95% accuracy. Prerequisites: CTR252
or permission of Department or Division.

**CTR271 2 Credits 2 Periods**

**Scoping**
Ability to read machine shorthand steno notes and employ Computer-Aided Transcript (CAT) software to edit/correct court reporters' files with an emphasis on correct transcript formatting structure. Concentration on grammar, punctuation, proofreading skills, and accuracy to produce transcripts, including, but not limited to trials, depositions, conferences, arbitrations, and other administrative hearings. Prerequisites: (CTR101, CTR215, and BPC101AA) or permission of Department or Division.

**CTR272 2 Credits 2 Periods**

**Transcription**
Machine shorthand transcription, realtime writing from audio and/or video files, with an emphasis on correct transcript formatting structure. Concentration on dictation, transcription, proofreading skills and accuracy. Computerized machine shorthand in conjunction with specialized Computer-Aided Transcription (CAT) software to generate transcripts that would include medical, interviews, judicial hearings, dissertations, and meetings. Prerequisites: (CTR101, CTR215, CTR271, and BPC101AA) or permission of Department or Division.

**CTR290 2 Credits 2 Periods**

**Registered Professional Reporter Preparation**
Live dictation practice to increase speed in any machine shorthand system in preparation for the national Court Reporters Association Registered Professional Reporter (RPR) Exam. Prerequisites: One year of machine shorthand.

**CTR291 2 Credits 2 Periods**

**Extended Machine Shorthand Practice**
Dictation and testing in Literary, Jury Charge, and Question/Answer testimony material at incremental speeds for the purpose of the student to increase machine shorthand speed and accuracy. Readback of paper or computerized notes. Prerequisites: Permission of Program Director or Instructor.

**CREATIVE WRITING (CRW)**

**CRW150 3 Credits 3 Periods**

**Introduction to Creative Writing**
Introduces the student to elements and techniques of creative writing in a variety of genres; teaches terminology and concepts needed for successful participation in writing workshops; facilitates writing practice and evaluation; offers individual guidance on the student's development as a writer. Prerequisites: None.

**CRW160 3 Credits 3 Periods**

**Introduction to Writing Poetry**
Description: Prewriting (invention and discovery), writing; analyzing and evaluating (in workshop); and revising to practice manipulating various elements of poetry, critique one's own and the poetry of others, and produce a portfolio of finished, marketable poems. Prerequisites: None. CRW150 recommended but not required.

**CRW170 3 Credits 3 Periods**

**Introduction to Writing Fiction**
Description: Practice in writing fiction through a process of prewriting (invention and discovery), writing, analysis and evaluation (in workshop), and revision; practice in manipulating various elements and forms of fiction. Prerequisites: None. CRW150 recommended but not required.
CRITICAL READING (CRE)

CRE101 3 Credits 3 Periods
College Critical Reading
Apply critical inquiry skills to varied and challenging reading materials. Includes analysis, synthesis, and evaluation through at least two substantial writing and/or speaking tasks. Prerequisites: (A grade of “C” or better in ENG101 or ENG107) and (appropriate reading placement test score or grade of “C” or better in RDG091 or RDG095 or permission of instructor).

CRE111 3 Credits 3 Periods
Critical Reading for Business and Industry
Emphasis on reading skills required for success in business and technology. Includes interpretation of technical and professional materials with an emphasis on critical analysis and reading. Prerequisites: Reading Asset test score, or grade of “C” or better in RDG091, or permission of instructor.

CRE201 3 Credits 3 Periods
Critical Reading and Writing in a Global Society
Critical evaluation of writings of authors from a variety of countries and cultures in order to gain a more global perspective of both universal and contemporary issues. Analysis, synthesis, and evaluation of various contemporary cultural viewpoints through at least two substantial writing and/or speaking tasks. Prerequisites: A grade of “C” or better in (ENG101 or ENG107) and (CRE101 or exemption by score on the reading placement test).

DIAGNOSTIC MEDICAL IMAGING (DMI)

DMI100 1 Credit 1 Period
Introduction to Diagnostic Medical Radiography: Professionalism and Patient Care
Preparation for entry into the medical field, with specific focus for diagnostic medical imaging. Role of health care worker in diagnostic imaging. Job duties, responsibilities, working conditions and work environments in the inpatient and outpatient clinical settings. Theoretical and practical understanding of patient assessment and patient care. Medical ethics and the laws related to the healthcare worker in general and those in the diagnostic imaging environment. Prerequisites: Admission to the Medical Radiography Program.

DMI101 2 Credits 2 Periods
Radiation Safety
Sources and types of radiation. Units of radiation measurement. Conversions from traditional to system international units. Protection devices, operating equipment (including ancillary devices), and federal and state laws regarding radiation safety. Radiation monitoring devices. Prerequisites: Admission to the Medical Radiography Program.

DMI102 3 Credits 3 Periods
Radiographic Positioning I
Terminology, procedures, and anatomy pertinent to radiography. Routine radiographic positioning of chest, upper limb, and lower limb. Special projections of the chest, upper and lower limbs. Evaluation of radiographs of the chest, upper and lower limb. The impact of pathology on positioning and radiographic quality. Prerequisites: Admission to the Medical Radiography Program.

DMI102LL 1 Credits 3 Periods
Radiographic Positioning I Laboratory
Terminology, procedures, and anatomy pertinent to radiography. Routine radiographic positioning of chest, upper limb, and lower limb. Special projections of the chest, upper and lower limbs. Evaluation of radiographs of the chest, upper and lower limb. Prerequisites: Admission to the Medical Radiography Program.
DMI103 1.5 Credits 2.5 Periods
Introduction to Imaging
Complete instruction overview on imaging receptors, image processing and imaging systems. Discussion of image processing procedure that renders physical and chemical changes as a visible radiographic image. Prerequisites: Admission to the Medical Radiography Program

DMI104 3.5 Credits 21 Periods
Radiography Practicum I
Observation of and familiarization with hospital procedures and environment. Demonstration of appropriate patient care. Process examination requisitions and other documentation related to the procedure. Image acquisition, processing and storage. Operation and maintenance of radiographic equipment. Performance of basic radiographic procedures to include the chest, upper and lower limb. Prerequisites: Admission to the Medical Radiography Program

DMI105 3 Credits 3 Periods
Fundamentals of Radiation Physics
Fundamental principles of the physics involved in medical radiography. Simplified math, physical concepts of energy, the structure of matter, static electricity, electric current, and electromagnetism. Generators and motors, high-voltage control, and circuitry of the x-ray tube. Principles and characteristics of x-ray production. Prerequisites: Admission to the Medical Radiography Program

DMI106 1 Credit 1 Period
Radiographic Image Evaluation I
Systematic procedure for evaluating radiographs to determine their diagnostic quality. Prerequisites: Admission to the Medical Radiography Program

DMI107 LEC 4 Credits LEC 3 Periods / LAB 0 Credits LAB 3 Periods
Principles of Digital Imaging
Content imparts an understanding of the components, principles, and operation of digital imaging systems found in diagnostic radiology. Establishes a knowledge base in factors that govern the image production process. Lab activities provide opportunities to apply course concepts and experiment with various digital imaging systems. Prerequisites: Admission to the Medical Radiography Program

DMI108 1 Credit 1 Period
Structured Diagnostic Medical Imaging Skills Enhancement
Structured diagnostic imaging cognitive learning and imaging study skills to help students achieve success in their respective imaging courses. Diagnostic medical imaging learning process and critical thinking application skills emphasized in coordination with the level of matriculation. Prerequisites: None. Corequisites: Diagnostic medical imaging program (Medical Radiography, Nuclear Medicine Technology and Diagnostic Medical Ultrasound), or permission of program director.

DMI112 LEC 2 Credits LEC 2 Periods / LAB 1 Credit LAB 3 Periods
Radiographic Positioning II

DMI114 3 Credits 18 Periods
Radiographic Positioning II
Reinforcement and broadening of routine and advanced procedures, portable skills and surgical procedures acquired in earlier practicum. Operation and maintenance of radiographic equipment. Correct use of radiation protection devices. Evaluation of radiographic images. Ethical and professional job-related skills. Prerequisites: Admission to the Medical Radiography Program.
DMI118  2.5 Credits  2.5 Periods
Contrast Media Procedures
Terminology, gross and radiographic anatomy, procedures and image evaluation related to contrast media procedures. Type, nomenclature, administration, and adverse reaction and pharmacology related to contrast media. Preparation and dosages. Select topics related to surgical radiography. Unique positioning situations. Prerequisites: Admission to the Medical Radiography Program.

DMI124  3 Credits  19 Periods
Radiography Practicum III
Reinforcement and broadening of routine and advanced procedures, portable skills and surgical procedures acquired in earlier practicum. Operation and maintenance of radiographic equipment. Correct use of radiation protection devices. Evaluation of radiographic images. Ethical and professional job-related skills. Prerequisites: Admission to the Medical Radiography Program.

DMI204  3 Credits  18 Periods
Radiography Practicum IV
Supervised student performance of routine radiological procedures, including surgery and portable procedures. Prerequisites: Admission to the Medical Radiography Program.

DMI212  1 Credit  1 Period
Advanced Radiographic Procedures
Physical space imaging equipment and sterile environment required for advanced and interventional radiographic procedures. Types and applications for needles, guide wires, and catheters. Advanced and interventional radiographic procedures. Prerequisites: Admission to the Medical Radiography Program.

DMI214  4.5 Credits  29 Periods
Radiography Practicum V
Reinforcement and broadening of routine and advanced procedures, portable skills and surgical procedures acquired in earlier practicum. Operation and maintenance of radiographic equipment. Correct use of radiation protection devices. Evaluation of radiographic images. Ethical and professional job-related skills. Prerequisites: Admission to the Medical Radiography Program.

DMI215  2 Credits  2 Periods
Radiation Biology
Provide an overview of the principles of the interaction of radiation with living systems. Radiation effects on molecules, cells, tissues and the body as a whole. Factors affecting biological response including acute and chronic effects of radiation. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies and health care organizations. Prerequisites: Admission to the Medical Radiography Program.

DMI216  1 Credit  1 Period
Radiographic Image Evaluation II
Systematic procedure for evaluating radiographic images to determine their diagnostic quality. Prerequisites: Admission to the Medical Radiography Program.

DMI220  3 Credits  3 Periods
Sectional Anatomy
Sectional human anatomy in the transverse, sagittal and mid-sagittal coronal planes. Emphasis on the brain, neck, chest, abdomen and pelvic cavity. Prerequisites: Admission to the Medical Radiography Program.
DMI221     LEC 2 Credits   LEC 2 Periods   /   LAB 0.5 Credits   LAB 1.5 Periods  
**Advanced Digital Imaging**
Equipment used in digital imaging, including image intensification, calculation of minification, brightness gain, viewing, and storage systems. Components and operating principles related to digital fluoroscopy. Principles, physics, and instrumentation related to digital radiography. Prerequisites: Admission to the Medical Radiography Program.

DMI222     1 Credit   1 Period  
**Advanced Radiologic Pathology**
Application of terminology related to the disease process and the general principles of disease. Standard precautions - disease control measures to include education, asepsis, isolation, and communicability. Radiographic appearances of specific forms of pathology. Symptoms, prognosis, and diagnosis of specific forms of pathology. Prerequisites: Admission to the Medical Radiography Program.

DMI223     1 Credit   1 Period  
**Introduction to Computed Tomography**
Overview of the principles and operation of computed tomography (CT) scanner. Content includes history, physics processes, instrumentation components, imaging acquisition, reconstruction and display for computed tomography imaging. Prerequisites: Admission to the Medical Radiography Program.

DMI224     5 Credits   31 Period  
**Radiography Practicum VI**
Reinforcement and broadening of routine and advanced procedures, portable skills and surgical procedures acquired in earlier practicum. Operation and maintenance of radiographic equipment. Correct use of radiation protection devices. Evaluation of radiographic images. Ethical and professional job-related skills. Prerequisites: Admission to the Medical Radiography Program.

DMI226     1 Credit   1 Period  
**Radiographic Image Evaluation III**
Systematic procedure for evaluating radiographs to determine their diagnostic quality. Prerequisites: DMI216.

DMI227     1 Credit   1 Period  
**Radiography Seminar**
Use of skills and resources for reviewing content areas examined by the American Registry of Radiologic Technologists (ARRT). Professional job-seeking procedures and development of resume. Prerequisites: Admission to the Medical Radiography Program.

DMI228     1 Credit   6 Periods  
**Radiography Practicum VII**
Advanced imaging procedures. Prerequisites: Permission of Instructor and acceptance by sponsoring clinical institution.

**DIAGNOSTIC MEDICAL SONOGRAPHY (DMS)**

DMS100     0.5 Credits   0.5 Periods  
**Introduction to Diagnostic Medical Sonography**
Course Listings 2017-2018

**DMS101  1 Credit 3 Periods**

**Patient Care in Diagnostic Sonography**

Safety procedures for the hospitalized patient. Transfer, moving and positioning techniques. Patient assessment methods and procedures. Protection of drains, tubes, intravenous lines, and infusion pumps. Gloving, gowning, and sterile procedures. Safe use and application of sonography equipment. Professional behavior and responsibility of the sonographer in the diagnostic imaging lab. Prerequisites: None.

**DMS110  1 Credit 1 Period**

**Introduction to Diagnostic Sonography**

History of ultrasound including medical applications. Job description including opportunities, training and curriculum. Licensure, use and maintenance of sonography equipment, roles, rules and responsibilities of Diagnostic Medical Sonographers in the workplace. Prerequisites: Admission to Diagnostic Medical Sonography program.

**DMS120  3 Credits  3 Periods**

**Ultrasound Imaging: Abdominal Procedures I**

Ultrasound evaluation of upper abdominal organs. Normal and pathologic ultrasound appearances of the liver, gallbladder, pancreas, biliary tree, spleen, adrenal glands, kidneys, major vascular structures, and lymph nodes. Prerequisites: Admission to Diagnostic Medical Sonography program.

**DMS121  3 Credits  3 Periods**

**Ultrasound Imaging: Abdominal Procedures II**

Ultrasound evaluation of upper abdominal organs. Normal and pathologic ultrasound appearances of the liver, gallbladder, pancreas, biliary tree, spleen, adrenal glands, kidneys, major vascular structures, lymph nodes, and small parts. Prerequisites: Admission to Diagnostic Medical Sonography program.

**DMS130  4 Credits  4 Periods**

**Ultrasound Imaging: OB/GYN Procedures**

Ultrasound evaluation of the female pelvis, reproductive system, and fetus. Diagnostic tests related to the ultrasound procedure. Normal and pathologic ultrasound appearances of the fetus, placenta, uterus, cervix, fallopian tubes, and ovaries. Prerequisites: Admission to Diagnostic Medical Sonography program.

**DMS140  2 Credits  2 Periods**

**Ultrasound Case Studies: Part I**

Medical terminology, anatomy, physical principles, and techniques for determining proper technical factors. Anatomical variants, normal, and pathological sonographic findings in diagnostic ultrasound case presentations. Prerequisites: Admission to Diagnostic Medical Sonography program.

**DMS145  1 Credit  1 Period**

**Clinical Pathology for Diagnostic Imaging**

Disease etiology and impact on the human body. Physiologic effects of disease on body systems. Role of Diagnostic Medical Imaging (DMI) modalities in the diagnosis and treatment of selected disease processes. DMI as part of the health care team. Cultural implications in the prevention and treatment of disease. Prerequisites: Admission to Diagnostic Medical Sonography program.

**DMS150  2 Credits  2 Periods**

**Sonographic Principles and Instrumentation**

Sonographic principles and instrumentation necessary for the performance of diagnostic sonographic examinations. Quality control materials and procedures. Biological effects of ultrasound energy. Prerequisites: Admission to Diagnostic Medical Sonography program.
DMS151  2 Credits  2 Periods  
**Sonographic Principles and Instrumentation II**  
Sonographic principles and instrumentation necessary for the performance of diagnostic sonographic examinations using Hemodynamics and Doppler imaging. Identifying and reducing image artifacts. Quality control materials and procedures. Biological effects of ultrasound energy. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS155  1 Credit  5 Periods  
**Clinical Practicum I**  
Observation of correct hospital policies and procedures in the clinical setting. Health delivery systems to include private, for profit, not-for-profit, and government. The job description, duties, and functions of the sonographer. Career opportunities in ultrasound. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS161  1 Credit  5 Periods  
**Clinical Practicum II-AA**  
Technical and professional aspects of diagnostic ultrasound in a hospital or clinical setting at the beginner level. Hospital procedures and policies. Observation, assistance, and performance of clerical, patient care, and sonographic duties under strict supervision. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS162  2 Credits  10 Periods  
**Clinical Practicum II-AB**  
Development of technical and professional aspects of diagnostic ultrasound in a hospital or clinical setting at the beginner level. Hospital procedures and policies. Continued observation, assistance and performance of clerical, patient care and sonographic duties under strict supervision. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS163  3 Credits  15 Periods  
**Clinical Practicum II-AC**  
Continued development of technical and professional aspects of diagnostic ultrasound in a hospital or clinical setting at the beginner level. Hospital procedures and policies. Ongoing observation, assistance, and performance of clerical, patient care, and sonographic duties under strict supervision. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS171  2 Credits  10 Periods  
**Clinical Practicum III-AA**  
Technical and professional aspects of diagnostic ultrasound in a hospital or clinical setting at the advanced beginner level. Reinforcement and broadening of knowledge base related to hospital procedures and policies. Observation, assistance and performance of patient care and sonographic duties under moderate supervision. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS172  2 Credits  10 Periods  
**Clinical Practicum III-AB**  
Continued technical and professional aspects of diagnostic ultrasound in a hospital or clinical setting at the advanced beginner level. Ongoing reinforcement and broadening of knowledge base related to hospital procedures and policies. Continued observation, assistance and performance of patient care and sonographic duties under moderate supervision. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS210  2 Credits  2 Periods  
**Concepts of Vascular Imaging**  
Vascular physics and terminology. Application of imaging concepts to arterial, venous, and cerebrovascular ultrasound. Normal, abnormal and pathologic states of human vascular anatomy. Review and demonstration of selected scanning protocols to include extremity and cerebral vascular systems. Prerequisites: Admission to Diagnostic Medical Sonography program.
DMS225 1 Credit 1 Period
High Risk Obstetric/Gynecology Sonography
Sonographic overview of the female reproductive system. High risk intervention and tests related to sonography. Normal and abnormal sonographic presentations of the uterus and fetus in pregnancy. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS230 1 Credit 1 Period
Introduction to Echocardiography
Anatomy and physiology of the heart. Normal, abnormal and pathologic states of cardiac anatomy as it relates to diagnostic sonography. Demonstration of scanning techniques in echocardiography. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS235 1 Credit 1 Period
Ultrasound Breast Imaging
Ultrasound imaging of the breast. Includes terminology, technique, physics and instrumentation. Breast anatomy, physical examination and procedure findings. Pathology and correlation with other imaging modalities. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS240 2 Credits 2 Periods
Ultrasound Case Studies: Part II
Medical terminology, anatomy, physical principles, and technology for determining proper technical factors. Anatomical variants, normal, and pathological sonographic findings in diagnostic ultrasound case presentations. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS241 2 Credits 2 Periods
Ultrasound Case Studies: Part III
Medical terminology, anatomy, physical principles, and technology for determining proper technical factors. Anatomical variants, normal, and pathological sonographic findings in diagnostic ultrasound case presentations. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS245 1 Credit 1 Period
Neurosonography
Neuroanatomy and neurosonography of the brain and spinal cord. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS250 2 Credits 2 Periods
Musculoskeletal Sonography and Small Parts
Normal sonographic human anatomy in sagittal, transverse, oblique, coronal planes. Emphasis on musculoskeletal imaging and small parts. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS261 2 Credits 10 Periods Clinical Practicum IV-AA
Technical and professional aspects of diagnostic ultrasound in a hospital or clinical setting at the intermediate level. Reinforcement and broadening of knowledge base related to hospital procedures and policies. Observation, assistance and performance of patient care and sonographic duties under limited supervision. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS262 3 Credits 15 Periods Clinical Practicum IV-AB
Development of technical and professional aspects of diagnostic ultrasound in a hospital or clinical setting at the intermediate level. Ongoing reinforcement and broadening of knowledge base related to hospital procedures and policies. Continued observation, assistance and performance of patient care and sonographic duties under limited supervision. Prerequisites: Admission to Diagnostic Medical Sonography program.
DMS263  2 Credits  10 Periods
Vascular Clinical Practicum I
Technical and professional aspects of diagnostic vascular ultrasound in a hospital or clinical setting at the intermediate level. Reinforcement and broadening of knowledge base related to hospital procedures and policies. Observation, assistance and performance of patient care and vascular sonographic duties under limited supervision. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS270  1 Credit  5 Periods
Clinical Practicum V-AA
Technical and professional aspects of diagnostic ultrasound in a hospital or clinical setting at the advanced level. Clinical diagnostic experiences in routine/high risk obstetrics, pelvic, vascular, abdominal and small parts scanning. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS271  2 Credits  10 Periods
Clinical Practicum V-AB
Development of technical and professional aspects of diagnostic ultrasound in a hospital or clinical setting at the advanced level. Continued opportunity for clinical diagnostic experiences in routine/high risk obstetrics, pelvic, vascular, abdominal and small parts scanning. Focus on progression to independent level of function. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS272  2 Credits  10 Periods
Clinical Practicum V-AC
Culminating clinical practice course with application of theoretical and practical concepts related to diagnostic ultrasound. Emphasis on independent performance of all clinical diagnostic procedures including routine/high risk obstetrics, pelvic, vascular, abdominal and small parts scanning. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS273  2 Credits  10 Periods
Vascular Clinical Practicum II
Development of technical and professional aspects of diagnostic vascular ultrasound in a hospital or clinical setting at the advanced level. Continued opportunity for clinical diagnostic experiences in routine/complex vascular scanning. Focus on progression to independent level of function. Prerequisites: Admission to Diagnostic Medical Sonography program.

DMS281  1 Credit 1 Period
Ultrasound Registry Preparation Seminar: Physics and Instrumentation
Intensive review of major content measured in the American Registry for Diagnostic Medical Sonography certification examination. Physics and instrumentation in ultrasound technology. Prerequisites: None.

DMS282  1 Credit 1 Period
Ultrasound Registry Preparation Seminar: Abdominal and Small Parts Imaging
Intensive review of major content measured in the American Registry for Diagnostic Medical Sonography certification examination. Specialties of abdominal and small parts imaging. Prerequisites: None.

DMS283  1 Credit 1 Period
Ultrasound Registry Preparation Seminar: Obstetrics, Gynecology, and Neonate
Intensive review of major content measured in the American Registry for Diagnostic Medical Sonography certification examination. Specialties of obstetrics, gynecology, and neonate imaging. Prerequisites: None.
Course Listings 2017-2018

**DMS284  1 Credit  1 Period**  
**Ultrasound Registry Preparation: Vascular Imaging**  
Anatomy and physiology of the vascular system. Testing parameters and methods for vascular examinations. Scan protocol for sonographic evaluation of head and neck, extremities, upper abdomen and pelvis vasculature. Interpret scans and special cases. Prerequisites: None.

**DMS285  2 Credits  2 Periods**  
**Intermediate Vascular Technology**  
Sonographic evaluation of the upper and lower peripheral vascular system and the cerebrovascular system. Normal and pathologic sonographic imaging and Doppler evaluation of the venous, arterial systems of the upper and lower extremities, and intra and extracranial vessels. Prerequisites: Admission to Diagnostic Medical Sonography program.

**DMS286  2 Credits  2 Periods**  
**Advanced Vascular Technology**  
Vascular evaluation of the abdominal viscera and small parts. Normal and pathologic sonographic imaging and Doppler evaluation of the venous and arterial systems of the abdominal organs and small body parts. Capabilities, limitations, protocols and techniques required for diagnosis of the systemic, hepatoportal, and collateral systems, and extremities. Perioperative mapping of the radial, mammary, and epigastric arteries. Prerequisites: Admission to Diagnostic Medical Sonography program.

**DMS290  4 Credits  4 Periods**  
**Advanced Medical Sonography Procedures**  
Presentation of advanced topics in sonography including state of the art equipment. Superficial organs, heart and vessels, neurosonography, musculoskeletal, intraoperative, and interventional procedures. Aseptic technique, medical-legal and patient record keeping and image acquisition for performance of advanced sonographic examinations. Prerequisites: Admission to Diagnostic Medical Sonography program.

**DMS295  2 Credits  3.5 Periods**  
**Stress Echocardiography**  
Anatomy and physiology of the heart. Normal and stressed states of cardiac anatomy as it relates to diagnostic sonography. Performance of stress echocardiography exam. Pharmacological agents used in stress echocardiography. Prerequisites: Completion of echocardiography program, or Registered Diagnostic Cardiac Sonographer (RDCS), or Registered Diagnostic Medical Sonographer (RDMS), or Registered Cardiac Sonographer (RCS) credentials.

**ECONOMICS (ECN)**

**ECN211  3 Credits  3 Periods**  
**SUN# 2201 Macroeconomic Principles**  
A descriptive analysis of the structure and function of the American economy. Emphasis on basic economic institutions and factors that determine national income and employment levels. Consideration is given to the macroeconomic topics of national income, unemployment, inflation and monetary and fiscal policies. Prerequisites: None.

**ECN212  3 Credits  3 Periods**  
**SUN# 2202 Microeconomic Principles**  
Microeconomic analysis including the theory of consumer choice, price determination, resource allocation and income distribution. Includes non-competitive market structures such as monopoly and oligopoly, and the effects of government regulation. Selected issues are examined. Prerequisites: None.
EDUCATION (EDU)

EDU221 3 Credits  3 Periods
Introduction to Education
Overview of the historical, political, economic, social, and philosophical factors that influence education and make it so complex. Opportunity for students to assess their interest and suitability for teaching. Requires minimum of 30 hours of field experience in elementary or secondary classroom environment. Prerequisites: None.

EDU230 3 Credits  3 Periods
Cultural Diversity in Education
Examination of the relationship of cultural values to the formation of self-concept and learning styles. Examination of the role of prejudice, stereotyping and cultural incompatibilities in education. Emphasis on teacher preparation (preservice and/or inservice) to offer an equal educational opportunity to students of all cultural groups. Prerequisites: None.

EDU250 3 Credits  3 Periods
Teaching and Learning in the Community College
The history, functions, organization and current issues in the community/junior college with emphasis on the Arizona community colleges. Includes focus on the design and practice of effective community college teaching and learning with special emphasis on the Maricopa County Community College District. Prerequisites: None.

EDU291 3 Credits  3 Periods
Children’s Literature
Review of folk and modern literature from a variety of world cultures, including application of literary criteria to folk and modern literature for children. Prerequisites: None

ELECTRICAL TECHNOLOGY (ELC)

ELC103 3 Credits  3 Periods
Electrical/Mechanical Calculations
Fundamental calculations in arithmetic, algebra, trigonometry, descriptive geometry, economics, and probability. Application of theories and formulas to solve design, installation, maintenance, and troubleshooting problems for industrial, commercial, and residential electrical and mechanical systems.

ELC105 3 Credits  3 Periods
Electricity for Industry

ELC105LL 1 Credit 3 Periods
Electricity for Industry Lab
Diagramming and assembling series circuits, parallel circuits and wiring relays, thermostats, switches and lights. Electrical readings on compressors. Emphasis on safety. Prerequisites: None. Corequisites: ELC/FAC/HVA105 or permission of instructor.

ELC115 3 Credits  3 Periods
Motors, Controls and Wiring Diagrams
Principles of three-phase motors. Wye and Delta wiring. Calculation of motor current draw. Sequence of operation, wiring diagram and electrical components associated with industrial equipment. Procedures for evaluating electrical problems. Safety stressed. Prerequisites: ELC105 FAC105 HVA105 or permission of department or ELC105 FAC105 HVA105LL or permission of department Corequisites: ELC115LL FAC115LL HVA115LL or permission of Department or Division
ELC115LL  1 Credit  3 Periods
Motors, Controls and Wiring Diagrams Lab
Drawing wiring diagrams, wiring systems and checking electrical circuits. Troubleshooting electrical problems of three-phase motors and controls. Safety stressed. Prerequisites: ELC105 FAC105 HVA105 or permission of department or ELC105 FAC105 HVA105LL or permission of department Corequisites: ELC115 FAC115 HVA115 or permission of Department or Division

ELC119  3 Credits  3 Periods
Concepts of Electricity and Electronics
Principles of electric circuits, magnetism and electromagnetism including basic motors and generators. Use of basic measuring instruments. Includes an overview of electronics in the modern world. Prerequisites: None.

ELC120  3 Credits  3 Periods
Solid State Fundamentals
Theory of operation of semi-conductor devices, component and system construction, operation, installation, and service. Specific and practical applications in relations to temperature, light, speed and pressure control. Includes amplifiers, power supplies, integrated circuits, fiberoptics, and safety. Prerequisites: None.

ELC123  3 Credits  3 Periods
Residential Electrical Wiring and Codes
Analyze and interpret residential drawings, local codes and specific sections of the National Electrical Code. Includes needed materials derived from plans and specifications and the proper procedures for wiring a residence. Prerequisites: None.

ELC124  3 Credits  3 Periods
Industrial Electrical Wiring and Codes
In-depth study of industrial electrical power techniques of low, medium and high voltage systems. Selection of electrical distribution components, single and three phase systems, one- line diagrams, motors, transformers, protective devices, power factor, demand factor, conductor selection, system planning, grounding and energy management. Prerequisites: ELC123 or permission of instructor.

ELC125  3 Credits  3 Periods
Commercial Electrical Wiring and Codes
In-depth study of commercial electrical power distribution techniques of low voltage (under 600 volt) systems. Selection of electrical distribution components, single and three systems, on-line diagrams and conductor selection. System grounding, planning and over current protection. Prerequisites: ELC123 or permission of instructor.

ELC144  2 Credits  2 Periods
Basic Automated Systems Using Programmable Controllers
Principles of automated control systems. Principles and application of programmable controllers: Control functions, hardware, logic, programming, documentation, troubleshooting, start-up, maintenance and operation. Commercial and industrial control applications. Introduction to commercial programmable controllers. Prerequisites: Permission of instructor.

ELC163  3 Credits  3 Periods
Electrical Codes and Inspection II
National Electrical Code (NEC) requirements for hazardous locations, special use and occupancies. Commercial, industrial and service locations. Fiber optics, communications and other state-of-the-art applications. Local inspection practices and requirements. Prerequisites: ELC162.
ELC164  3 Credits  3 Periods  
**Grounding and Bonding**
Grounding and bonding terminology including National Electric Code (NEC) Articles 250. Interpreting code requirements for grounding and bonding. Code requirements for field installation. Prerequisites: None.

ELC210  3 Credits  3 Periods  
**AC Machinery and DC Machinery**
Principles and operation of AC and DC motors, generators, and alternators. Includes single-phase motors along with induction, synchronous, and wound-rotor types of three-phase motors. DC motors including shunt-field, series field, wound rotor, permanent magnet, stepper and brushless types. Prerequisites: None.

ELC214  3 Credits  3 Periods  
**Servo Systems**
Introduction to Servo Systems usages and applications of servos, types of transducers used in servo systems, driver systems including motors, power amplifiers, and control amplifiers; rotary and velocity control systems; and resolvers, optical encoders, linear variable differential transformers, and linear position servo systems. Prerequisites: (FAC/HVA/ELC105 or ELC119) and (FAC/HVA186 or GTC185). Corequisites: ELC214LL.

ELC214LL  1 Credit  3 Periods  
**Servo Systems Lab**
Introduction to Servo Systems laboratory applications of servos, types of transducers used in servo systems, driver systems including motors, power amplifiers, and control amplifiers; rotary and velocity control systems; and resolvers, optical encoders, linear variable differential transformers, and linear position servo systems. Prerequisites: (HVA/FAC/ELC105 and HVA/FAC/ELC 105LL, or ELC119) and (FAC/HVA186 or GTC185). Corequisites: ELC214.

ELC217  3 Credits  3 Periods  
**Motor Controls**
Electrical symbols, line diagrams and logic. Contacts and starters, control devices, reversing circuits and power distribution systems. Magnetism and magnetic solenoids, reduced voltage starters, and circuits. Hand tools and safety procedures. Prerequisites: None.

ELC218  3 Credits  3 Periods  
**Variable Frequency Drives**
Principles and operation of frequency controlled AC motor drives, including current source inverters (CSI), variable voltage inverters (VVI) and pulse width modulated inverters (PWM). Heating, ventilation and air conditioning (HVAC) applications along with energy savings, motor pump sizing and torque load calculations. Prerequisites: Permission of instructor.

ELC219  4 Credits  6 Periods  
**Programmable Controllers**
Principles and applications of programmable logic controls (PLC’s). Numbering systems, control strategies, and ladder logic. Basic machine functions and operations to include programming, troubleshooting and maintenance. Application of PLC programming, operations and troubleshooting skills. Prerequisites: ELC/FAC/HVA105 and ELC/ FAC/ HVA115 and ELC119, or permission of instructor.

ELC298AA  1 Credit  1 Period  
**Special Projects**
Organized and tailored around the interests and needs of the individual student. Structured to provide an atmosphere of individualized research and study paralleled by professional expertise and guidance. Professional-type facilities and equipment are made available for student use. Allows the best aspects of independent study and individualized learning to be combined to maximize student development. Prerequisites: Permission of program director or instructor.
ELECTRICIAN: APPRENTICESHIP (ELA)

**ELA111 6 Credits 6 Periods**

**Construction Electricity I**
Introduction to the electrical construction trade incorporating safety awareness, introductory concepts in electrical theory, math review, solving simple equations, ratios, percentages and proportions. Study of the National Electrical code (NEC), practical use of materials and tools of the electrical construction trade. Basic splicing, anchoring, and fusing procedures; basic conduit bending calculations and installations, introduction to blueprint reading for electricians, rigging and lifting techniques. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

**ELA112 6 Credits 6 Periods**

**Construction Electricity II**
Introduction to the fundamentals electricity, basic direct current (DC) theory through advanced DC theory, advanced conduit fabrication, bending applications and calculations. Practical applications for wiring devices and conduit bending. Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.

**ELA113 3 Credits 3 Periods**

Introduction to National Electrical Code
Development, content, structure, and definitions in the National Electrical Code (NEC). Application of the NEC for proper and safe electrical installations and wiring methods.

**ELA123 6 Credits 6 Periods**

**Construction Electricity III**
American labor history, parliamentary procedures. Electrical theory of alternating current systems pertaining to inductance, and capacitance; use of alternating current (AC) and direct current (DC) meters, rectifiers and capacitors. Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.

**ELA124 6 Credits 6 Periods**

**Construction Electricity IV**
Transformers principles and applications in regards to use, connection, installation and safety related to transformer principles and applications including requirements specified by the National Electrical Code (NEC). Filters and power quality for electrical systems, direct current generation, application of test instruments for power quality, instrumentation, insulation testing and voice-data-video. Blueprint reading for electricians, commercial drawings, specifications, and schedules. Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.

**ELA125 3 Credits 3 Periods**

**National Electric Code I**
National Electrical Code (NEC) related to branch circuits, feeders, services, devices, conductors, raceways and cable assemblies. Electrical safety incorporating Occupational Safety and Health Association (OSHA) requirements and National Fire Protection Association (NFPA) 70E guidelines.

**ELA235 6 Credits 6 Periods**

**Advanced Construction Electricity I**
Safety on the job. Basic theoretical concepts; wiring systems; types of motors; advanced blueprint reading. Prerequisites: ELA124.

**ELA236 6 Credits 6 Periods**

**Advanced Construction Electricity II**
Motor Controls, types of motor controls, components, motor control circuitry, and installations of motor control components and circuitry: Instrumentation and process controls, theory of process controls, installation, calibration, and troubleshooting of instruments and control circuitry. Prerequisites: Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.
ELA238 3 Credits 3 Periods
National Electric Code II
National Electrical Code requirements for Grounding and bonding electrical installations. Continued study of electrical safety incorporating Occupational Safety and Health Association (OSHA) requirements and National Fire Protection Association (NFPA) 70E guidelines.

ELA246 3 Credits 3 Periods
National Electric Code III
National Electrical Code (NEC) requirements for special occupancies, conditions, and equipment. Calculations for conductor ampacities, conductor fill specific branch circuits. Installation and NEC requirements for Photovoltaic (PV) Systems

ELA247 6 Credits 6 Periods
Advanced Construction Electricity III
Leadership and motivation techniques for the electrical industry, digital electronics, Boolean algebra and logic gates. Power quality for electrical systems, distributed generation, information technologies sites, uninterruptable power supplies, and fuel cells. Torque theory and applications. National Electrical Code (NEC) related to over current protective devices (OCPDs), types, sizing, and ratings. Tape rules, fault current calculations and ratings, motor branch circuits and circuit/transformer protection. Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.

ELA248 6 Credits 6 Periods
Advanced Construction Electricity IV
Introduction to fire alarm systems, requirements, devices, wiring methods and applicable codes; fire alarm blueprints and specifications. Cables, cabling systems, terminations, grounding and bonding. Telecommunications Industry Association/Electronic Industries Alliance (TIA/EIA) standards. Hazardous location introduction and history, area classification, protection techniques, equipment, wiring requirements, and special occupancies. National Electrical Code (NEC) updates, installation of emergency and standby systems over 600 volts, remote-control, signaling, and power-limited circuit, specific raceways and cable tray systems, in-floor, multi-outlet assemblies, changes and update to the NEC. Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.

ELECTRONEURODIAGNOSTIC TECHNOLOGY (EEG)
EEG116 3 Credits 3 Periods Biomedical Electronic Technology II
Electronic concepts, electrical connections including grounding, and electrical and patient safety as applied to medical electronic technology and monitoring applications within the fields of electroneurodiagnostic technology and polysomnography technology. Prerequisites: Admission to the Electroneurodiagnostics Technology program or the Polysomnographic Technology program.

EEG130 4 Credits 4 Periods
Introduction to EEG
Introduction to EEG (Electroneurodiagnostic) theory, with emphasis on instrumentation, testing protocol and major disorders for which EEG is diagnostically useful. Introduction and hands on experience with the 10/20 International Electrode Application System. Prerequisites: Admission to the Electroneurodiagnostics Program or admission to Polysomnographic Technology Program.

EEG140 LEC 1 Credit LEC 1 Period / LAB 1 Credit LAB 3 Periods
Basic Electroneurodiagnostic Skills
Theory, practical application, and clinical procedures germane to the electroneurodiagnostic (EEG) department. Stress on hospital orientation, job competency, professional growth, and interpersonal communications with staff and patients. Prerequisites: Admission to the Electroneurodiagnostics Program.

EEG200 3 Credits 18 Periods
**Clinical Rotation I**
Clinical application of Electroneurodiagnostic (EEG) skills and knowledge acquired during required program classroom and lab courses. Full supervision of tests performed with progression to independent testing. Prerequisites: Admission to the Electroneurodiagnostics Program.

**EEG201**  LEC 3 Credits  LEC 3 Periods /  LAB 1 Credit  LAB 3 Periods

**Intermediate EEG**
Expanded study of neurological and neurophysiological medicine. Studies in cerebrovascular and central nervous system lesions, metabolic and infectious disease, trauma, congenital and pediatric disorders. Extensive record review. Normal and abnormal Electrocardiograms (EKG) patterns related to Electroencephalogram (EEG) testing. Prerequisites: Admission to the Electroneurodiagnostics Program.

**EEG205**  LEC 1 Credit  LEC 1 Period /  LAB 1 Credit  LAB 3 Periods

**Applied Evoked Potentials and Nerve Conduction Studies**
Theoretical and practical aspects of Evoked Potentials (EP), mainly Visual Evoked Response (VER), Brain Auditory Evoked Response (BAER), and Somatosensory Evoked Potential (SSEP) tests. EP instrumentation, recording techniques and data analysis of electrical activity of the nervous system elicited by using selected physical stimuli (evoked potentials) and concepts of signal averaging. (in accordance with the most recent American Clinical Neurophysiology Society (ACNS) guidelines on Evoked Potentials.) Prerequisites: Admission to the Electroneurodiagnostics Program.

**EEG206**  LEC 1 Credit  LEC 1 Period /  LAB 1 Credit  LAB 3 Periods

**Advanced EEG**

**EEG207**  4 Credits  4 Periods

**Electroneurodiagnostic Record Review**
Normal and abnormal pattern review for adults and pediatric patients, Nerve Conduction Velocity (NCV) pattern recognition and review, special procedures, Long Term Monitoring (LTM), and Intraoperative Monitoring (IOM) pattern recognition and review. Prerequisites: Admission to the Electroneurodiagnostics (END) Technology Program.

**EEG210**  3 Credits  3 Periods

**Applied Neurophysiology**
Introduction to central nervous system. Emphasis on conduction pathways, anatomy, and blood supply. Survey of neurotransmitters, pharmacology and current research. Prerequisites: Admission to the Electroneurodiagnostic Technology program or Polysomnographic Technology program.

**EEG211**  3 Credits  18 Periods

**Clinical Rotation II**
Clinical application of Electroneurodiagnostic (EEG) skills and knowledge acquired during didactic courses and clinical practicums. Full supervision of tests performed with progression to independent testing. Prerequisites: Admission to the Electroneurodiagnostics Program.

**EEG220**  3 Credits  18 Periods

**Clinical Rotation III**
Advanced clinical application of Electroneurodiagnostic (EEG) skills and knowledge acquired during didactic courses and clinical practicums. Full supervision of tests performed with progression to independent testing. Prerequisites: Admission to the Electroneurodiagnostics Program.
EEG282AA      1 Credit 1 Period
Volunteerism for Electroneurodiagnostic Technology: Service Learning Experience
Service learning field experience within private/public agencies, educational institution, and citizen volunteer groups. Prerequisites: Permission of Instructor.

ELECTRONIC TECHNOLOGY (ELE)

ELE101       3 Credits       3 Periods
Beginning Algebra for Technology
Basic axioms of algebra, linear equations in one or two variables, operations on polynomials, rational expressions, simultaneous solutions of linear equations, laws of exponents. Prerequisites: Score of 19 on Technical Mathematics placement test, or Grade of “C” or better in GTC/MET107, or MAT082, or equivalent.

ELE105       5 Credits       5 Periods
Algebra-Trigonometry for Technology
Topics from college algebra and trigonometry essential to the study of electronics; polynomials, exponential and logarithmic functions, complex numbers, and trigonometric functions and identities. Prerequisites: A grade of “C” or better in either ELE101, or MAT090, MAT091, or MAT092, or equivalent, or score of 16 on Technical Algebra placement test.

ENGLISH (ENG)

ENG071       3 Credits       3 Periods
Preparatory Academic Writing I
Emphasizes preparation for college level composition and related reading tasks with a focus on communicating through complete, grammatically correct writing, organized to communicate a central idea. Prerequisites: Appropriate writing placement test score or permission of Department or Division.

ENG081       3 Credits       3 Periods
Preparatory Academic Writing II
Emphasizes preparation for college-level composition and related reading tasks with a focus on critical writing, reading, and thinking skills and processes. Prerequisites: Appropriate writing placement test score, or a grade of “C” or better in ENG071 or ESL077, or permission of Department or Division.

ENG091       3 Credits       3 Periods
Preparatory Academic Writing III
Emphasizes preparation for first year composition with a focus on critical writing, reading, and thinking skills and processes at an increased level of academic complexity. Prerequisites: Appropriate writing placement test score, or a grade of “C” or better in ENG081 or ESL087, or permission of Department or Division. Prerequisites: Appropriate writing placement test score, or a grade of “C” or better in ENG081 or ESL087, or permission of Department or Division.

ENG101       3 Credits       3 Periods
SUN# ENG1101 First-Year Composition
Emphasis on rhetoric and composition with a focus on expository writing and understanding writing as a process. Establishing effective college-level writing strategies through four or more writing projects comprising at least 3,000 words in total. Prerequisites: Appropriate English placement test score or (a grade of “C” or better in ENG091).

ENG102       3 Credits       3 Periods
First-Year Composition
Emphasis on rhetoric and composition with a focus on persuasive, research-based writing and understanding writing as a process. Developing advanced college-level writing strategies through three or more writing projects comprising at least 4,000 words in total. Prerequisites: ENG101 with a grade of “C” or better.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Periods</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>ENG111</td>
<td>3</td>
<td>3</td>
<td>Technical and Professional Writing</td>
<td>Covers analyzing, planning, organizing, researching, and writing correspondence, reports, and presentations for specific work-related audiences. Includes integrating data and graphics into work-related documents and presentations. Prerequisites: ENG101 with a grade of “C” or better, or permission of instructor.</td>
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<tr>
<td>ENG217</td>
<td>3</td>
<td>3</td>
<td>Personal and Exploratory Writing</td>
<td>Using writing to explore one’s self and the world one lives in; emphasis on journal writing as a source and inspiration for public writing. Prerequisites: ENG101 or ENG107 or equivalent.</td>
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<tr>
<td>ENG200</td>
<td>3</td>
<td>3</td>
<td>Reading and Writing About Literature</td>
<td>Emphasis on critical analysis of various genres of literature; includes study of necessary terminology, introduction to methods of literary criticism, and practice in interpretation and evaluation. Requisites: Prerequisites: ENG102</td>
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<tr>
<td>ESL010</td>
<td>3</td>
<td>3</td>
<td>English as a Second Language I: Grammar</td>
<td>First level of English as a Second Language (ESL). Emphasis on basic conversational skills, pronunciation, vocabulary building and grammar. Some reading and sentence level writing. Credits (P) or no Credits (Z). Standard grading available according to procedures outlined in the catalog. May be repeated for a maximum of six (6) Credits. Prerequisites: Appropriate ESL placement test score.</td>
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<tr>
<td>ESL011</td>
<td>3</td>
<td>3</td>
<td>English as a Second Language I- Listening and Speaking</td>
<td>Emphasis on listening and speaking skills involving survival skills. Asking and answering questions related to work, shopping, and personal safety. May be repeated for a maximum of six Credits. Prerequisites: Appropriate ESL placement test score or ESL002.</td>
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<td>ESL020</td>
<td>3</td>
<td>3</td>
<td>English as a Second Language II: Grammar</td>
<td>Second level of English as a Second Language (ESL). Continued emphasis on conversational skills, pronunciation, vocabulary building and grammar with some reading and sentence level writing. Credits (P) or no Credits (Z). Standard grading available according to procedures outlined in catalog. May be repeated for a maximum of six (6) Credits. Prerequisites: Appropriate ESL placement test score, or a grade of “P” or “C” or better in ESL010, or (ESL010AA, ESL010AB, and ESL010AC).</td>
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<tr>
<td>ESL021</td>
<td>3</td>
<td>3</td>
<td>English as a Second Language II-Listening and Speaking</td>
<td>Emphasis on listening and speaking skills involving social exchange. Asking and answering questions, using tag questions. Practice with question and answer patterns. Polite questions and responses. May be repeated for a maximum of six (6) Credits. Prerequisites: Appropriate ESL placement test score or ESL010 or ESL011 or ESL012 or RDG010.</td>
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<tr>
<td>ESL030</td>
<td>3</td>
<td>3</td>
<td>English as a Second Language III: Grammar</td>
<td>Third level of English as a Second Language (ESL). Emphasis on sentence structure and paragraph building. Extensive grammar study and writing practice. Credits (P) or no Credits (Z). Standard grading available according to procedures outlined in the catalog. May be repeated for a maximum of six (6) Credits. Prerequisites: Appropriate ESL placement test score, or a grade of “P” or “C” or better in ESL020, or (ESL020AA, ESL020AB, and ESL020AC).</td>
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</table>
ESL031  3 Credits  3 Periods
**English as a Second Language III-Listening and Speaking**
Emphasis on listening and speaking skills related primarily to the academic environment. Asking questions, working in small groups, using college resources, informal oral presentation. May be repeated for a maximum of six (6) Credits. 
Prerequisites: Appropriate ESL placement test score or ESL020 or ESL021 or ESL022 or RDG020.

ESL032  3 Credits  3 Periods
**ESL III-Writing with Oral Practice**
Emphasis on complex sentence patterns in writing and speech. Introduction to the prewriting and writing process in a college setting. May be repeated for a maximum of six (6) Credits. Prerequisites: Appropriate ESL course placement score, or a grade of “C” or better in ESL022, or permission of instructor.

ESL040  3 Credits  3 Periods
**English as a Second Language IV: Grammar**
Fourth level of English as a Second Language (ESL). Continued emphasis on sentence structure and paragraph building. Extensive grammar study and writing practice. Credits (P) or no Credits (Z). Standard grading available according to procedures outlined in catalog. May be repeated for a maximum of six (6) Credits. Prerequisites: Appropriate ESL placement test score, or a grade of “P” or “C” or better in ESL030, or (ESL030AA, ESL030AB, and ESL030AC).

ESL041  3 Credits  3 Periods
**English as a Second Language IV: Listening and Speaking**
Emphasis on academic skills. Listening to lectures, notetaking, peer interaction, accessing and using media resources, formal oral presentations. May be repeated for a maximum of six (6) Credits. Prerequisites: Appropriate ESL placement test score or ESL030 or ESL031 or ESL032 or RDG030.

ESL042  3 Credits  3 Periods
**ESL IV-Writing with Oral Practice**
Emphasis on paragraph writing and oral recitation of complex sentences and paragraphs. Introduction to the prewriting and writing process for short essays. May be repeated for a maximum of six (6) Credits. Prerequisites: Appropriate ESL course placement score, or a grade of “C” or better in ESL032, or permission of instructor.

ESL049  3 Credits  3 Periods
**General Vocational English as a Second Language**
General English speaking, listening, reading, and writing skills needed for use at work. Prerequisites: Appropriate ESL placement test score, or a grade of “C” or better in ESL010, or (ESL010AA, ESL010AB, and ESL010AC), or permission of instructor.

ESL050  3 Credits  3 Periods
**Review Grammar for ESL**
Review of grammatical concepts for ESL (English as a Second Language) students who have some previous experience in reading and writing English. Appropriate for students who want to practice sentence skills in English. May be repeated for a total of six (6) Credits. Prerequisites: Appropriate ESL course placement score, or a grade of “C” or better in ESL040, or permission of instructor.

ESL051  3 Credits  3 Periods
**Pronunciation Improvement for ESL Speakers**
Individualized pronunciation practice and drills for English as a second language (ESL) speakers. May be repeated for a maximum of six (6) Credits. Prerequisites: Appropriate ESL course placement score, or a grade of “C” or better in (ESL020 or ESL021 or ESL022 or RDG020), or permission of instructor.
ESL054 3 Credits 3 Periods
American Culture
Reading and writing about American culture including history, institutions and sports, and entertainment.
Prerequisites: Appropriate ESL placement test score, or a grade of C or better in ESL040, or (ESL040AA, ESL040AB, and ESL040AC), or RDG040, or permission of instructor.

ESL067 3 Credits 3 Periods
Basic Writing Skills for English as a Second Language
Emphasis on basic writing skills in sentences and short paragraphs using correct, clear, and idiomatic English.
Prerequisites: Appropriate English or ESL placement score, or ESL040, or ESL042, or permission of department chair.

ESL077 3 Credits 3 Periods
Preparatory Academic Writing I for ESL
Emphasis on basic Standard English speaking and writing skills. Focus on essential idiomatic grammar in developing effective sentence-level speaking and writing strategies. Prerequisites: Appropriate English or ESL placement score or permission of department or division.

ENGLISH HUMANITIES (ENH)

ENH110 3 Credits 3 Periods
Introduction to Literature
Introduction to international literature through various forms of literary expression; e.g., poetry, drama, essay, biography, autobiography, short story, and novel. Provides a global overview of literature with special emphasis on diverse cultural contributions of women, African Americans, Asian Americans, Hispanic Americans, and Native Americans. Prerequisites: None.

ENH190 3 Credits 3 Periods
Introduction to the US Ethnic Literature
Introduction to the US ethnic literatures of African Americans, Arab Americans, Asian Americans, Latinas/os, Native Americans, Mixed Race, and other emerging ethnic groups through various expressions. Examines the interconnections of the various experiences of racialized groups living in the US. Provides ethnic US literature a global context through study of the interconnections with the literatures of Africa, Asia, Latin America, and Oceania. Focus on literary production of at least four specific US ethnic groups and relevant international literatures. Prerequisites: or Corequisites: ENG101 or ENG107.

ENH251 3 Credits 3 Periods
Mythology
Deals with the myths and legends of civilizations with the greatest influence upon the development of the literature and culture of the English speaking people, and compares those myths with myths from other cultures. Prerequisites: None.

ENH254 3 Credits 3 Periods
Literature and Film
Presents works of literature and their film versions and analyzes distinguishing techniques of each medium. Prerequisites: ENG101, or ENG107, or equivalent.

ENH255 3 Credits 3 Periods
Contemporary U.S. Literature and Film
Strengths and weaknesses of literature and film. Challenges of adapting literature to film. Addressing racial, ethnic, gender, class and religious differences between cultures and mediums. Use of narrative in each medium and how it translates various cultural values and assumptions. Specific genres present in literature and film. Cultural metaphors and symbols used in literature and film. Prerequisites: ENG101.
ENH260 3 Credits 3 Periods
Literature of the Southwest
Investigates major themes in Southwestern American literature including the Western myth, minority roles in the region's literature, control of nature versus primacy of nature, and growth. Both prose and poetry are examined with an emphasis on contemporary Southwestern writing. Prerequisites: None.

ENH280 3 Credits 3 Periods
Topics in American Literature
Exploration of selected topic(s) in American Literature. Focuses on a theme, genre, era, technique, or critical approach. Includes reading and interpretation of literature from a variety of cultures within the United States. Prerequisites: (ENG101 or ENG107) or permission of instructor.

ENH285 3 Credits 3 Periods
Contemporary Women Writers
Explores twentieth century literature (short stories, essays, plays, and poetry) written by women and about women. Focus on themes relevant to women's lives regardless of age, creed, or ethnic background. Prerequisites: None.

ENH298AC 3 Credits 3 Periods Special Projects
Organized and tailored around the interests and needs of the individual student. Structured to provide an atmosphere of individualized research and study paralleled by professional expertise and guidance. Professional-type facilities and equipment are made available for student use. Allows the best aspects of independent study and individualized learning to be combined to maximize student development. Prerequisites: None.

ENTREPRENEURIAL STUDIES (EPS)
EPS151 3 Credits 3 Periods
Project-Based Entrepreneurship: Community Solutions
Practical experience in applying core entrepreneurial skills and knowledge in a real-world context including innovation and creativity exercises. Application of knowledge and skills from earlier coursework to develop and present solutions to real-world situations currently faced by Entrepreneurs, Community-Based Organizations, Civic or Government Organizations, or College Departments. Prerequisites: EPS150 or permission of Instructor.

EPS152 3 Credits 3 Periods
Entrepreneurship Around The World
Experiential learning to develop and apply skills in intercultural communication, global etiquette, teamwork, business and entrepreneurship to solve challenges and collaborate with other students and entrepreneurs throughout the world. Prerequisites: EPS 150 or permission of instructor.

EXERCISE SCIENCE (EXS)
EXS265SB 3 Credits 3 Periods
Softball Theory of Coaching
Reviews the principles, philosophy, strategies and theory of coaching baseball, as a competitive sport. Prerequisites: None. Note: EXS265SB may not be repeated for credit.

FACILITIES SYSTEMS TECHNOLOGY (FAC)
FAC105 3 Credits 3 Periods
Electricity for Industry
FAC105LL 1 Credit 3 Periods
Electricity for Industry Lab
Diagramming and assembling series circuits, parallel circuits and wiring relays, thermostats, switches and lights. Electrical readings on compressors. Emphasis on safety. Prerequisites: None. Corequisites: ELC/FAC/HVA105 or permission of instructor.

FAC115 3 Credits 3 Periods
Motors, Controls and Wiring Diagrams
Principles of three-phase motors. Wye and Delta wiring. Calculation of motor current draw. Sequence of operation, wiring diagram and electrical components associated with industrial equipment. Procedures for evaluating electrical problems. Safety stressed. Prerequisites ELC105 FAC105 HVA105 or permission of department or ELC105 FAC105 HVA105LL or permission of department. Corequisites: ELC115LL FAC115LL HVA115LL or permission of Department or Division

FAC115LL 1 Credit 3 Periods
Motors, Controls and Wiring Diagrams Lab
Drawing wiring diagrams, wiring systems and checking electrical circuits. Troubleshooting electrical problems of three-phase motors and controls. Safety stressed. Prerequisites: ELC105 FAC105 HVA105 or permission of department or ELC105 FAC105 HVA105LL or permission of department Corequisites: ELC115 FAC115 HVA115 or permission of Department or Division

FAC186 3 Credits 5 Periods
Electro-Mechanical Devices

FAC210LL 1 Credit 3 Periods
Facilities Air Conditioning Systems Lab
Routine procedures on operational central forced-air conditioning systems and hydronic pumping systems. Components and function of large chillers, cooling towers, hot water boilers, associated piping, pumps and constant volume and variable air volume (VAV) air handlers. Perform pump sizing calculations and measurements. Perform measurements and calculations of pressure and air velocity in ducts. Apply the principles of psychometrics to central air handling systems. Evaluation of the energy balance of components and systems. Personal and equipment safety. Prerequisites: (FAC/HVA101 and HVA112), or permission of Department or Division. Corequisites: FAC/ HVA210 or permission of Department or Division.

FAC220 3 Credits 3 Periods
Controls and Instrumentation
Control theory and terminology, pneumatics, electrical, and electronic control devices, flow control devices, elementary and advanced control systems. Electric and electronic control systems, programmable logic controls, and facilities management systems. Process and terms used in instrumentation, methods of heat transfer, calculations for heat temperature, and heat transfer. Measuring and calculating pressure, fluid flow, measuring humidity, control action, and instrumentation symbols. Prerequisites: FAC/HVA210 or permission of department. Corequisites: FAC220LL or permission of department.

FAC220LL 1 Credit 3 Periods
Controls and Instrumentation Lab
Calibrating pneumatic electrical, and electronic control devices. Commissioning and troubleshooting elementary and advanced control systems. Programming and tuning direct digital control (DDC) devices. Installing, testing and calibration control and instrumentation sensors. Developing and testing sequences of operation for control loops.
Recording and analyzing data from facility management systems. Prerequisites: FAC/HVA210 or permission of department. Corequisites: FAC220 or permission of department.

FAC231  3 Credits  5 Periods  
**Codes**  

FAC235  3 Credits  3 Periods  
**Commercial Air and Water Test and Balance**  
Specific types of duct distribution systems, fans, coil types and applications. Characteristics of Heating Ventilation and Air Conditioning (HVAC) piping systems. Specific types of pumps and applications. Air and water flow measuring and control devices. Collection and analysis of data specific to air handling systems. Principles of fluid dynamics, thermal loading factors, system design, and component performance. Test and balance plans for air and water systems. Prerequisites: (FAC/HVA210 and FAC/HVA210LL), or permission of instructor. Corequisites: FAC235LL.

FAC235LL  1 Credit 3 Periods  
**Commercial Air and Water Test and Balance Lab**  

FAC240  3 Credits  3 Periods  
**Facilities Special Systems and Codes**  
Building occupant safety requirements including industry standards, regulations, building codes, fire codes and life safety codes. Fundamentals of fire alarm system operation, inspection and maintenance. Fundamentals of fire sprinkler system operation, inspection and maintenance. Principles of life safety smoke control systems, including fire damper and combination fire/smoke damper applications. Prerequisites: OSH105, or GTC/FAC/OSH/MIT106, or OSH110, or OSH111.

**FOOD AND NUTRITION (FON)**  
FON100  3 Credits  3 Periods  
**Introductory Nutrition**  
Introduction to the science of food and human nutrition. Current sustainable dietary recommendations and applications for maximizing well-being and minimizing risk of chronic disease throughout the life cycle. An overview of the nutrients, emphasizing the importance of energy and fluid balance, and optimal functioning of the digestive system. Understanding factors that influence food intake in different cultures. Methods for evaluating credibility of nutrition claims, a focus on modern food safety and technology practices, and a worldview of nutrition are included. Emphasis is on personal dietary behavior change for a holistic life of wellness. Prerequisites: None.

FON241  3 Credits  3 Periods  
**Principles of Human Nutrition**  
Scientific principles of human nutrition. Emphasis on health promotion and concepts for conveying accurate nutrition information in a professional setting. Addresses therapeutic nutrition principles for treatment of common health conditions. Includes exploration of food sources of nutrients, basic metabolism of nutrients in the human body, relationship between diet and other lifestyle factors, use of supplements, current recommendations for food selection throughout the life cycle, and use of nutrition tools for planning food intake or assessment of nutritional status. Prerequisites: None.
**GENERAL BUSINESS (GBS)**

**GBS107** 1 Credit  1 Period  
**Workplace Readiness Skills**  
Workplace readiness skills and qualities necessary for successful employment. Prerequisites: None.

**GBS110** 3 Credits  3 Periods  
**Human Relations in Business and Industry**  
Exploration of fundamental theories and concepts of human relations in business and industry. Particular emphasis is placed on developing effective interpersonal relationships and leadership skills within an organization. Prerequisites: None.

**GBS126** 1 Credit  1.7 Periods  
**Writing Resumes**  
Planning, organizing, and writing a professional resume. Focus on presentation skills including format and language. Prerequisites: None.

**GBS131** 3 Credits  3 Periods  
**Business Calculations**  
Review of basic arithmetic and application of mathematics to business problems, includes percentage, interest, discount, and markups. Prerequisites: None.

**GBS132** 3 Credits  3 Periods  
**Personal and Family Financial Security**  
Principles and practices of personal and family financial planning, includes savings, budgeting, Credits, buying versus renting and general principles of consumerism. Prerequisites: None.

**GBS151** 3 Credits  3 Periods  
**Introduction to Business**  
Characteristics and activities of current local, national, and international business. An overview of economics, marketing, management and finance. Prerequisites: None.

**GBS161** 3 Credits  3 Periods  
**Mathematics of Business**  
Applications of basic financial mathematics; includes interest, financial statement, stocks and bonds, and international business. Prerequisites: GBS131, or permission of department/division.

**GBS205** 3 Credits  3 Periods  
**Legal, Ethical, and Regulatory Issues in Business**  
Legal theories, ethical issues and regulatory climate affecting business policies and decisions. Prerequisites: None.

**GBS220** 3 Credits  3 Periods  
**Quantitative Methods in Business**  
Business applications of quantitative optimization methods in operations management decisions. Prerequisites: (Grade of “C” or better in MAT150, or MAT151, or MAT152) or equivalent, or satisfactory score on district placement exam.

**GBS221** 3 Credits  3 Periods  
**SUN# BUS2201 Business Statistics**  
Business applications of descriptive and inferential statistics, measurement of relationships, and statistical process management. Includes the use of spreadsheet software for business statistical analysis. Prerequisites: Grade of C or better in GBS220 or MAT217.
GBS233  3 Credits  3 Periods  
**Business Communication**
Internal and external business communications, including verbal and nonverbal techniques. Prerequisites: ENG101 or ENG107 with grade of "C" or better, or permission of department/division.

**GEOGRAPHY – SEE PHYSICAL GEOGRAPHY (GPH)**

**GEOLOGY (GLG)**

GLG101  3 Credits  3 Periods  
**Introduction to Geology I – Physical Lecture**
A study of the kind and arrangement of materials composing the earth’s crust and the geological processes at work on and within the earth’s surface. Prerequisites: None

GLG103  LAB 1 Credit  LAB 3 Periods  
**Introduction to Geology I – Physical Lab**
May accompany GLG101. Study of common rock-forming minerals, rocks, and maps. Prerequisites: None

**HEALTH CARE RELATED (HCR)**

HCR210  3 Credits  3 Periods  
**Clinical Health Care Ethics**
An introduction to health care ethics with emphasis on analysis and ethical decision making at both the clinical and health policy levels for health care professionals. Theoretical foundation of bioethics reviewed within historical and contemporary contexts. Prerequisites: ENG102 or ENG108 or permission of Instructor.

HCR220  3 Credits  3 Periods  
**Introduction to Nursing and Health Care Systems**
Introduction to the social, political, and economic contexts of the nursing profession and health care systems in the United States. Prerequisites: None.

HCR230  3 Credits  3 Periods  
**Culture and Health**
Relation between cultures of diverse groups and health/illness. Emphasis on cross-cultural communication, including awareness of own cultural influences and indigenous and complementary healing practices. Prerequisites: None.

HCR240  4 Credits  4 Periods  
**Human Pathophysiology**
Chemical, biological, biochemical, and psychological processes as a foundation for the understanding of alterations in health. The structural and functional pathophysiology of alterations in health; selected therapeutics considered. Prerequisites: BIO202 or BIO205 or permission of Instructor.

HCR240AA  2 Credits  2 Periods  
**Human Pathophysiology I**
Chemical, biologic, biochemical, and psychological processes as a foundation for the understanding of alterations in health. The structural and functional pathophysiology of alterations in health; selected therapeutics considered. Prerequisites BIO202 or BIO205 or permission of Instructor. Corequisites: HCR240AB or permission of Instructor.

HCR240AB  2 Credits  2 Periods  
**Human Pathophysiology II**
Chemical, biologic, biochemical, and psychological processes as a foundation for the understanding of alterations in health. The structural and functional pathophysiology of alterations in health; selected therapeutics considered. Prerequisites: BIO202 or BIO205 or permission of Instructor. Corequisites: HCR240AA or permission of instructor.
HEALTH CORE CURRICULUM (HCC)

HCC109  0.5 Credits  0.5 Periods
CPR for Health Care Provider
Current American Heart Association standards for one and two rescuer cardiopulmonary resuscitation (CPR) and obstructed airway procedures on the adult, infant, and pediatric victim. Use of automatic, external defibrillator and resuscitation equipment. Prerequisites: None.

HCC109AA  0.25 Credits  0.25 Periods
CPR for Healthcare Providers Renewal
Renewal course for Healthcare Provider cardiopulmonary resuscitation (CPR) training. Condensed review of new American Heart Association skills and standards prior to skill testing. Skill testing includes one- and two-rescuer CPR and obstructed airway procedures on the adult, infant, and pediatric victim. Prerequisites: Current Healthcare Provider CPR card at time of course. Successful completion of the course content meets requirements for an American Heart Association (AHA) Healthcare Provider CPR renewal card.

HCC130  3 Credits  3 Periods
Fundamentals in Health Care Delivery
Overview of current health care professions including career and labor market information. Health care delivery systems, third party payers, and facility ownership. Health organization structure, patient rights and quality care. Health care and life values. Definition and importance of values, ethics, and essential behaviors in the workplace. Worker rights and responsibilities. Healthful living practices to include nutrition, stress management and exercise. Occupational Safety and Health Administration (OSHA) standard precautions and facility safety. Use of principles of body mechanics in daily living activities. Basic communication skills which facilitate team work in the health care setting. Focus on development of personal communication skills and an understanding of how effective communication skills promote team work. Focus on intercultural communication strategies. Prerequisites: None.

HCC145  3 Credits  3 Periods
Medical Terminology for Health Care Workers
Medical terminology used in health care, with special care populations and in special services. Body systems approach to terms related to structures, functions, diseases, procedures, and diagnostic tests. Building and analyzing terms using word parts. Medical abbreviations and symbols and term spelling. Prerequisites: None.

HCC146  2 Credits  2 Periods
Common Medical Terminology for Health Care Workers
Common medical terms used in health care. Body systems approach to terms related to structures, functions, diseases, procedures, and diagnostic tests. Building and analyzing terms using word parts. Medical abbreviations and symbols and term spelling. Prerequisites: None.

HCC164  0.5 Credits  0.5 Periods
Pharmacology for Allied Health
Chemical, generic, and trade names for drugs. Use of drug references. Pharmacological principles of drugs. Routes of drug administration. Federal and Arizona regulations. Classification of drugs. Abbreviations and symbols for drug measurement, administration, and prescription. Prerequisites: HCC130 or (HCC130AA, HCC130AB, HCC130AC, HCC130AD, HCC130AE, and HCC130AF) or work experience or equivalent course education as evaluated by the Health Core Curriculum Coordinator.

HCC200  0.5 Credits  1.5 Periods
Basic Client Care for Allied Health
Safety procedures for the hospitalized client. Transfer, moving and positioning techniques. Client assessment methods and procedures. Protection of airways, drains, tubes, intravenous lines, and infusion pumps. Care of patient in traction and those with limitations to movement. Gloving, gowning, and sterile procedures. Prerequisites: HCC130 or (HCC130AA, HCC130AB, HCC130AC, HCC130AD, HCC130AE and HCC130AF), or equivalent.
HCC204  3 Credits  3 Periods
Clinical Pathophysiology
Causes of disease and their impact on the human body. Common physiologic effects of disease on body systems. Roles of the multidisciplinary health care team in the diagnosis and treatment of disease. Cultural implications in prevention and treatment of disease. Prerequisites: HCC130 or (HCC130AA, HCC130AB, HCC130AC, HCC130AD, HCC130AE and HCC130AF), or equivalent and (BIO160 or BIO162AB, or BIO201).

HCC208  1 Credit  1 Period
Health Care Leadership
Introduction to concepts and skills required of health care leaders. Discussion of leadership styles and conflict management. Application of motivation, delegation, and communication techniques to teamwork and leadership. Prerequisites: HCC130 or (HCC130AA, HCC130AB, HCC130AC, HCC130AD, HCC130AE, and HCC130AF), or equivalent.

HCC218  0.5 Credits  1.5 Periods
Venous Access for Diagnostic Agents
Scope of practice and regulations governing venipuncture. Anatomy and physiology of the vascular system. Occupational Safety and Health Administration (OSHA) guidelines. Theory and practice of basic venipuncture for diagnostic agents including equipment and procedures. Prerequisites: HCC130 or (HCC130AA, HCC130AB, HCC130AC, HCC130AD, HCC130AE, and HCC130AF) or work experience or equivalent course education as evaluated by the Health Core Curriculum Coordinator or currently licensed as a health care provider or American Registry of Radiologic Technologists (ARRT) certified.

HEALTH SCIENCE (HES)
HES100  3 Credits  3 Periods
Healthful Living
Health and wellness and their application to an optimal life style. Explores current topics of interest such as stress management, nutrition, fitness, and environmental health. Evaluates common risk factors associated with modern lifestyles. Prerequisites: None.

HEALTHCARE REGULATORY COMPLIANCE (HRC)
HRC101  1 Credit  1 Period
Overview of Healthcare Compliance
Introduction and overview of healthcare compliance: evolution of the field as a profession. Exploration of federally legislated mandates for a Compliance Program. Program elements. Organizational steps for implementation in specific settings. Prerequisites: None.

HRC228  3 Credit  3 Period
Healthcare Industry Regulation
Comprehensive review and study of laws that regulate the healthcare delivery industry including fraud and abuse, patient privacy, Protected Health Information (PHI) and electronic Protected Health Information (ePHI), and occupational safety for workforce members, patients, and visitors. Prerequisites: HRC101.

HRC230  3 Credit  3 Period
Healthcare Corporate Compliance Program Design
HRC232 3 Credit 3 Period
Health Care Regulatory Compliance Program Design
Creation, management and evaluation of a health care regulatory compliance program including the work plan. Address the Health Insurance Portability and Accountability Act (HIPAA) Privacy and Breach Rules, HIPAA Security and Meaningful Use Attestation, Occupational Safety and Health Plan for workforce members, patients, and visitors. Occupational Safety and Health Administration (OSHA), Arizona Division of Occupational Safety and Health (ADOSH), Medicare/Medicaid Fraud and Abuse, Human Resources employment laws, Clinical Laboratory Improvement Act (CLIA) and Arizona Radiation Regulatory Agency (ARRA). Prerequisites: HRC101.

HRC234 3 Credit 3 Period
Health Care Regulatory Enforcement Case Studies
Comprehensive review of case studies involving litigation and enforcement of health care law including review of landmark and contemporary cases brought by the United States Office of the Inspector General (Fraud and Abuse); the Office of Civil Rights; the Health Insurance Portability and Accountability Act (HIPAA) Privacy and Security Laws. Application of knowledge and skills from earlier coursework to real-world situations. Prerequisites: HRC101.

HEALTH SERVICE MANAGEMENT (HSM)
HSM122 3 Credits 3 Periods
Health Services Supervision
Skills and techniques for the leadership and supervision of health services employees. Emphasis placed on assertive supervision, effective human relations skills, and the enhancement of oral and written workplace communications. Prerequisites: None.

HSM125 3 Credits 3 Periods
Current Issues in Health Services Management
Overview of the inner workings of the health care industry and the forces that drive and control the delivery of health services. Explores financial, technological and human resources, regulatory systems, and national, state and local issues. Prerequisites: None.

HSM222 3 Credits 3 Periods
Health Services Management
The role and functions of management in understanding and building organizational effectiveness. Focuses on the manager as a leader and planner capable of developing motivated and committed employees and work teams. Prerequisites: None.

HSM226 3 Credits 3 Periods
Ethics and Legalities of Health Services Management
Identification, analysis, and problem solving related to legal and ethical issues in health services management. Includes an emphasis on employment law, confidentiality issues, accurate financial reporting and personal promotional preparation. Prerequisites: None.

HSM282AA 1 Credit 1 Period
Volunteerism for Health Services Management: A Service Learning Experience
Service learning field experience within private/public agencies, and citizen volunteer groups. Prerequisites: Any three (3) of the following four (4) courses: HSM122, or HSM125, or HSM222, or HSM226, or permission of Instructor.
HEALTH UNIT COORDINATOR (HUC)

HUC110  1 Credit  1 Period
Issues in Health Unit Coordinating
History of the health unit coordinating profession, National Association of Health Unit Coordinators (NAHUC) and certification process. Management techniques for health unit coordinators. Communication issues relevant to health unit coordinators. Resume writing. Prerequisites or Corequisites: HCC145 and (HCC130 or HCC130AA, HCC130AB, HCC130AC, HCC130AD, HCC130AE and HCC130AF). Corequisites: HUC113, HUC114, HUC115 and HUC116.

HUC111  2 Credits  3 Periods
Communication and Hospital Unit Management in Health Unit Coordinating
History of the health unit coordinating profession, National Association of Health Unit Coordinators (NAHUC) and certification process. Responsibilities of a hospital unit coordinator. Includes terminology, paper and electronic forms, electronic medical records patient charts, admission/discharge of patients, preoperative and postoperative procedures. Management techniques for health unit coordinators as workflow and process facilitators. Communication issues relevant to health unit coordinators. Prerequisites: None. Course Notes: All HUC classes must be taken concurrently if a student is seeking a certificate of completion in Health Unit Coordinating/Patient Care Associate.

HUC113  4 Credits  4 Periods
Diagnostic Tests and Treatments
Understanding and interpreting physician’s orders for the Health Unit Coordinator (HUC) and other health care workers. Terminology, symbols and abbreviations for diagnostic procedures and treatments. Prerequisites: None. Course Notes: All HUC classes must be taken concurrently except HUC113 if a student is seeking a certificate of completion in Health Unit Coordinating/Patient Care Associate.

HUC114  2 Credits  4 Periods
Health Unit Coordinator Procedures
Application of unit coordinating skills and procedures in the laboratory setting. Transcription of traditional written physician orders and paper-based charts. Electronic patient charts in relation to coordination of hospital unit activities and workflow facilitation. Instruction in utilization of electronic patient charts. Initiation of electronic patient charts and entering physician’s orders to facilitate the transition to fully implemented electronic patient charts with Computer Physician Order Entry (CPOE). Prerequisites: None. Course Notes: All HUC classes must be taken concurrently except HUC113 if a student is seeking a certificate of completion in Health Unit Coordinating/Patient Care Associate.

HUC115  2 Credits  12 Periods
Health Unit Coordinator Clinical
Application of health unit coordinator skills and procedures in the hospital setting under the supervision of an instructor. Prerequisites: None. Course Notes: All HUC classes must be taken concurrently if a student is seeking a certificate of completion in Health Unit Coordinating/Patient Care Associate.

HUC116  1 Credit  1 Period
Health Unit Coordinating Clinical Seminar
Clinical guidelines and hospital requirements for health unit coordinating clinical. Preparation for an electronic and non-electronic medical record based facility and/or unit. Review and verification of skills, competencies and procedures listed in the Clinical Evaluation Handbook and Skills List. Preparation for National Association of Health Unit Coordinators (NAHUC) national certification exam. Resume preparation and document submission. Prerequisites: None. Course Notes: All HUC classes must be taken concurrently if a student is seeking a certificate of completion in Health Unit Coordinating/Patient Care Associate.
HUC296WD  4 Credits  20 Periods

Cooperative Education

Work-college experiences that involve the combined efforts of educators and employers to accomplish an outcome related to the career objectives of the students. Prerequisites: None. Corequisites: Must be concurrently enrolled in at least one class related to job/co-op subject area; must maintain an enrollment ratio of two (2) hours of Credits in other courses for every one (1) hour of Cooperative Education Credits (excluding radio and television); a maximum of sixteen (16) hours of Cooperative Education Credits is allowable in a college program.

HEAT AND FROST TECHNOLOGY (HFA)

HFA101  5 Credits  5 Periods

Introduction to Insulation

Insulators' union history, significance and benefits. Successful and efficient labor relations. Insulation in relation to other construction trades. Safe and proper use of hand and power tools. Safe work habits, job site safety and first aid. Advanced first aid. Occupational Safety and Health Administration (OSHA) safety training and regulations. Prerequisites: Registered Apprentice status with the Heat, Frost, and Asbestos Workers Joint Apprenticeship Training Committee (JATC) or permission of the apprenticeship coordinator.

HFA102  3 Credits  3 Credits

Insulation Tools and Equipment: Use and Care

Identify tools and equipment used for installation of mechanical insulation, finishes, and accessories. Proper methods for use and care of various tools and equipment. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

HFA110  5 Credits  5 Periods

Math for Heat and Frost Technology

Fundamentals of the metric system. Fundamental operations with whole numbers, common fractions, decimals, percentages and ratios and proportions. Algebraic expressions, operations, powers and roots. Compute measurements of geometric figures. Prerequisites: Registered Apprentice status with the Heat, Frost, and Asbestos Workers Joint Apprenticeship Training Committee (JATC) or permission of the apprenticeship coordinator.

HFA115  5 Credits  5 Periods

Fundamental Insulation Skills: Piping I

Principles of insulation. Materials and methods of insulation. Insulating straight piping. Application of specific types of insulation. Insulation irregular surfaces. Seal and finish insulated pipe. Prerequisites: Registered Apprentice status with the Heat, Frost, and Asbestos Workers Joint Apprenticeship Training Committee (JATC) or permission of the apprenticeship coordinator.

HFA150  5 Credits  5 Periods

Shop Fabrication: Layout and Pattern-making for Insulators I

Shop fabrication for the heat, frost and asbestos trades related to insulation. Draw, bisect, trisect, divide and construct geometric linear and curvilinear geometric constructions. Layout and design templates and patterns for tees, valves, flanges, and endcaps. Prerequisites: Registered Apprentice status with the Heat, Frost, and Asbestos Workers Joint Apprenticeship Training Committee (JATC) or permission of the apprenticeship coordinator.

HFA204  2 Credits  2 Periods

Scaffolding for Insulators

Occupational Safety and Health Association (OSHA) Scaffolding Standard Subpart L, scaffolding terms, safety, erection, and various types of scaffolding used. Aerial lift operation and safety. Prerequisites: Registered Apprenticeship status or permission of the apprenticeship coordinator.
HFA215  5 Credits  5 Periods
Fundamental Insulation Skills: Piping II
Insulation for piping for cryogenic service. Insulation materials, coverings, finishes, and sealants for underground piping. Measure and cut rigid insulation using hand and table saws. Score block and board. Insulation of vertical and horizontal cylinders, finished heads and finished bodies using wired, bands, pins, stick clips, and washers. Insulate duct work in an air-handling system using fibrous board, duct wrap and flexible sheet. Prerequisites: HFA115.

HFA250  5 Credits  5 Periods
Shop Fabrication: Layout and Pattern-making for Insulators II
Shop fabrication for the heat, frost and asbestos trades related to insulation. Advanced layout patterns for long and short radius elbows, cones, bevels, and tank heads. Specifications for selecting fittings and structures. Numbers and sizes of miters and gores. Prerequisites: HFA150.

HFA260  5 Credits  5 Periods
Blueprints and Firestopping

HFA270  5 Credits  5 Periods
Supervision for Foremen
Foreman's role on the job site. Management and leadership using functional, adaptive and technical skills. Effective supervision and communication skills. Maslow's Motivational Theory. Short term motivators. Foreman responsibilities in area of performance and production. Traits and habits of effective leaders Leadership styles and team building. Labor/contractor cooperation. Prerequisites: Registered Apprentice status with the Heat, Frost, and Asbestos Workers Joint Apprenticeship Training Committee (JATC) or permission of the apprenticeship coordinator.

HEATING, VENTILATING AND AIR CONDITIONING (HVA)
HVA101  3 Credits  3 Periods
Refrigeration Applications and Components I

HVA101LL  1 Credit  3 Periods
Refrigeration Applications and Components I Lab
Servicing refrigeration units. Includes soldering tubing, installing/removing manifold gauge set, evacuating and charging the system. Emphasis on safety. Prerequisites: None. Corequisites: HVA101 or permission of department.

HVA103  3 Credits  3 Periods
Refrigeration Applications and Components II
Actual refrigerating cycles and pressure-enthalpy analysis of chlorofluorocarbon (CFC) and hydrofluorocarbon (HCFC) replacements. Selection of refrigeration components, sizing, and layouts of refrigerant piping, supermarket refrigeration system operation. Prerequisites: FAC/HVA101. Corequisites: HVA103LL.
Course Listings 2017-2018

HVA103LL  1 Credit   3 Periods
Refrigeration Applications and Components II Lab
Pressure-enthalpy evaluation of operating systems from a simple saturated cycle to actual operating conditions. System performance evaluation including evaporator superheat, adjustments of suction pressure regulators and compressor crankcase pressure regulator, and evaluation of refrigerant piping. Prerequisites: HVA101. Corequisites: HVA103.

HVA104  3 Credits   3 Periods
EPA Section 608 Technician Preparation & Certification
Laws, standards and procedures for the preparation to complete the certification for the Environmental Protection Agency (EPA) SECTION 608 - stationary equipment. Core certification requirements for Type I Technicians, Type II Technicians, Type III Technicians, and Universal Technicians. Type I Technician - primarily works on small appliances. Type II Technician - primarily works on appliances/equipment using high and very high pressure refrigerant. Type III Technician - primarily works on appliances/equipment using a low pressure refrigerant. Universal Technician - for servicing all appliances. Prerequisites: None

HVA105  3 Credits   3 Periods
Electricity for Industry

HVA105LL  1 Credit   3 Periods
Electricity for Industry Lab
Diagramming and assembling series circuits, parallel circuits and wiring relays, thermostats, switches and lights. Electrical readings on compressors. Emphasis on safety. Prerequisites: None. Corequisites: ELC/FAC/HVA105 or permission of instructor.

HVA112  3 Credits   3 Periods
Heating and Air Conditioning
Types and styles of cooling equipment and duct systems. Methods of supplying air to spaces for heating and cooling. Human comfort factors related to heating and cooling. Psychrometric terminology and applications. Operation, control, and metering devices for heat pumps and package air conditioning systems. Basic heating and ventilating equipment including performance measurement of heating and combustion equipment. Procedures used with DX cooling and gas-fired and electric heating equipment. Troubleshooting techniques, local gas and electric codes, and safety precautions. Prerequisites: HVA/ELC/FAC105. Corequisites: HVA112LL.

HVA112LL  1 Credit   3 Periods
Heating and Air Conditioning Lab

HVA143  3 Credits   3 Periods
Load Calculation and Duct Design
Heat transmission factors calculations for specific types and combinations of construction materials. Application of design factors for cooling and heating load determination. Methods for residential applications. Design of residential and light commercial ducting systems. Calculation of duct size for constant and variable air flow, system operating characteristics and air measuring devices. Protocols to test, adjust, and balance an air distribution system. Prerequisites: None.
HVA231 3 Credits 5 Periods

Codes

HEAVY EQUIPMENT OPERATIONS (HEO)

HEO101 1 Credit 1 Period
Introduction to Heavy Equipment Operations

HEO 1.5 Credits 1.5 Periods
Qualifying Rigger & Signalperson Practices
Rigging and signaling theoretical and practical knowledge for slings, rigging hardware, rigging formulas, weights and weight calculations, basic construction materials, operation of rigging components, industry standards and regulations, signals, qualifications, regulations and hazards.

HEO104 1 Credit 1 Period
Heavy Equipment Maintenance
Heavy equipment operator responsibilities. Manufacturers’ preventive maintenance (PM) schedules and procedures. Prerequisites: Employee of Maricopa County or permission of training director.

HEO106 1 Credit 1 Period
Tractors
Tractor equipment, basic tractor safety and operator safety. Preventative maintenance and basic tractor operation. Attachment processes and operation of the power-take off control (PTO). Prerequisites: Employee of Maricopa County or permission of training director.

HEO107 1 Credit 1 Period
Heavy Equipment Operations: Soils I
Basic soil types, properties, and classifications. Soil sampling and conditions, methods of stabilization and compaction, digging and ripping. Heavy equipment including excavators, bulldozers, cleats, compactors, and rollers. Prerequisites: Employee of Maricopa County or permission of training director.

HEO109 1 Credit 1 Period
Heavy Equipment Operations: Soils II
Soil characteristics. Shrinkage and swell factors and the settlement of soils. Soil measurement methods and soil density and compaction requirements. Handling requirements for soil and related materials. Prerequisites: Employee of Maricopa County or permission of training director.

HEO115 1 Credit 1 Period
Aerial Lift Truck Operation and Safety
HEO117  1 Credit  1 Period
Forklift Operations
Safe and proper operation of forklift. Parts and function of forklift, principles of operation, and safety precautions. Inspection procedures, proper care, and industry standards. On-hands operation of a forklift. Prerequisites: None.

HEO120  1 Credit  1 Period
Heavy Equipment Operations: Hazardous Materials Awareness
Emphasis on detection and identification of dangers associated with the release of hazardous materials or the discovery of illegally dumped hazardous materials by heavy equipment operators. Step-by-step guide to personal protection and initiating an appropriate hazardous materials incident response within heavy equipment environment. Prerequisites: Registered Apprentice status or permission of the Apprenticeship Coordinator.

HEO122  1 Credit  1 Period
Rigging Safety and Equipment
Rigging safety, equipment and inspection. Includes crane hand signals, common rope knots, types of derricks and cranes and safety procedures for rigging and moving materials and equipment. Prerequisites: Registered Apprentice status or permission of the apprenticeship coordinator.

HEO124  2 Credits  2 Periods
Scrappers
Terminology. Parts, attachments, and controls. Scraper uses. Safety. Preventative maintenance. Operations and work activities. Prerequisites: Employee of Maricopa County or permission of instructor.

HEO125  1 Credit  1 Period
Heavy Equipment Operations: Rollers
Basic types of rollers and their uses. Operational components, instruments, gauges, controls, and attachments. Safety guidelines and rules. Basic preventive maintenance procedures. Basic maneuvers and work activities of rollers. Prerequisites: Employee of Maricopa County or permission of training director.

HEO134  1 Credit  1 Period
Backhoe Operations
Backhoe components and operation. Includes equipment, attachments and accessories, hydraulics and backhoe controls and functions. Safety procedures and related preventative maintenance and record keeping. Basic maneuvering, production and difficult work situations. Backhoe roading considerations. Prerequisites: Employee of Maricopa County or permission of training director.

HEO135  1 Credit  1 Period
Grades
Components of roadway development and construction. Grade stakes, control, computations, and profiles. Rise, fall, and level grade calculations. Basic leveling methods and leveling equipment. Slope control and cross slopes. Prerequisites: Employee of Maricopa County or permission of training director.

HEO137  1 Credit  1 Period
Grades II
Heavy equipment terminology. Basic grading operations to include clearing and grubbing, rough and finish grading. Plan reading, profile, cross-section, and grading sheets. Conventional and electronic surveying equipment. Drainage and practices for setting grade. Prerequisites: Employee of Maricopa County or permission of training director.
HEO139  1 Credit  1 Period
All Terrain Vehicle Operation and Safety
Operation, safety and risk awareness of all terrain vehicles (ATVs). Control functions and speed selection. Turns, stops, swerves, hills, obstacles, trails, and various terrains. Scanning, Identifying, Predicting, Deciding, Executing (SIPDE) procedures. Physical and mental conditioning, alcohol, drugs and fatigue. Traveling, Respecting, Educating, Avoiding, Driving (TREAD) Lightly program. State regulations and laws. Prerequisites: Employee of Maricopa County or permission of training director.

HEO142  1 Credit  1 Period
Construction Safety/Loss Prevention
Construction safety and loss prevention from the perspective of the construction superintendent. Includes communication and motivation for safety and loss prevention, project security and traffic control, and scheduling planning to prevent losses. Also includes loss prevention documents and inventories, assigning responsibility for safety and equipment maintenance, handling inclement weather and emergencies, and government regulations and inspections. Prerequisites: None.

HEO201  1 Credit  1 Period
Introduction to Earth Moving
Earth moving fundamentals to include types, set up, and production. Loading, hauling, dumping, and backhauling. Site preparation including soils, site plans, staking out, signing, clearing and grubbing. Layout, slopes and grades, excavation, trenching, and haul roads. Drainage requirements, ground water, and stockpiles. Prerequisites: Employee of Maricopa County or permission of training director.

HEO204  2 Credits  2 Periods
Bulldozers
Trade terminology and primary uses of the bulldozer. Parts, controls, attachments, safety and preventive maintenance. Operations and basic maneuvering. Types of blades and uses. Earth moving operations. Special attachments. Prerequisites: Employee of Maricopa County or permission of Program Director.

HEO206  2 Credits  2 Periods
Front-end Loaders
Types of front-end loaders, uses, and characteristics. Controls and their functions. Safe and efficient operations. Basic preventative maintenance. Operations, maneuvering, and work activities, unstable soil. Special attachments. Prerequisites: Employee of Maricopa County or permission of training director.

HEO207  1 Credit  1 Period
Heavy Equipment Operations: Soils III
Breakthrough repair. Soil stabilization. Geotextile materials. Soil compaction. Prerequisites: Employee of Maricopa County or permission of training director.

HEO212  1 Credit  1 Period
Heavy Equipment Operations: Finish Operator
Responsibilities, skills, knowledge of the finish operator. Safety requirements and related activities. Leadership and teamwork. Production standards. Laser leveling equipment. Prerequisites: Employee of Maricopa County or permission of training director.

HEO214  1 Credit  1 Period
Heavy Equipment Operations: Excavators
Types of excavators and use. Excavator equipment, attachments, operations, and preventive maintenance. Work activities and basic safety. Prerequisites: Employee of Maricopa County or permission of the training director.
HEO216 2 Credits 2 Periods
**Motor Graders**
Terminology. Grader types and uses. Components and controls. Safety. Preventative maintenance. Operations and work activities. Prerequisites: Employee of Maricopa County or permission of instructor.

HEO222 1 Credit 1 Period
**Heavy Equipment Operations: Finishing and Grading**

**HISTORY (HIS)**

**HIS100** 3 Credits 3 Periods
**History of Western Civilization to Middle Ages**
Survey of the origin and development of Western civilization and its institutions from prehistory through the Ancient World and the Middle Ages. Prerequisites: None

**HIS102** 3 Credits 3 Periods
**History of Western Civilization 1789 to Present**
Survey of the origin and development of Western civilization and its institutions from the French Revolution through the present. Prerequisites: None.

**HIS103** 3 Credits 3 Periods
**United States History to 1865**
The political, economic, and social development of the United States from the Pre-Columbian Periods through the end of the Civil War (1865). Prerequisites: None.

**HIS104** 3 Credits 3 Periods
**US History 1870 to Present**
The political, economic, and social development of the United States from the Reconstruction Periods up to the present time. Prerequisites: None.

**HIS108** 3 Credits 3 Periods
**United States History 1945 to the Present**
Survey of American history from 1945 to the present. Focuses on the political, social, economic and cultural history of the United States from the end of World War II to the present time. Includes domestic developments and foreign policy. Prerequisites: None

**HIS145** 3 Credits 3 Periods
**History of Mexico**
Survey of the political, economic, and social forces which have shaped the development of Mexico from pre-Columbian times to the present. Prerequisites: None
HOSPITAL CENTRAL SERVICE (HCS)

HCS100 LEC 4 Credits LEC 4 Periods / LAB 2 Credits LAB 6
Periods Fundamentals of Surgical Services
Central Service functions, medical terminology, decontamination, isolation techniques, quality assurance, product transport, and billing methods. Duties and responsibilities of central service technicians. Instrument identification and care, assembling hospital prepared supplies, safety procedures, asepsis principles, monitoring procedures, sterilizer operations, portable equipment, sterile goods, rotation and storage inventory and distribution systems. Prerequisites: None. Corequisites: HCS/SGT102. Cross-References: SGT100

HCS101AA LEC 3 Credits LEC 3 Periods / LAB 4 Credits LAB 10
Periods Introduction to Hospital Central Service
Central Service functions, medical terminology, decontamination, isolation techniques, quality assurance, product transport, and billing methods. Duties and responsibilities of central service technicians. Prerequisites: Admission to Hospital Central Service Technology program or permission of instructor.

HCS102 LEC 1 Credits LEC 1 Periods / LAB 1 Credits LAB 3
Periods Basic Surgical Instrumentation for Surgical Services
History, construction and assembly of surgical instrumentation, categories, instrument set assembly, soft tissue foundation sets, general surgery instrumentation sets. Prerequisites: None. Corequisites: HCS/SGT100. Cross-References: SGT102

HCS104AA LEC .5 Credits LEC .5 Periods / LAB .5 Credits LAB 1.5 Periods
Basic Surgical Instrumentation for Hospital Central Service
History, anatomy and physiology of surgical instrumentation, categories, instrument set assembly, soft tissue foundation sets, general surgery instrumentation sets. Prerequisites: None.

HCS104AB LEC .5 Credits LEC .5 Periods / LAB .5 Credits LAB 1.5 Periods
Specialty Surgical Instruments for Hospital Central Service
Identification, care, and assembly of instruments to include surgical specialty instrumentation such as plastic, gynecologic, urologic, basic bone and joint, head and neck, neurosurgery, cardiovascular and thoracic, microscopic, endoscopes, stapling guns, and robotic. Prerequisites: None.

HCS110 LEC 2 Credits LEC 2 Periods / LAB 2 Credits LAB 6 Periods
Packaging and Sterilization
Instrument identification and care, assembling hospital prepared supplies, safety procedures, asepsis principles, monitoring procedures, sterilizer operations, portable equipment, sterile goods, rotation and storage inventory and distribution systems. Prerequisites or Corequisites: (HCS101 or HCS101AA, HCS101AB) or permission of instructor.

HCS130 5 Credits 30 Periods
Hospital Central Service Practicum
Supervised student application of central service theory and laboratory skills. Prerequisites: HCS101 or (HCS101AA and HCS101AB) or permission of Instructor. Corequisites: HCS110.

HCS152 LEC 1 Credits LEC 1 Periods / LAB 1 Credits LAB 3 Periods
Advanced Surgical Instruments for Surgical Services
Surgical specialty instrumentation care and assembly of instruments to include plastic, gynecologic, urologic, basic bone and joint, head and neck, neurosurgery, cardiovascular and thoracic, microscopic, endoscopes, stapling guns, and robotics procedures. Prerequisites: HCS/SGT102. Cross-References: SGT152
HCS154 7 Credits 36 Periods
Hospital Central Service Practicum
Direct supervision of students applying knowledge of Hospital Central Service to include communication, policy and procedures, aseptic and sterile technique, instrument trays and packs, sterilization equipment and documentation performed in the clinical environment. Prerequisites: HCS/SGT100 or permission of Instructor. Corequisites: HCS/SGT152.

HCS296WC 3 Credits 15 Periods Cooperative Education
Work-college experiences that involve the combined efforts of educators and employers to accomplish an outcome related to the career objectives of the students. Prerequisites: None. Corequisites: Must be concurrently enrolled in at least one class related to job/co-op subject area; must maintain an enrollment ratio of two (2) hours of Credits in other courses for every one (1) hour of Cooperative Education Credits (excluding radio and television); a maximum of sixteen (16) hours of Cooperative Education Credits is allowable in a college program.

HUMANITIES (HUM)
HUM101 3 Credits 3 Periods
General Humanities
A general humanities course concentrating on three great ages of outstanding human achievement: The Golden Age of Greece, the Renaissance and the 20th Century. Prerequisites: None.

HUM201 3 Credits 3 Periods
Humanities: Universal Themes
Study of worldviews in a variety of historical and contemporary world cultures, including analysis of origin and creation myths, artistic expression, spirituality, and the natural environment. Prerequisites: None.

HUM205 3 Credits 3 Periods
Introduction to Cinema
Survey of the history and development of the art of motion pictures, including criticism of aesthetic and technical elements. Prerequisites: None.

HUM210 3 Credits 3 Periods
Contemporary Cinema
A study of contemporary films, directors and critics with emphasis on evaluating film as an art form. Prerequisites: None.

HUM245 3 Credits 3 Periods
Introduction to Holocaust Studies
Introduction to essential information about the Holocaust. Provides theological, social and political background to establish contexts of anti-Semitism, especially in 19th and 20th centuries, with particular attention to National Socialist ideologies. Ghetto and camp life, including resistance, are explored. Emphasis is on texts of the Holocaust, including historical documents, participant testimonies, fiction, creative non-fiction, and poetry, much of which involves theological and moral debate. Includes analysis of supplementary visual material and some performing arts. Prerequisites: None. CRE101, or CRE111, or equivalent as indicated by appropriate reading placement test score recommended but not required.

HUM250 3 Credits 3 Periods
Ideas and Values in the Humanities
An historical analysis of the interrelationships of art, architecture, literature, music, and philosophy from the early civilizations to the Renaissance, including western and non-western cultures Prerequisites: ENG101.
HUM251  3 Credits  3 Periods
**Ideas and Values in the Humanities**
An historical analysis of the interrelationships of art, architecture, literature, music, and philosophy from the Renaissance to modern Periods, including Western and Non-Western cultures. Prerequisites: ENG101.

**IMAGING CONTINUING EDUCATION (ICE)**

ICE220  3 Credits  3 Periods
**Sectional Anatomy**
Sectional human anatomy in the transverse and coronal planes. Emphasis on the abdominopelvic cavity and brain. Prerequisites: BIO160 and (HCC145 or HCC146).

ICE223  1 Credit  1 Period
**Introduction to Computed Tomography**
Overview of the principles and operation of computed tomography (CT) scanner. Content includes history, physics processes, instrumentation components, imaging acquisition, reconstruction and display for computed tomography imaging. Prerequisites: Permission of Instructor.

ICE229  2 Credits  2 Periods
**Magnetic Resonance (MR) Multi-Planar Sectional Anatomy**
Three dimensional anatomy presented in transverse, sagittal and coronal planes of specified regions of the human body as viewed from magnetic resonance imagery. Includes structure identification of the bones, muscles, vascular system, organs, soft tissue components and weighted imaging. Prerequisites ([Certified by American Registry of Radiologic Technologists (ARRT) in Radiography or in Radiation Therapy], or (certified by ARRT or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine), or (certified by American Registry of Diagnostic Medical Sonography (ARDMS) or ARRT in Diagnostic Medical Sonography), or (Radiography, Radiation Therapist, Nuclear Medicine, or Sonography student currently enrolled at GateWay), or registry eligible graduate] and DMI/DMS/ICE220 and ICE233.

ICE233  1 Credit  1 Period
**Fundamentals of Magnetic Resonance Imaging (MRI)**
Overview of magnetic resonance imaging, program policies and student responsibilities. Includes fundamental principles of magnetic resonance imaging (MRI), primary and secondary equipment, and MRI terminology. Imaging parameters, clinical applications for MRI and preparation for physics, instrumentation, and safety coursework. Basic overview of safety issues and MRI contrast agents. Prerequisites: (Certified by American Registry of Radiologic Technologists (ARRT) in Radiography or in Radiation Therapy), or (certified by ARRT or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine), or (certified by American Registry of Diagnostic Medical Sonography (ARDMS) or ARRT in Diagnostic Medical Sonography), or (Radiography, Radiation Therapist, Nuclear Medicine or Sonography student currently enrolled at GateWay), or registry eligible graduate. Corequisites: DMI/DMS/ICE220 or permission of Department or Division.

ICE248  2 Credits  2 Periods
**Computed Tomography (CT) Multi-Planar Sectional Anatomy**
Sectional human anatomy in the transverse, sagittal and coronal planes. Multi-planar emphasis on the musculoskeletal system to include multi-planar imaging of the facial bones, cervical, thoracic and lumbar spine, and extremities; and the heart and vascular structures. Prerequisites or Corequisites: ([Certified by American Registry of Radiologic Technologists (ARRT) in Radiography or in Radiation Therapy], or (certified by ARRT or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine), or (Radiography or Nuclear Medicine student currently enrolled at GateWay), or registry eligible graduates] and DMI/DMS/ICE220 and (DMI/ ICE223 or NUC150) with a grade of “C” or higher, or permission of Instructor.
ICE250AA 0.5 Credits 0.5 Periods
Diagnostic Positioning and Special Views for Mammography
Basic mammography. Positioning for the diagnostic examination. Special views, equipment characteristics, specifications, risk factors and film evaluation related to pathology. Prerequisites: ICE250AB or permission of instructor.

ICE250AC 0.5 Credits 0.5 Periods
Special Mammographic Procedures
Complex mammography examinations. Breast cancer and imaging characteristics. Advanced pathology, needle biopsy, needle localization, needle aspiration and ductogram procedures, including integrating imaging modalities. Prerequisites: ICE250AB or permission of instructor.

ICE250AD 0.5 Credits 0.5 Periods
Problem Solving for Mammographers
Standards Act (MQSA) requirements for mammography. Prerequisites: ICE250AC or permission of instructor.

ICE250AE 0.5 Credits 0.5 Periods
Routine Mammography Positioning
Basic mammography positioning laboratory experience. Breast self-examination. Positioning and equipment used for screening and diagnostic mammography procedures. Evaluation of positioning techniques. Prerequisites: ICE250AA and ICE250AB, or Mammographer, or permission of instructor.

ICE250AF 0.5 Credits 0.5 Periods
Digital Mammography
Basics of digital imaging and specifics with respect to Full Field Digital Mammography (FFDM). Components of acquisition computed radiography/digital radiography (CR/DR), image processing and displays, digital breast tomosynthesis and advantages of digital imaging over film screen breast imaging. Review of Computer Assisted Detection (CAD) and diagnosis and use of Picture Archive and Communication System (PACS) for simplified storage, access and transmission of images. Review of statistical studies of research for the top clinical trials for promotion of digital mammography. Prerequisites: Current certification in radiography through American Registry of Radiologic Technologists (ARRT) or permission of Instructor.

ICE254 1 Credit 6 Periods
Advanced Imaging Practicum
Advanced imaging procedures for the Graduate Radiologic Technologist from American Registry of Radiologic Technologists (ARRT) or registry eligible graduate performed under strict supervision. Use of correct technical and positioning techniques. Apply safety measures and procedures established by the institution and college. Observe ethical and legal guidelines and use of effective communication skills. Prerequisites: [(Certified by American Registry of Radiologic Technologists (ARRT) in Radiography or in Radiation Therapy), or (certified by ARRT or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine), or (Radiography or Nuclear Medicine student currently enrolled at GateWay), or registry eligible graduates] or permission of Instructor.

ICE263 3 Credits 3 Periods
Computed Tomography Physics and Instrumentation
Overview and evolution of Computed Tomography (CT) in medical imaging to include: X ray production, CT principles, system components and operation; image acquisition, processing, reconstruction, and display; artifacts, quality assurance, radiation dosimetry and patient safety; contrast administration, imaging protocols; and competencies as outlined by American Registry of Radiologic Technologists (ARRT) for the CT Certification Examination. Prerequisites: [(Certified by American Registry of Radiologic Technologists (ARRT) in Radiography or in Radiation Therapy), or (certified by ARRT or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine), or (Radiography or Nuclear Medicine student currently enrolled at GateWay), or registry eligible graduates] and DMI/DMS/ICE220 and (DMI/ICE223 or NUC150) with a grade of "C" or higher, or permission of Instructor.
ICE264  3 Credits  3 Periods
MRI Physics, Instrumentation and Safety
An overview into the physics, equipment, physical design, and image characteristics of Magnetic Resonance Imaging (MRI) systems. Prerequisites: [(Certified by American Registry of Radiologic Technologists (ARRT) in Radiography or in Radiation Therapy), or (certified by ARRT or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine), or (certified by American Registry of Diagnostic Medical Sonography (ARDMS) or ARRT in Diagnostic Medical Sonography), or (Radiography, Radiation Therapist, Nuclear Medicine, or Sonography student currently enrolled at GateWay), or registry eligible graduate] and DMI/DMS/ICE220 and ICE233.

ICE265  3 Credits  3 Periods
Computed Tomography Procedure Protocols
Standard procedures and protocols for Computed Tomography (CT) imaging in alignment with the American Society of Radiologic Technologists (ASRT) examination curriculum outline. Includes patient preparation and safety, choosing appropriate protocols, interventional procedures, contrast indicators, post-exam processing quality issues, and adapting to atypical scanning situations. Prerequisites: [(Certified ARRT in Radiography/Radiation Therapy) or (ARRT/NMTCB cert in Nuclear Medicine) or (Radiography/Nuclear Medicine student) or eligible grad] & (DMI/ICE223 or NUC150) &ICE248 & ICE263 with a C or higher, or permission of Instructor.

ICE266  2 Credits  12 Periods
MRI Advanced Imaging Practicum
Advanced Magnetic Resonance imaging (MRI) clinical practicum is for those certified by the American Registry of Radiologic Technologists (ARRT) in Radiography, Radiation Therapy, or Sonography, or certified by ARRT of the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine. Use of correct magnetic resonance imaging instrumentation, protocol implementation and positioning techniques. Apply MRI safety, quality control procedures and effective patient care and communication skills. Prerequisites: Currently enrolled in the Magnetic Resonance Imaging Program.

ICE269  3 Credits  3 Periods
Magnetic Resonance Procedure Protocols
Imaging techniques related to the central nervous system (CNS), neck, thorax, musculoskeletal system and abdominopelvic regions. Specific clinical application, available coils and use. Considerations in scan sequences, specific choices in protocols including slice thickness, phase direction, flow compensation, and positioning criteria. Anatomical structures and plane that best demonstrates anatomy. Signal characteristics of normal and abnormal structures. Prerequisites: [(Certified by American Registry of Radiologic Technologists (ARRT) in Radiography or in Radiation Therapy), or (certified by ARRT or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine), or Certified by the American Registry of Diagnostic Medical Sonography (ARDMS) or (Radiography or Nuclear Medicine student), or registry eligible graduate] and ICE233 and ICE264 with a grade of “C” or higher, or permission of Instructor.

ICE272  3 Credits  3 Periods
Magnetic Resonance Pathology and Contrast
Common pathologies found in magnetic resonance imaging, their appearance with various imaging protocols including all commonly imaged body systems and areas. Case studies and images of the pathologies to reinforce the lectures. Prerequisites: [(Certified by American Registry of Radiologic Technologists (ARRT) in Radiography or in Radiation Therapy), or (certified by ARRT or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine), or Certified by the American Registry of Diagnostic Medical Sonography (ARDMS) or (Radiography or Nuclear Medicine student), or registry eligible graduate] and ICE233 and ICE264 with a grade of “C” or higher, or permission of Instructor.
ICE273  3 Credits  3 Periods
Computed Tomography Pathology
Common diseases diagnosed using Computed Tomography (CT) imaging. Appearance of pathology on CT to include: physiology, etiology, indications for exam, findings, and diagnosis. Case studies, images, and descriptions of pathologic conditions in various body systems will be presented in alignment with CT certification guidelines published by the American Registry of Radiologic Technologists (ARRT). Prerequisites: [(Certified ARRT in Radiography/Radiation Therapy) or (ARRTNMTCB cert in Nuclear Medicine) or (Radiography/Nuclear Medicine student) or eligible grad] & DMI/DMS/ICE220 & ICE248 with a C or higher, or permission of Instructor.

ICE291  1 Credit  1 Period
Computed Tomography Registry and Board Exam Preparation
Discussion of concepts outlined in the American Registry of Radiologic Technologists (ARRT) published content specifications for their post-primary certification exam in computed tomography (CT). Prerequisites: DMI/DMS/ ICE220, ICE248, and ICE263, or permission of Instructor.

ICE292  1 Credit  1 Period
MRI Board Exam Review Preparation
Preparation for the American Registry of Radiologic Technologists (ARRT) Medical Resonance Imaging (MRI) examination. Review of elements required to pass the AART examination, including patient care and safety, imaging procedures, data acquisition, and physical principles of image formation. Prerequisites: DMI220, ICE229, ICE233, ICE264, ICE269, and ICE272. Corequisites: ICE254.

INTERSTATE MECHANICAL CONTRACTORS (IMC)

IMC112  6 Credits  6 Periods
Introduction to Mechanical Trades Construction
Theories and concepts for mechanical trades construction: Basic safety, materials handling and construction math. Application and maintenance of hand and power tools, and basic rigging. Types and interpretation of construction drawings. Introduction to basic communication and employability skills. Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.

IMC114  6 Credits  6 Periods
Overview of Mechanical Trades: Sheet Metal, Pipefitting, and Plumbing
Overview of the work performed in the mechanical trades. Theories and concepts of care, use, and safety procedures related to hand and power tools motorized equipment. Introductory concepts in construction drawings, safety hazards and installation of ductwork. Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.

IMC122  6 Credits  6 Periods
Multiple Trades Cross Training: Tubes, Fittings and Piping Systems
Principles of architectural sheet metal, copper tube and fittings, carbon steel pipe and fittings, mechanical piping systems, and plastic pipe and fittings. Introductory concepts of drain, waste and vent (DWV) systems, soldering for sheet metal and pipefitting power tools. Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.

IMC124  6 Credits  6 Periods
Multiple Trades Cross Training: Standards
Fundamentals and theories of trade standards for sheet metal, plumbing systems, and mechanical piping systems installation. Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.
Course Listings 2017-2018

IMC231  6 Credits  6 Periods
Mechanical Trades Construction: Plumbing Intermediate Principles and Concepts
Intermediate principles and concepts for the plumbing trade related to commercial drawings and calculations. Installation of fixtures, valves, faucets, roof, floor and area drain. Types of drains and fuel gas systems. Prerequisites: Registered apprenticeship status or permission of Apprenticeship Coordinator.

IMC233  6 Credits  6 Periods
Mechanical Trades Construction: Sheet Metal Intermediate Principles and Concepts
Intermediate principles and concepts for the sheet metal trade related to duct fabrication standards, air properties, bend allowances, field measuring, and triangulation. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IMC235  6 Credits  6 Periods
Mechanical Trades Construction: Pipefitting Intermediate Principles and Concepts
Intermediate principles and concepts for the pipefitting trade related to trade calculations, motorized equipment, above ground pipe installation. Emphasis on field routing, vessel trim, pipe hangers and support, testing systems and equipment. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IMC236  6 Credits  6 Periods
Mechanical Trades Construction: Plumbing Advanced Principles and Concepts
Advanced principles and concepts for the plumbing trade related to water supply piping installation, testing, and sizing. Application of advanced trade calculations and fundamentals of backflow prevention and types of venting. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IMC237  6 Credits  6 Periods
Mechanical Trades Construction: Sheet Metal Advanced Principles and Concepts
Advanced principles and concepts for the sheet metal trade related to piping practices, radial line development, layout and fabrication. Emphasis on air systems, shop production and organization. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IMC238  6 Credits  6 Periods
Mechanical Trades Construction: Pipefitting Advanced Principles and Concepts
Advanced principles and concepts for the pipefitting trade relative to blueprint reading, drawing, and detail sheets. Advanced application of weld pipe fabrication, rigging, standards, and specifications. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IMC241  6 Credits  6 Periods
Mechanical Trades Construction: Plumbing Advanced Skill Building
Application and review of advanced principles for drain, waste and vent (DWV) systems, pumps, compressed air systems, and potable water treatment. Fundamentals of business practices for plumbers. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IMC243  6 Credits  6 Periods
Mechanical Trades Construction: Sheet Metal Advanced Skill Building
Application and review of advanced sheet metal layout, fabrication, and installation. Review principles of airflow, air distribution systems, standards, comprehensive planning and specification reading. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IMC245  6 Credits  6 Periods
Mechanical Trades Construction: Pipefitting Advanced Skill Building
Application and review of advanced principles and concepts for valve maintenance, hot taps, special piping, and pipe fabrication. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.
Course Listings 2017-2018

IMC246 6 Credits 6 Periods
Mechanical Trades Construction: Plumbing Advanced Applications and Techniques
Application and review of advanced plumbing techniques for water pressure boosters, recirculation systems, review and function of codes for indirect and special wastes and the plumbing industry. Introduction to hydronic and solar heating systems, servicing piping systems, fixtures and appliances. Team leadership skills. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IMC247 6 Credits 6 Periods
Mechanical Trades Construction: Sheet Metal Advanced Applications and Techniques
Application and review of advanced sheet metal techniques for air testing and balancing. Review of codes and specifications pertaining to fume and exhaust system design including review and practice of lay out patterns, fabrication and selection of sheet metal fittings. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IMC248 6 Credits 6 Periods
Mechanical Trades Construction: Pipefitting Advanced Applications and Techniques
Overview of the Ironworker labor history, green construction, work place issues and sexual harassment. Basic safety, measuring, tools and rigging. Types of ironwork and welding. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IRONWORKING (IRW)
IRW101 3 Credits 3 Periods
Ironworking: Orientation
Overview of the Ironworker labor history, green construction, work place issues and sexual harassment. Basic safety, measuring, tools and rigging. Types of ironwork and welding. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IRW104 1.5 Credits 1.5 Periods
Ironworking: Blueprint Reading
Basic elements of construction drawings including characteristics of various types of blueprints for ironworkers. Drawing interpretation, general abbreviations, acronyms, and basic symbols recognition and drawing classifications. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

IRW122 3 Credits 3 Periods
Cranes
Cause of fatalities. Load charts, wire rope, capacity, hook loads. Ground pressure, minimum and maximum clearances, list and trim. Floating cranes. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

IRW150 3 Credits 4 Periods
Rigging I
Rigging history, principles and blocks. Rigging safety. Fabric and wire rope, steal chain, sockets, slings, rigging hardware. Slicing techniques. Reeving systems and personnel requirements. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

IRW160 3 Credits 4 Periods
Architectural Ironworking I
Curtain, window wall systems, skylights, storefronts, entranceways, cable walls, sealants, glazing, rails, doors, anchors and fasteners, stairs and ladders, catwalks, grating, fence and guardrails, detention systems, testing, installation and erection. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.
IRW161  3 Credits  4 Periods
Architectural Ironworking II
Introduction to layout, basic tools, mathematics, automatic levels, lasers, theodolites and transits including total station. Prerequisites: IRW160 and registered apprentice status or permission of the apprenticeship coordinator.

MANAGEMENT (MGT)
MGT101  3 Credits  3 Periods
Techniques of Supervision
Overview of the foundations of supervision and how to get things done within an organization through other people. The functions of planning, organizing, staffing, motivating and controlling are presented. Prerequisites: None.

MGT227  3 Credits  3 Periods
Training and Instructional Design for Health Information Technology
Overview of learning management systems, instructional design software tools, teaching techniques and strategies, evaluation of learner competencies, maintenance of training records, and measurement of training program effectiveness. Prerequisites: Permission of Program Director or Instructor.

MGT228  3 Credits  3 Periods
Management, Planning, and Leadership for Health Information Technology
Principles of leadership and effective management of teams for Health Information Technology. Emphasis on the leadership modes and styles best suited to IT deployment. Survey of health care and public health organization and delivery in the United States, with an emphasis on professional roles, legal, ethical, and regulatory issues, and payment systems. Analysis of health reform initiatives in the U.S. Concept of “meaningful use” of electronic health records. Prerequisites or Co-requisites: GBS110 or MGT251.

MGT253  3 Credits  3 Periods
Owning and Operating a Small Business
Starting, organizing, and operating a small business, including location, finance management processes, advertisement and promotion, Credits, inventory control and ethics. Prerequisites: None.

MGT276  3 Credits  3 Periods
Personnel/Human Resources Management
Human resource planning, staffing, training, compensating, and appraising employees in labor management relationships. Prerequisites: None. MGT101, or MGT175, or MGT229 suggested but not required.

MANUFACTURING TECHNOLOGY (MET)
MET109  3 Credits  4 Periods Machine Trades Print Reading
Analysis and interpretation of technical drawings (prints) common to manufacturing. Types of print formats, line types, and view projections. Mathematical calculations for determining dimensions. Symbols and features present on prints. Introduction to Geometric Dimensioning and Tolerancing (GD&T) as it relates to prints. Prerequisites: (Math assessment score on District placement exam into MAT090 or MAT091 or MAT092 or higher) or permission of Department or Division.

MET112  3 Credits  5 Periods
Inspection Techniques
Set-up and use of inspection tools, equipment, per industry standards including the use of surface plates, right angle blocks, cylindrical squares, V-Blocks, and related equipment. Selection, completion and interpretation of information from inspection forms. Inspection alternatives, tool control activities, and application of geometric dimensioning and tolerance. Prerequisites: (Math assessment score on District placement exam into MAT090 or MAT091 or MAT092 or higher) or permission of Department or Division. Prerequisites or Corequisites: MET109.
MET113  3 Credits  5 Periods
Applied Geometric Dimensioning and Tolerance
Terminology and application of symbols, modifiers, and datum relationships specific to geometric dimensioning and
tolerance (GDT) in prints and solid models using the Y14.5-2009 Standard. Use of geometric controls to document
design intent and demonstrate the application of material condition modifiers through the use of simulation/
SolidWorks application. Incorporation of SolidWorks to demonstrate and evaluate the correctness of GDT applied to
manufacturing, quality, and verification processes. Prerequisites: (Math assessment score on District placement exam
into MAT090 or MAT091 or MAT092 or higher) and MET109, or permission of Department or Division.

MET206  3 Credits  6 Periods
CNC Programming
Manual programming using computer generation of program media. Set-up and operation of a three axis machine.
Study of management implications and advantages of numerical control. Prerequisites: MET102 or (MET102AA,
MET103AA, MET104AA and MET105AA), or machine shop experience or permission of program director.

MET207  3 Credits  3 Periods
CNC Mill: Operator Training I
tool values. Replacing and qualifying tooling. CNC Mill operator training including machine controls, tooling and
operations. Proper machine shop safety. Prerequisites: MET231 or permission of Program Director. Prerequisites or
Corequisites: GTC/MET206 or permission of Program Director.

MET208  3 Credits  3 Periods
CNC Lathe: Operator Training I
tool values. Replacing and qualify tooling. CNC Lathe operator training including machine controls, tooling and
operations. Proper machine shop safety. Prerequisites: MET231 or permission of Program Director. Prerequisites or
Corequisites: GTC/MET206 or permission of Program Director.

MET215  3 Credits  5 Periods
Advanced CNC Operation
Setup and operation of a Computer Numerical Control (CNC) machining center. Manufacturing operation
instructions and functioning programming. Changing tool values. Replacing and qualify tooling. Advanced CNC topics
including production tooling and coolants, live tooling (mill/turn), tail stock, bar pull/feed, advanced program editing,
canned cycle use and manipulation, set up time reduction, advanced machine control manipulation communication
techniques, and fixturing concepts. Proper machine shop safety. Prerequisites: MET207, or MET208, or permission of
Instructor.

MET220  3 Credits  4 Periods
Fundamentals of Coordinate Measuring Machines (CMM)
Fundamentals and general aspects of coordinate measuring machines (CMM). Basic measuring techniques and
operation, including conformance to geometric dimensioning and tolerancing requirements using both manual and
programmable (automatic) coordinate measuring machines. Prerequisites: MET112 and MET113.

MET231  3 Credits  5 Periods
Manufacturing Processes and Materials
Basic machining operations related to drilling, milling, grinding, and lathe processes. Development of fundamental
skills, practices and safety in working with machine tools, measurement instruments, and related equipment common
to manufacturing. Theoretical and practical experiences related to the machining of plastics, ferrous and nonferrous
metals. Laboratory projects and inspection sheets for each project. Prerequisites: (Math assessment score on District
placement exam into MAT090 or MAT091 or MAT092 or higher) and MET112, or permission of Department or Division.
Prerequisites or Corequisites: MET113.
MET236AD  3 Credits  5 Periods
**CAD/CAM Computer Numerical Control (CNC) Programming: MasterCam**
Computer Programming of two-dimensional (2-1/2 Axis) Computer Numerical Control (CNC) Machines. Tool path generation for CNC mill, lathe, wire EDM, router, laser, waterjet and hybrid CNC machine tools. Tool path geometry creation, importation and modification. Cutting parameters selection, including tool geometry, speeds, feeds and tool path optimization. Tool path simulation for material removal verification with solid and wireframe graphics. Word Address (G-code) CNC tool code production and output verification on FANUC and HAAS based machine tools. Prerequisites: GTC/MET206 or permission of program director.

MET246AD  3 Credits  5 Periods
**Advanced CAD/CAM CNC Programming: MasterCam**
Computer programming of three-dimensional (3D) (3 and 4-axis simultaneous) Computer Numerical Control (CNC) Machines. Tool path generation for CNC mill, lathe, Wire-EDM, router, laser, waterjet and hybrid CNC machine tools. Tool path geometry creation, importation and modification. Cutting parameters selection and control, including tool geometry, speeds, feeds and tool path optimization. Tool path simulation for material removal verification with solid and wireframe graphics. Produce Word Address (G-code) CNC tool code production and output verification on FANUC and HAAS based machine tools. Prerequisites: MET236AD.

MET260  3 Credits  3 Periods
**Tooling and Fixturing**
Various types of jigs and fixtures and their function as related to Numerically Controlled (NC) machines. Clamping and workholding principles and also use of common jigs and fixture hardware. Prerequisites: (MET111 and MET140) or permission of department.

MET266AD  3 Credits  5 Periods
**Solids CAD/CAM Programming: Mastercam**
Solid Modeling of parts, molds and fixtures using integrated solids; hybrid modeling of solids, surfaces and wireframe for Computer Numerical Control (CNC) part production. Computer Aided Drafting to Computer Aided Manufacturing (CAD/CAM) system integration with Solid Model feature recognition and history tree management. Boolean addition, subtraction and common for volume calculation between solids and surfaces. Prerequisites: MET246AD, or permission of instructor.

MET286AE  3 Credits  5 Periods
**Solid Design I: Part Modeling: Solid Works**
Basic concepts of solid model mechanical design. Feature-based parametric modeling for mechanical design and technical documentation. Creation of technical documents of mechanical parts and assemblies per the American Society of Mechanical Engineers (ASME) Y14 standards. Prerequisites: MET109, or permission of instructor.

MET288AE  3 Credits  5 Periods
**Solid Design II: Advanced Part Modeling: SolidWorks**
Hardware and software components of the SolidWorks system and their function. Advanced features utilized in the design of solids. Skill enhancement in the creation of advanced assemblies and part design. Use of specific tools in the design of complex surfaces. Hands on applications with SolidWorks system. Prerequisites: MET286AE, or permission of instructor.

MET291AE  1 Credit  2 Periods
**Solid Design: Certified SolidWorks Associate / Certified SolidWorks Professional Test Preparation**
Preparation for latest Certified SolidWorks Associate (CSWA) or Certified SolidWorks Professional (CSWP) exam. Exam objectives, and Solid Design, Assemblies, COSMOSxpress and Technical Documentation in current version; Core SolidWorks. Prerequisites: Permission of instructor.
MET292AE  3 Credits  5 Periods
Solid Design 3D Printing: Techniques in Additive Manufacturing
Assembly modeling of mechanical design. Use of top-down and bottom-up technique for product development. Creation of engineering drawings for parts and assemblies using associative mechanical design software. Motion study and fitment analysis of assembly model applying techniques of additive manufacturing. Application of kinematics; linear and rotary motors, springs gravity and contact mechanisms to validate 3D print Model. 3D printing using various additive manufacturing materials including Acrylonitrile Butadiene Styrene (ABS), Polylactic Acid (PLA) and Nylon. Prerequisites: MET113 and MET288AE, or permission of Instructor.

MET293AE  3 Credit  4 Periods
Solid Design: Surface Modeling: SolidWorks
Use of various techniques for creation of complex surfaces with tangent and curvature continuities. Creation of solid features using surfaces as reference for complex geometry and freeform shapes. Manipulation of surfaces using editing tools. Analysis of surfaces for quality and desired characteristics. Prerequisites: MET292AE, or MET289AE, or permission of Instructor.

MET294AE  3 Credit  4 Periods
Solid Design: Sheet Metal: SolidWorks
Use of various tools and techniques to model sheet metal parts. Design of sheet metal parts and assemblies. Creation of sheet metal production drawings. Transformation of a part built conventionally into a sheet metal part so it can be flattened and sheet metal specific features can be applied. Prerequisites: MET292AE, or MET289AE, or permission of Instructor.

MARKETING (MKT)
MKT268  3 Credits  3 Periods
Merchandising
Surveys structure and operation of retail organizations. Emphasizes merchandising to include price, location, time promotion and quantity. Prerequisites: None. MKT271 suggested but not required.

MKT271  3 Credits  3 Periods
Principles of Marketing
An analysis of the marketing process and environment with regard to the product, pricing, distribution, and communication in order to satisfy buyer needs. Prerequisites: None.

MATHEMATICS (MAT)
MAT081  4 Credits  4 Periods
Basic Arithmetic
Primary emphasis on conceptual understanding of and solving problems involving whole numbers, integers, mathematical operations, decimals, decimal operations, fractions, percentages, angles and geometric figures. Use of systems of measure, similarity, proportionality and the Pythagorean theorem. Focus on mathematical language, connections, patterns and reasoning, and additive and multiplicative reasoning. Prerequisites: Satisfactory score on district placement exam. Course Note: Student may receive credit for only one of the following: MAT051 and MAT052 and MAT053 and MAT054, or MAT081, or MAT082.

MAT082  3 Credits  3 Periods
Basic Arithmetic
Primary emphasis on conceptual understanding of and solving problems involving whole numbers, integers, mathematical operations, decimals, decimal operations, fractions, percentages, angles and geometric figures. Use of systems of measure, similarity, proportionality and the Pythagorean theorem. Focus on mathematical language, connections, patterns and reasoning, and additive and multiplicative reasoning. Prerequisites: Satisfactory score on district placement exam. Course Note: Student may receive credit for only one of the following: (MAT051 and MAT052 and MAT053 and MAT054), or MAT081, or MAT082.
MAT091 4 Credits 4 Periods
Introductory Algebra
Emphasis on meanings related to variable, equality, inequality, equivalence. The use of additive and multiplicative reasoning in solving linear equations and inequalities in one variable. Validation of solution(s) through a reasonable mathematical defense. Transfer and apply knowledge through a process of sense making and reasonableness in mathematical problems and practical application situations. Recognize patterns and organize data to represent situations where output is related to input. Understand the concept of function and be able to represent functions in multiple ways, including tables, algebraic rules, graphs and contextual situations, and make connections among these representations. Read, represent, and interpret linear function relationships numerically, analytically, graphically and verbally and connect the different representations. Model and solve real world problems involving constant rate of change. Prerequisites: A grade of “C” or better or satisfactory Math Diagnostic Assessment score for (MAT051, MAT052, MAT053, and MAT054), or MAT081, or MAT082. Course Note: Student may receive credit for only one of the following: MAT055 and MAT056 and MAT057, or MAT090, or MAT091, or MAT092.

MAT092 3 Credits 3 Periods
Introductory Algebra
Emphasis on meanings related to variable, equality, inequality, equivalence. The use of additive and multiplicative reasoning in solving linear equations and inequalities in one variable. Validation of solution(s) through a reasonable mathematical defense. Transfer and apply knowledge through a process of sense making and reasonableness in mathematical problems and practical application situations. Recognize patterns and organize data to represent situations where output is related to input. Understand the concept of function and be able to represent functions in multiple ways, including tables, algebraic rules, graphs and contextual situations, and make connections among these representations. Read, represent, and interpret linear function relationships numerically, analytically, graphically and verbally and connect the different representations. Model and solve real world problems involving constant rate of change. Prerequisites: A grade of “C” or better or satisfactory Math Diagnostic Assessment score for (MAT051, MAT052, MAT053, and MAT054), or MAT081, or MAT082. Course Note: Student may receive credit for only one of the following: MAT055 and MAT056 and MAT057, or MAT090, or MAT091, or MAT092.

MAT092AB 1 Credit 1 Period
Introductory Algebra/Polynomials
Fundamental operations with polynomials in one or more variables. Techniques in factoring and its use in equation solving. Prerequisites: Grade of C or better in MAT092AA.

MAT120 5 Credits 5 Periods
Intermediate Algebra
Analysis of rational, radical, quadratic and exponential equations, functions and applications; graphs of radical, quadratic and exponential functions; operations on polynomial, rational, and radical expressions. Prerequisites: (A grade of “C” or better in MAT090, or MAT091, or MAT092, or MAT093), or successful completion of required Maricopa Modules, or satisfactory score on District placement exam. Course Notes: Students may receive credit for only one of the following: MAT120, MAT121, or MAT122.

MAT121 4 Credits 4 Periods
Intermediate Algebra
Analysis of rational, radical, quadratic and exponential equations, functions and applications; graphs of radical, quadratic and exponential functions; operations on polynomial, rational, and radical expressions. Prerequisites: (A grade of “C” or better in MAT090, or MAT091, or MAT092, or MAT093), or successful completion of required Maricopa Modules, or satisfactory score on District placement exam. Course Notes: Students may receive credit for only one of the following: MAT120, MAT121, or MAT122.
MAT122  3 Credits  3 Periods
Intermediate Algebra
Analysis of rational, radical, quadratic and exponential equations, functions and applications; graphs of radical, quadratic and exponential functions; operations on polynomial, rational, and radical expressions. Prerequisites: (A grade of “B” or better in MAT090, or MAT091, or MAT092, or MAT093), or successful completion of required Maricopa Modules, or satisfactory score on District placement exam. Course Notes: Students may receive credit for only one of the following: MAT120, MAT121, or MAT122.

MAT141  4 Credits  4 Periods
College Mathematics
Working knowledge of college-level mathematics and its applications to real-life problems. Emphasis on understanding mathematical concepts and their applications. Topics include set theory, probability, statistics, finance, and geometry. Note: Appropriate for the student whose major does not require college algebra or precalculus. Prerequisites: (A grade of “C” or better in MAT090, or MAT091, or MAT092, or MAT093), or successful completion of Maricopa Modules, or satisfactory score on District placement exam, or a grade of “C” or better in MAT120, or MAT121, or MAT122. Course Notes: Students may receive credit for only one of the following: MAT140, MAT141, or MAT142.

MAT142  3 Credits  3 Periods
College Mathematics
College-level mathematics and its applications to real-life problems. Emphasis on understanding mathematical concepts and their applications. Topics include set theory, probability, statistics, finance, and geometry. Prerequisites: (A grade of “B” or better in MAT090, or MAT091, or MAT092, or MAT093), or successful completion of Maricopa Modules, or satisfactory score on District placement exam, or a grade of “C” or better in MAT120, or MAT121, or MAT122. Course Notes: Students may receive credit for only one of the following: MAT140, MAT141, or MAT142.

MAT150  5 Credits  5 Periods
College Algebra/Functions
Analysis and interpretation of the behavior and nature of functions including polynomial, rational, exponential, logarithmic, power, absolute value, and piecewise-defined functions; systems of equations, modeling and solving real world problems. Additional topics may include matrices, combinatorics, sequences and series, and conics. Prerequisites: Grades of “C” or better in MAT120, or MAT121, or MAT122 or equivalent, or satisfactory score on District placement exam. May receive credit for only one of the following: MAT150, MAT151, MAT152, or MAT187.

MAT151  4 Credits  4 Periods
SUN# MAT1151 College Algebra/Functions
Analysis and interpretation of the behavior and nature of functions including polynomial, rational, exponential, logarithmic, power, absolute value, and piecewise-defined functions; systems of equations, modeling and solving real world problems. Additional topics may include matrices, combinatorics, sequences and series, and conics. Prerequisites: Grade of “C” or better in MAT120, or MAT121, or MAT122, or equivalent, or satisfactory score on District placement exam. May receive credit for only one of the following: MAT150, MAT151, MAT152, or MAT187. General Education Designation: Mathematics - [MA] in combination with: MAT182.

MAT152  3 Credits  3 Periods
College Algebra / Functions
Analysis and interpretation of the behavior and nature of functions including polynomial, rational, exponential, logarithmic, power, absolute value, and piecewise-defined functions; systems of equations, modeling and solving real
world problems. Additional topics may include matrices, combinatorics, sequences and series, and conics. Prerequisites: Grade of “B” or better in MAT120, or MAT121, or MAT122, or equivalent, or satisfactory score on District placement exam. Students may receive credit for only one of the following: MAT150, MAT151, MAT152, or MAT187.

MAT182  3 Credits  3 Periods
Plane Trigonometry
A study of measures of angles, properties of graphs of trigonometric functions, fundamental identities, addition and half-angle formulas, inverse trigonometric functions, solutions of trigonometric equations, complex numbers and properties of triangle solution. Prerequisites: Grade of “C” or better in MAT150, or MAT151, or MAT152, or equivalent, or concurrent registration in MAT150, or MAT151, MAT152, or satisfactory score on District placement exam.

MAT187  5 Credits  5 Periods
SUN# MAT1187 Pre-calculus
A precalculus course combining topics from college algebra and trigonometry. Preparation for analytic geometry and calculus. Prerequisites: Grade of “B” or better in MAT120, or MAT121, or MAT122, or equivalent, or satisfactory score on district placement exam. Strongly recommended that students have some knowledge of trigonometry. Students may receive credit for only one of the following: MAT150, MAT151, MAT152, or MAT187.

MAT206  3 Credits  3 Periods
SUN# MAT1160 Elements of Statistics
Basic concepts and applications of statistics, including data description, estimation and hypothesis tests. Prerequisites: (A grade of “C” or better in MAT140 or MAT141 or MAT142) or (A grade of “C” or better in MAT150 or MAT151 or MAT152) or equivalent, or satisfactory score on District placement exam.

MAT212  3 Credits  3 Periods
Brief Calculus
Introduction to the theory, techniques and applications of the differential and integral calculus of functions with problems related to business, life, and the social sciences. Prerequisites: Grade of “C” or better in MAT150, or MAT151, or MAT152, or MAT187, or appropriate Math placement test score. Students may receive credit for only one of the following: MAT212 or MAT213.

MAT213  4 Credits  4 Periods
Brief Calculus
Introduction to the theory, techniques, and applications of the differential and integral calculus of functions with problems related to business, life, and the social sciences. Prerequisites: Grade of “C” or better in MAT150, or MAT151, or MAT152, or MAT187, or appropriate Math placement test score. Students may receive credit for only one of the following: MAT212 or MAT213.

MAT217  3 Credits  3 Periods
Mathematical Analysis for Business
An introduction to the mathematics required for the study of business. Includes multivariable optimization, Lagrange multipliers, linear programming, linear algebra, probability, random variables, discrete and continuous distributions. Prerequisites: Grade of “C” or better in MAT212 or MAT213.

MAT218  4 Credits  4 Periods
Mathematical Analysis for Business
An introduction to the mathematics required for the study of business. Includes multivariable optimization, Lagrange multipliers, linear programming, linear algebra, probability, random variables, discrete and continuous distributions. Prerequisites: Grade of “C” or better in MAT212 or MAT213.
MAT220 5 Credits 5 Periods
SUN# MAT2220 Calculus with Analytic Geometry I
Limits, continuity, differential and integral calculus of functions of one variable. Prerequisites: Grade of "C" or better in [MAT182 and (MAT150, MAT151 or MAT152)], or MAT187, or appropriate Math placement test score. Students may receive credit for only one of the following: MAT220 or MAT221.

MAT221 4 Credits 4 Periods Calculus with Analytic Geometry I
Limits, continuity, differential and integral calculus of functions of one variable. Prerequisites: Grade of "C" or better in [MAT182 and (MAT150, MAT151 or MAT152)], or MAT187, or appropriate Math placement test score. Students may receive credit for only one of the following: MAT220 or MAT221.

MAT230 5 Credits 5 Periods
Calculus with Analytic Geometry II
Techniques of integration for both proper and improper integrals with applications to the physical and social sciences, elements of analytic geometry, and the analysis of sequences and series. Prerequisites: Grade of "C" or better in MAT220, or MAT221, or equivalent. Student may receive credit for only one of the following: MAT230 or MAT231.

MAT231 4 Credits 4 Periods
Calculus with Analytic Geometry II
Techniques of integration for both proper and improper integrals with applications to the physical and social sciences, elements of analytic geometry, and the analysis of sequences and series. Prerequisites: Grade of "C" or better in MAT220, or MAT221, or equivalent. Student may receive credit for only one of the following: MAT230 or MAT231.

MAT240 5 Credits 5 Periods
Calculus with Analytic Geometry III
Multivariate calculus including vectors, vector-valued functions, partial differentiation, multiple integration and an introduction to vector fields. Prerequisites: Grade of "C" or better in MAT230 or MAT231. Student may receive credit for only one of the following: MAT240 or MAT241.

MAT241 4 Credits 4 Periods
Calculus with Analytic Geometry III
Multivariate calculus including vectors, vector-valued functions, partial differentiation, multiple integration and an introduction to vector fields. Prerequisites: Grade of "C" or better in MAT230 or MAT231. Student may receive credit for only one of the following: MAT240 or MAT241.

MAT256 4 Credits 4 Periods
Investigating Quantity: Number, Operations and Numeration Systems
Explore number, number systems and operations on numbers. Techniques of problem solving with an emphasis on exploring a variety of strategies. Use a variety of visualization techniques to develop a conceptual understanding of these topics. Prerequisites: Grade of C or better in (MAT150/151/152/ higher) or grade of C or better in [(MAT120/121/122) & (MAT140/141/142/higher)] or [grade of C/better in (MAT140/141/142) & satisfactory score on District placement exam in (MAT150/151/152/higher)].

MAT257 4 Credits 4 Periods
Investigating Geometry, Probability and Statistics
Explores geometry, measurement, probability and statistics. Uses visualization, technologies, problem solving, reasoning and proof to develop a conceptual understanding of these topics. Prerequisites: MAT256 or permission of Instructor.
MAT276 4 Credits  4 Periods Modern Differential Equations
Introduces differential equations, theoretical and practical solution techniques with applications. Problem solving using MATLAB. Prerequisites: Grade of “C” or better in MAT230, or MAT231, or permission of Department or Division. Students may receive credit for only one of the following: MAT276 or MAT277.

MECHANICAL APPRENTICESHIPS (MEC)
MEC108 5 Credits  5 Periods
Residential and Industrial Plumbing III

MEC110 5 Credits  5 Periods
Introduction to Sheet Metal
Introductory concepts of the sheet metal trade to include trade history, apprenticeships and craftsmanships. Metals and trade safety. Operation and maintenance of tools and machinery. Selection and installation of fasteners, hangers, and supports. Trade calculations including denominate numbers and metric, linear, square, volume, and weight measurements. Stretchouts and geometric figures. Prerequisites: Registered apprentice status or permission of apprenticeship coordinator.

MEC118 5 Credits  5 Periods
Residential and Industrial Plumbing IV
Properties of water and plumbing traps. Air, air chamber, and sizing. High and low level pressure measurement. Manometer, gauge selection and use. Vibration, turbulence, and water hammer. Roof, floor and area drains. Oil and gas fuel systems. Prerequisites: Registered apprentice status or permission of apprenticeship coordinator.

MEC120 1.5 Credits  1.5 Periods
Basic Calculations for Construction
Addition, subtraction, multiplication and division of whole, decimal, fractional and metric numbers. Metric units of length, weight, volume and temperature. Metric system as it relates to the construction trade. Basic algebraic operations and equations. Prerequisites: Registered Apprentice status or permission of the apprenticeship coordinator.

MEC204 5 Credits  5 Periods
Advanced Construction Pipe Trades II
Piping systems, hangers and supports, thermal expansion, insulation. Residential and commercial plumb drawings. Rigging equipment, load, and weight. Assembly and fabrication. Vessel trim, springs and supports. Valves, materials, fixtures. Aboveground pipe, pipe sleeves, and floor penetrations. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

MEC205 5 Credits  5 Periods
Residential and Industrial Plumbing V
Gas and plumbing code requirements. Residential, commercial, industrial, institutional plumbing practices. Fixtures, appliances, fixture fittings, valves, and trim. Gas piping installation, pipe sizing, pipe fittings and connections, appliances, regulators, meters, controls, and corrosion. Advanced plumbing calculations. Specific plumbing systems and specialized water systems. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.
MEC207  5 Credits  5 Periods  
Residential and Industrial Plumbing VI
Advanced plumbing calculations. Offsets, tank capacities, volume and weight, rations and proportions, sizing, and piping expansion. Energy, temperature, heat transfer, stratification, multiple heaters, and recirculation. Basic electricity and troubleshooting. Safety, current, motors, circuits, humidity and condensation. Plumbing, electrical, heating/ventilation/air conditioning (HVAC), and detail blueprints. Specialized plumbing. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

MEC208  5 Credits  5 Periods  
Residential and Industrial Plumbing VII
General considerations, leaks and drainage. Installation, repair, and service of residential, commercial, industrial, and institutional heating systems. In-ground and above-ground water piping, drainage, waste and vent. Fuel gas piping, lead products, water heaters, waste stoppages, and water hammer. Blueprint reading. Installation of waste systems. Interceptors and backwater valves. Heating systems. Water protection, and conservation in heating systems. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

MEC218  5 Credits  5 Periods  
Residential and Industrial Plumbing VIII

MICROSOFT TECHNOLOGY (MST)

MST150SV  3 Credits  4 Periods  
Microsoft Windows 7 Configuration
Knowledge and skills necessary to perform installation and day-to-day administration and support of the Microsoft Windows 7 operating system. Preparation for the Microsoft certification examination. Prerequisites: None. CIS190, or CNT140AA, or MST140 suggested but not required.

MILLWRIGHT: APPRENTICESHIP (MWR)

MWR101  2 Credits  2 Periods  
Introduction to Millwrighting I

MWR102  2 Credits  2 Periods  
Introduction to Millwrighting II: OSHA Safety
Safe and proper use of hand and power tools. Safe work habits, first aid, and cardiopulmonary resuscitation (CPR) according to Occupational Safety and Health Administration (OSHA) regulations. Prerequisites: (MWR101 and registered apprentice status) or permission of the apprenticeship coordinator.

MWR105  2 Credits  2 Periods  
Millwrighting General Skills
Basic machine shop skills, use of hand and power tools, machining equipment, and precision instruments in several practical exercises preparation for mastery of the skills. Machining operations involving the use of precision measuring, layout and machining procedures. Review of fundamental machine shop activities. Prerequisites: (MWR101, MWR102, and registered apprentice status) or permission of the Apprenticeship coordinator.
MWR106  2 Credits     2 Periods
Math for Millwrighting, Hand, Power and Precision Tools
Fundamental operations with whole numbers, common fractions, decimals, percentages, and ratio and proportion. Measurement tools. Fundamentals of Algebra, linear equations, includes applied math problems. Use, maintenance and safety procedures for common hand and power tools used in the construction industry. Prerequisites: (MWR103 and registered apprentice status) or permission of the apprenticeship coordinator.

MWR107  2 Credits     2 Periods
Drives, Pulleys and Belts
Identification, application, and installation skills for typical power drive systems. Demonstrations and practice exercises on the belt, chain and gear drives. Review of safety, rigging tasks, machinery fastening methods, and mechanical shop drawings. Prerequisites: (MWR104 and registered apprentice status) or permission of the apprenticeship coordinator.

MWR108  2 Credits     2 Periods
Blueprint Reading for Millwrighting I
Types of blueprints, sketching and basic print reading. Symbols for materials, construction details, standards, and specifications. Prerequisites: (MWR101, MWR102, and registered apprentice status) or permission of the apprenticeship coordinator.

MWR205  2 Credits     2 Periods
Machinery Shaft Alignment
Terms, characteristics, and methods for aligning machine shafts. Procedures for sequence performance, conventional dial indicator and computer aided. Setting up indicators, taking and recording indicator readings and determining alignment correction. Prerequisites: (MWR101, MWR102, and registered apprentice status) or permission of the apprenticeship coordinator.

MWR208  2 Credits     2 Periods
Pumps, Compressors and Flow Seals
Fundamentals and theory of hydraulics and pneumatics. Types, components, construction, and assembly of pumps and compressors. Inner workings of industrial pumps and compressors. Design and installment of auxiliary equipment and accessories. Prerequisites: (MWR206 and registered apprentice status) or permission of the apprenticeship coordinator.

MUSIC: PERFORMANCE
MUP225  2 Credits     3 Periods
Class Guitar I
Emphasis on note-reading and folk-style harmonic accompaniment. Includes finger-style playing. Stresses development of efficient practice techniques and proper sitting and hand positions. Requisites: None Prerequisites: None

MUP226  2 Credits     3 Periods
Class Guitar II
Note-reading range including second position and parts of higher positions. Classical, popular, Latin, and other styles of music. Theory including scales, keys, and chord construction. Technical exercises of both hands. Prerequisites: MUP225 or permission of Instructor

NUCLEAR MEDICINE TECHNOLOGY (NUC)
NUC100  1 Credit     1 Period
Introduction to Nuclear Medicine Technology
Role of the Nuclear Medicine Technologist Job duties, responsibilities, working conditions and work environments in the inpatient clinical settings. Certification and licensing requirements for the Nuclear Medicine Technologist, shadowing experience specific to the nuclear medicine department. Prerequisites: None.
NUC110 3 Credits 3 Periods
Radiation Safety for Nuclear Medicine
Sources and types of radiation in nuclear medicine. Units of radiation measurement. Conversions from traditional to system international units. Protection devices, operating equipment (including ancillary devices), and federal and state laws regarding radiation safety. Mathematical concepts related to radiation and radiation exposure. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC112 1 Credit 3 Periods
Nuclear Medicine Laboratory I
Introduction to the nuclear medicine laboratory rules and equipment. Emphasis on radiation safety, radioactive package check in/out, and assaying a radioactive dose. Quality control procedures for the dose calibrator, well counter, uptake probe, survey meter, and gamma camera. Camera acquisition, processing, and display of uniformity and resolution testing. Acquisition and processing of center of rotation (COR) calibration. Operation of camera and imaging table. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC113 2 Credits 3.6 Periods
Nuclear Medicine Laboratory II
Protocols for opening/operating in a nuclear medicine department. Quality control, radiation safety, performance skeletal, respiratory, myocardial, endocrine, gastrointestinal, and genitourinary procedures. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC114 3 Credits 3 Periods
Fundamentals of Nuclear Medicine I
History of nuclear medicine. Use, safety, operation, quality control and maintenance for nuclear medicine imaging and non-imaging equipment, including monitoring equipment, dose calibrators, well counters, uptake probes, liquid scintillation systems, laboratory equipment, gamma camera and the gamma probe. Concepts and physical principles governing radioactivity and the interaction of radiation with matter. Terminology pertinent to nuclear medicine. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC116 3 Credits 3 Periods
Nuclear Medicine Imaging I
Skeletal, respiratory, lower gastrointestinal (GI) anatomy, physiology, and pathology as it relates to nuclear medicine imaging. Indications, contraindications, and radiopharmaceuticals used for imaging to include adverse reactions and patient preparation for exams. Types of equipment used, acquisition parameters, views, and processing techniques for diagnostic procedural protocols. Sequencing of skeletal, respiratory, and lower GI imaging exams. Image evaluation, artifacts, and diagnostic value for nuclear medicine imaging. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC126 3 Credits 3 Periods Nuclear Medicine Imaging II
Endocrine, exocrine, and digestive anatomy, physiology, and pathology as it relates to nuclear medicine imaging. Indications, contraindications, and radiopharmaceuticals used for imaging to include adverse reactions and patient preparation for exams. Types of equipment used, acquisition parameters, views, and processing techniques for diagnostic procedural protocols. Sequencing of endocrine/exocrine, digestive, accessory organ, and genitourinary exams. Image evaluation, artifacts, and diagnostic value for nuclear medicine imaging and therapies. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC130 2 Credits 3.6 Periods
Patient Care Lab for the Nuclear Medicine Technologist
Communication and interaction skills, patient assessment, procedures involving transport, medical records, infection control, emergency, safety and venous access. Prerequisites: Admission to Nuclear Medicine Technology program.
NUC212  2 Credits  10 Periods Clinical Practicum I
Orientation to program and facility policies and procedures and departmental organization. Observation of patient care and clinical experiences including radiation protection, instrumentation imaging, non-imaging and computers, radiopharmacy, diagnostic and therapeutic procedures. Ethical and professional behaviors, Health Insurance Portability and Accountability Act (HIPAA) requirements. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC213  1 Credit  3 Periods
Nuclear Medicine Image Evaluation I
Skeletal, respiratory, and quality control cases. Evaluation of images related to clinical situations and procedures. Demonstration of technical skill applications. Peer-reviewed journal articles. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC214  1.5 Credits  1.5 Periods
Fundamentals of Nuclear Medicine II
Principles and applications of statistics as they relate to Nuclear Medicine. Configuration, function, and application of computers and networks in nuclear medicine. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC223  1 Credit  3 Periods
Nuclear Medicine Image Evaluation II
Genitourinary, endocrine and exocrine, and gastrointestinal cases. Evaluation of images related to clinical situations and procedures. Demonstration of technical skill applications. Peer-reviewed journal articles. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC224  1.5 Credits  1.5 Periods
Fundamentals of Nuclear Medicine III
Policy and regulations of delivery systems, health policy and ethics regarding the access of health care. Medical informatics implementation of clinical system data entry, patient data, administration, and medical quality assurance mandatory patient centered documentation for federal, state, regulatory, and credentialing agencies. Professional medical ethics, legal issues and patient rights. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC232  3 Credits  15 Periods
Clinical Practicum III
Orientation to facility policies and procedures and departmental organization. Reinforcement and broadening of knowledge base related to patient care and the roles and responsibilities of the nuclear medicine technologist at the advanced beginner level. Observation, assistance and performance of patient care and technologist duties in the areas of radiation protection, instrumentation imaging, non-imaging and computers, radiopharmacy, diagnostic and therapeutic procedures, under moderate supervision. Ethical and professional behaviors, Health Insurance Portability and Accountability Act (HIPAA) requirements. Prerequisites: Admission to Nuclear Medicine Technology program. Corequisites: NUC233.

NUC233  1 Credit  3 Periods
Nuclear Medicine Image Evaluation III
Hematopoietic, cardiovascular, and central nervous system cases. Evaluation of images related to clinical situations and procedures. Demonstration of technical skill applications. Peer-reviewed journal articles. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC234  2 Credits  2 Periods
Fundamentals of Nuclear Medicine IV
Practical methods of radiation protection, possession of radioactive materials, institutional oversight according to Nuclear Regulatory Commission (NRC) regulations. Radiation safety procedures and regulations, contamination, protection with radionuclide therapy and related NRC rules and regulations. Prerequisites: Admission to Nuclear Medicine Technology program.
NUC236  3 Credits  3 Periods  
**Nuclear Medicine Imaging III**
Hemopoietic, immune, and central nervous system (CNS). Anatomy, physiology and pathology as it relates to nuclear medicine imaging and treatment. Indications, contraindications, and radiopharmaceuticals used for imaging to include adverse reactions and patient preparation for exams. Types of equipment used, acquisition parameters, views, and processing techniques for diagnostic procedural protocols. Sequencing of hemopoietic, immune, and central nervous system (CNS) exams. Image evaluation, artifacts, and diagnostic value for nuclear medicine imaging and therapies. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC240  3 Credits  3 Periods  
**Clinical Pathology for Diagnostic Imaging**
Causes of disease etiology and impact on the human body. Common pathophysiologic effects of disease on body systems. Correlations of disease, physical findings, clinical laboratory values and diagnostic imaging. Role of Diagnostic Medical Imaging (DMI) modalities in the diagnosis and treatment of selected disease processes as part of the health care team. Cultural implications in the prevention and treatment of disease. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC242  3 Credits  15 Periods  
**Clinical Practicum IV**
Orientation to facility policies and procedures and departmental organization. Reinforcement and broadening of knowledge base related to patient care and the roles and responsibilities of the nuclear medicine technologist at the intermediate level. Observation, assistance and performance of patient care and technologist duties in the areas of radiation protection, instrumentation imaging, non-imaging and computers, radiopharmacy, diagnostic and therapeutic procedures, under limited supervision. Ethical and professional behaviors, Health Insurance Portability and Accountability Act (HIPAA) requirements. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC243  1 Credit  3 Periods  
**Nuclear Medicine Image Evaluation IV**
Oncology imaging, therapy, inflammatory imaging, and positron emission tomography-computed tomography (PET/CT) cases. Evaluation of images related to clinical situations and procedures. Demonstration of technical skill applications. Peer-reviewed journal articles. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC244  3 Credits  4 Periods  
**Fundamentals of Nuclear Medicine V**
Radiopharmacy and interventional drugs preparation, calculation, administration. Drug quality control, routes of administration, biodistribution mechanisms, interfering agents, contraindications, adverse reactions and federal regulations. Interactions of ionizing radiation with human tissue, its potential effects, and dosimetry. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC250  2 Credits  2 Periods  
**Fundamentals of Computed Tomography for Nuclear Medicine Technologist**
Introduction to principles and operation of computed tomography (CT) scanner. Physics processes, instrumentation components, imaging acquisition, reconstruction and display for computed tomography imaging. Image quality, radiation dose and daily quality control influencing computed tomography. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC260  3 Credit  3 Period  
**Imaging Research Methods and Design**
Exploration of body of knowledge and effective analysis of resources to promote best practice in imaging professions. Introduction to research design, statistical reasoning, and interpretation of the medical literature. Provide a basis for understanding and interpreting the literature for use in evidence-based practice. Prerequisites: Admission to Nuclear Medicine Technology program.
NUC261  2 Credits  2 Periods
Emerging Technologies
Exploration of new and emerging technologies that will become tomorrow's standard of practice. Introduction to these new ideologies. Development and presentation of research findings. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC262  1.5 Credits  9 Periods
Capstone Practicum
Entry level nuclear technologist skill level in the areas of radiation safety, instrumentation and radiopharmacy procedures. Ethical and professional behaviors. Prerequisites: Admission to Nuclear Medicine Technology program or permission of the Program Director.

NUC272  1 Credits  6 Periods
Cardiac Practicum
Comprehensive, advanced level practical experience at a designated outpatient cardiac clinical site. Cooperative work with direct supervision in a coronary care setting. Technical cardiac procedures, patient care, and radiation safety. Prerequisites: Admission to Nuclear Medicine Technology program or certified by the American Registry of Radiologic Technologists (ARRT) in Nuclear Medicine [R.T. (N)] or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine. Course Notes: NUC272 may be repeated for a total of three (3) credits.

NUC276  3 Credits  3 Periods
Nuclear Medicine Cardiac Imaging
Review of cardiovascular anatomy, physiology and pathophysiology as it relates to cardiac imaging including cardiac blood flow, electrophysiology, and function. Cardiac indications, contraindications, and radiopharmaceuticals used for cardiac imaging. Preparation for pharmacologic and non pharmacologic stress testing methods used in conjunction with imaging. Patient care during stress tests and imaging to include the interventional drugs used for emergency care. Cardiac imaging instrumentation, acquisition and processing procedures, artifacts, and quality control. Interpretation of data and images for Cardiac imaging procedures. Prerequisites: Admission to Nuclear Medicine Technology program or certified by ARRT [R.T. (N)] or the Nuclear Medicine Technology Certification Board (NMTCB) in Nuclear Medicine.

NUC280  3 Credits  3 Periods
Nuclear Medicine PET and PET/CT
Positron Emission Tomography (PET) and Integrated Positron Emission Tomography/Computed Tomography (PET/CT). Basic principles of operation and design of positron imaging systems and quality control necessary for the equipment. Positron coincidence detection and positron imaging using gamma camera and high energy collimators. Production and characteristics of positron emitters. Diagnostic testing using PET and Integrated PET/CT. Radiopharmaceuticals for PET imaging. Patient preparation, procedures and processing in PET studies. Prerequisites: Admission to Nuclear Medicine Technology program.

NUC283  1.5 Credits  9 Periods
PET/CT Practicum
Comprehensive, advanced level practical experience at a Positron Emission Tomography (PET) clinical site. Cooperative work with direct supervision in a PET setting. Emphasis on technical components of PET and Positron Emission Tomography/Computed Tomography (PET/CT) procedures and patient care, radiopharmacy and radiation safety specific to PET and PET/CT. Prerequisites: Admission to Nuclear Medicine Technology program or permission of the Program Director.

NUC290  3 Credits  3 Periods
Nuclear Medicine Certification Preparation Seminar
Presentations by field authorities on selected topics related to professional job seeking procedures and development of a resume. Review of content areas addressed on the American Registry of Radiologic Technologists (ARRT), Nuclear Medicine Technology Certification Board (NMTCB), and Arizona State Licensure examinations. Study and test taking strategies. Prerequisites: Admission to Nuclear Medicine Technology program.
NUC292  1 Credit  3 Periods
**Radiopharmacy Practicum**
Comprehensive, high level practical experience at a Radiopharmacy clinical site. Cooperative work with direct and indirect supervisory personnel in a Radiopharmacy setting. Emphasis on technical components of Radiopharmacy procedures and radiation safety. Prerequisites: Admission to Nuclear Medicine Technology program.

NURSING (NUR)
NUR104AA  0.5 Credits  0.5 Periods
**Structured Nursing Review**
Structured nursing tutorial assistance and nursing study skills to help students achieve success in their respective block of nursing courses. Nursing process and critical thinking application skills emphasized. Prerequisites: None. Corequisites: Enrollment in the Nursing program or permission of Department Chair.

NUR104AB  1 Credit  1 Period
**Structured Nursing Review**
Structured nursing tutorial assistance and nursing study skills to help students achieve success in their respective block of nursing courses. Nursing process and critical thinking application skills emphasized. Prerequisites: None. Corequisites: Concurrent enrollment in the Nursing program or permission of Department Chair.

NUR150  LEC 8 Credits  LEC 9 Periods  /  LAB 4 Credits  LAB 13.5 Periods
**Practical Nurse Bridge Course**
Designed to bridge previously gained healthcare knowledge, skills, and abilities of the military Veteran student and/or Licensed Practical Nurse (LPN) seeking to refresh knowledge in the role of the practical nurse. Course includes didactic, laboratory, and clinical experiences for practical nursing including concepts and theories related to care of geriatric, adult, pediatric, and childbearing clients. Areas of didactic and clinical focus include: role of the practical nurse collaborating with other members of the healthcare team; concepts of health promotion and disease/illness prevention; therapeutic communication techniques; nutritional concepts; medication administration to include pharmacokinetics and pharmacodynamics of medications, nursing considerations in medication administration, and dosage calculation; documentation and concepts related to information technology. Emphasis in clinical practicum is on nursing care of pediatric and child-bearing families, and older adult residents of long term care facilities with selected alterations in health; concepts of delegation, prioritization and management of care for the practical nurse is integrated. Prerequisites: A military Veteran with a health care designation (medic/corpsman) or a licensed practical nurse (LPN) who requires a refresher program. Approval of the Nursing Chair or designee and application packet completion is required. Prerequisites: A military Veteran with a health care designation (medic/corpsman) or a licensed practical nurse (LPN) who requires a refresher program. Approval of the Nursing Chair or designee and application packet completion is required.

NUR152  LEC 9 Credits  LEC 4 Periods  /  LAB 0 Credits  LAB 15 Periods
**Nursing Theory and Science I**
Introduction of Nurse of the Future competencies as a foundational framework for development of the professional nurse. Basic care concepts and the nursing process are utilized to meet the needs of adult and older adult patients. Prerequisites: Admission into the Nursing Program.

NUR158  LEC 6 Credits  LEC 4 Periods  /  LAB 0 Credits  LAB 6 Periods
**Nurse Assisting**
Introduction to the role of the nursing assistant for clients across the wellness/illness continuum within the small scope of practice. Includes basic problem solving processes specific to meeting the basic and holistic needs of clients, therapeutic communication skills essential for the nursing assistant, interventions to ensure the needs and safety of the client, specific types of diseases, conditions and alterations in behavior of the client, and principles of nutrition and fluid balance. Focus is on special needs of the elder client in the acute and long-term care settings, and basic emergency care skills and procedures.
Provides opportunity for the development of clinical competency in the performance of selected nurse assisting skills and procedures through participation in the care of clients. Prerequisites: (A grade of “C” or better in RDG091 or higher RDG reading course or eligibility for CRE101 as indicated by appropriate reading placement test score, or HESI-A2 exam English Composite score of 75% or higher) AND (a grade of “C” or better in MAT082, or eligibility for MAT090 or higher as indicated by appropriate math placement test score, or HESI-A2 exam Math score of 75% or higher). Must provide current Level One DPS Fingerprint Clearance Card, meet pass status on MCCD Background Check, and submit required health and safety documentation.

**NUR160PN**  
**LEC 11 Credit**  
**LEC 15 Periods**  
**LAB 0 Credits**  
**LAB 6 Periods**  
**Practical Nursing Theory and Science I**  
Core values of the practical nursing program, nursing history, standards, and scope of practice of the practical nurse. Safe nursing care of clients with selected alterations in health; fundamental concepts of health promotion, disease/illness prevention. Nursing care based upon integration of pathophysiology, nutrition, communication and physical, biological, and psycho-social sciences. Uses information technology in performing and documenting client care. Prerequisites: Admission into the Fast Track Practical Nursing Program.

**NUR172**  
**LEC 9 Credits**  
**LEC 5.5 Periods**  
**LAB 0 Credits**  
**LAB 10.5 Periods**  
**Nursing Theory and Science II**  
Utilization of Nurse of the Future competencies to develop knowledge, skills, and attitudes to provide safe, quality patient care across the wellness-illness continuum in selected medical-surgical and mental health patients. Prerequisites: (BIO202 and NUR152) or permission of Nursing Department Chair.

**NUR180PN**  
**LEC 11 Credit**  
**LEC 15 Periods**  
**LAB 0 Credits**  
**LAB 6 Periods**  
**Practical Nursing Theory and Science II**  
Holistic practical nursing concepts and theories related to care of childbearing, pediatric, adult, and geriatric clients. Role of the practical nurse collaborating with other members of the healthcare team. Concepts of health promotion and disease/illness prevention. Nursing care based upon integration of pathophysiology, nutrition, communication and physical, biological and psycho-sociological sciences. Information technology in performing and documenting client care. Emphasis on nursing care related to pediatric, child-bearing families, and adult clients with selected alterations in health; concepts of delegation, prioritization and management of care for the practical nurse based on the core values of the nursing program. Prerequisites: NUR160PN.

**NUR187**  
**1.5 Credits**  
**1.5 Periods**  
**Pharmacology and Medication Administration II**  
Overview of selected drug classifications and categories. Emphasis on principles of drug metabolism and effects, interactions and adverse reactions, and nursing implications for safe practice. Requires application of previous knowledge of physical, biological, and social sciences. Prerequisites: Permission of Nursing Department/Division Chair.

**NUR191**  
**3 Credits**  
**5 Periods**  
**Practical Nursing Transition**  
Overview of the role of the practical nurse in care of clients. Includes nursing standards and scope of practice of the practical nurse. Emphasis on nursing care related to pediatric and care of the well childbearing client and childbearing family. Focus on the role of practical nurse in providing care through interventions consistent with established nursing care plans. Prerequisites: NUR171 or permission of Nursing Department Chair.

**NUR251**  
**LEC 8 Credits**  
**LEC 12 Periods**  
**LAB 0 Credits**  
**LAB 4 Periods**  
**Nursing Theory and Science III**  
Application of critical thinking strategies related to holistic care of the newborn, pediatric, and childbearing clients. Integration of concepts related to holistic care of adults and geriatric clients with selected acute and chronic alterations in health. Integration of professional nursing standards in role development. Utilization of previous knowledge of physical, biologic, psycho-social sciences, and the cultural, spiritual aspects of nursing care. Integration of concepts of nutrition, pharmacology, communication, health promotion, and pathophysiology into nursing care. Prerequisites: (BIO202, BIO205, and NUR171) or permission of Nursing Department Chairperson.
NUR271  LEC 7 Credits  LEC 9 Periods  /  LAB 0 Credits  LAB 4 Periods
Nursing Theory and Science IV
Integration of critical thinking strategies for complex holistic needs of high-risk clients with multi-system health alterations. Application of strategies related to holistic care of the client with psychiatric/mental health disorders. Introduction to community based care. Assimilation of professional role into practice. Evaluation of care based on the knowledge of physical, biologic, psycho-social sciences, and the cultural and spiritual beliefs of clients. Development of nurse leadership and management roles. Integration of concepts of nutrition, pharmacology, communication, health promotion, and pathophysiology into nursing care. Prerequisites: NUR251 or permission of Nursing Department Chairperson.

NUR291  2 Credits  6 Periods
Nursing Clinical Capstone
Synthesis of the nursing process to facilitate role transition from student to graduate nurse within a preceptorship experience. Development of nurse leadership and management roles. Prerequisites: NUR271 or permission of Nursing Department Chairperson.

NUR292  2 Credits  2 Periods
Overview of Current Nursing Principles and Practice Across the Lifespan
Update of current principles and practice guidelines for returning nursing in pediatric, obstetrical and geriatric clients. Overview of nursing concepts, therapeutic interventions, and evidence-based practice for clients across the lifespan. Prerequisites: Permission of Instructor.

NUR295  6 Credits  6 Periods Registered Nurse Refresher
Update of current principles of nursing theory and practice for registered nurses. Didactic instruction meets all Arizona State Board of Nursing requirements: nursing process and patient centered care; pharmacology, medication calculation, and medication administration; communication; critical thinking, clinical decision making and evidence-based practice; delegation, management, and leadership; working with interdisciplinary teams; meeting psychological and physiological needs of adult clients with medical-surgical conditions; ethics; documentation including electronic health records; informatics; and quality improvement. Concentrated preceptorship experience under the supervision of a registered nurse with faculty guidance. Individualized teaching and learning opportunities to build confidence, competence and an increased level of independent functioning. Prerequisites: Permission of Instructor.

NUR298AC  3 Credits  3 Periods Special Projects
Organized and tailored around the interests and needs of the individual student. Structured to provide an atmosphere of individualized research and study paralleled by professional expertise and guidance. Professional-type facilities and equipment are made available for student use. Allows the best aspects of independent study and individualized learning to be combined to maximize student development. Prerequisites: Permission of Program Director or instructor.

NURSING: CONTINUING EDUCATION (NCE)
NCE103  2 Credit  2 Period
Psychiatric Technician Overview
Students learn to care for patients with a wide variety of mental illness to include anxiety, mood, personality and psychotic disorders, as well as post-traumatic stress syndrome and behavioral issues. Psychiatric technicians follow physician/nurse instructions and hospital procedures. Identification of modalities to monitor patient’s mental and emotional status, physical symptoms related to mental disorders, and recognition of medication side effects. A variety of therapies will be covered to include rehabilitation and treatment programs, as well as recreational activities used as treatment options. Prerequisites: None.
NCE118  0.5 Credits  0.5 Periods
Ventilator Management for Nurses
Nursing care and management of the mechanically ventilated patient. Adjuncts to airway management including types and indications for use. Initiation, management and weaning of mechanical ventilation. Prerequisites: Registered Nurse or Licensed Practical Nurse or respiratory therapist.

NCE128  0.5 Credits  0.5 Periods
Observational Skills for Nursing Assist
Physical and nutritional observations of the adult client. Cultural considerations in health observations. Acute interventions in emergency situations. Prerequisites: Current Nurses Assistant certification or Patient Care Technician.

NCE131  0.5 Credits  0.5 Periods
Recognizing Skin Rashes in the School Aged Child
Recognition of common childhood rashes, identify allergic rash manifestations, communicable rashes and infections rashes. Prerequisites: Current Arizona Registered Nurse (RN) license or Licensed Practical Nurse (LPN) license or permission of Instructor.

NCE165  1 Credit  1 Period
Legal Aspects of Nursing
Principles of legal aspects in nursing, rules of liability, negligent conduct and principles of malpractice. Review of the scope of nursing practices, and other legal matters. Prerequisites: None.

NCE168  1 Credit  1 Period
End of Life Care Training
Nursing care at the end of life, pain management, symptom management, ethical issues, communication, cultural considerations, loss, grief and bereavement. Achievement of quality palliative care and preparation for and care at the time of death. Prerequisites: None.

NCE173  LEC .5 Credits  LEC .5 Periods  /  LAB .5 Credits  LAB 1.5 Periods
LPN-Venipuncture
Development of clinical skills for venipuncture. Emphasis on review of anatomy and physiology of vasculature of the arm, medical asepsis, nursing process and procedure. Prerequisites: Current practical nurse license in Arizona; or permission of instructor.

NCE201  3 Credits  3 Periods
Physical Assessment
Basic health assessment by collecting health histories and performing physical examinations. Relationship of sciences and humanities to holistic aspects of health. Assessment for normal, variations of normal, and deviations from normal findings. Prerequisites: Current Practical Nurse (PN) or Registered Nurse (RN) license or permission of instructor.

NCE203  0.5 Credits  0.5 Periods
Interpretation of Laboratory Diagnostic Examinations
Utilization of laboratory diagnostic examination results for evaluation of patient conditions. Normal results for selected body fluids. Abnormal results related to pathophysiological conditions of adults. Incorporation of results of examinations to assess, modify, and evaluate therapy for patients with specific conditions. Prerequisites: Registered Nurse or Licensed Practical Nurse, Nursing students, or permission of instructor.
Course Listings 2017-2018

NCE204  1 Credit  1 Period
Hemodynamics
Events of the cardiac cycle related to normal hemodynamic waveforms and pressures. Purpose, procedure and potential complications related to hemodynamic invasive lines. Trouble shooting and preventative procedures for hemodynamic invasive lines. Normal and abnormal pressure forms related to various forms of pathophysiology. Treatments and interventions for specific cardiac diseases. Impact of paced rhythms, and intraaortic balloon pumps on normal hemodynamic waveforms. Safe removal procedure for hemodynamic devices. Prerequisites: Registered nurse (RN), respiratory therapist, or cardiovascular technician with knowledge of dysrhythmia recognition.

NCE205  4 Credits  4 Periods
Emergency Room Nursing
Roles of emergency health team. Medical/legal issues specific to emergency room care. Triage classifications for specific emergency room/department situations, nursing care for selected conditions, trauma, and disease processes. Organ donation issues, discharge procedures and client education. Prerequisites: Registered Nurse (RN), or Licensed Practical Nurse (LPN), or currently enrolled in a nursing program, or permission of instructor.

NCE207  0.5 Credit  0.5 Period
Recognition and Nursing Management of the Deteriorating Patient
This course will provide a scenario/simulation-based problem solving approach to recognize and manage the patient who has the potential for a deteriorating status in a wide variety of concept-oriented conditions. The ultimate goal is to prevent or reverse the clinical deterioration and achieve optimum patient outcomes. Prerequisites: Current Arizona Registered Nurse (RN) license or Licensed Practical Nurse (LPN) license or registered as student nurse or permission of Instructor.

NCE210  1 Credit  1 Period
School Nurse Emergency Assessment Skills
Update of emergency assessment in the school setting. Includes emergency assessment of seizures, asthma, head and neck injuries, heat-related problems, bites, stings, burns, and orthopedic injuries. Prerequisites: School nurse, school health aide, other health professionals or permission of the instructor.

NCE212  0.5 Credits  0.5 Periods
Patient Education
Patient education instructional methods, educational theories, nursing process and case management in patient education. Development of patient education tools. Prerequisites: Registered Nurse (RN) or Licensed Practical Nurse (LPN) or permission of instructor.

NCE213ND  0.5 Credits  0.5 Periods
Long-Term Care Nursing Update
Medicare and insurance documentation procedures for the long-term care patient. Medical-legal issues that pertain to the long-term care patient. Specific nursing procedures performed for the long-term care patient. Prerequisites: Registered Nurse (RN), Licensed Practical Nurse (LPN), or health worker currently employed in a long-term care setting.

NCE214CA  1 Credit  1 Period
Interpretation of Cardiac Arrythmias
Focuses on common cardiac arrhythmias. Includes abnormalities in regard to the major and minor effects on a patient's health, specific drug therapy and nursing implications. Prerequisites: Permission of instructor. and intravenous flow rates. Emphasis on the dimensional analysis problem solving method. Prerequisites: None.

NCE214ND  1 Credit  1 Period
Nursing Developmental Skills for Health Providers
Updating specific nursing areas in order to enhance success in nursing courses and/or employment. May be repeated for a total of ten (10) Credits. Prerequisites: Previous coursework or experience in nursing related skills or permission of instructor.

NCE214OP  1 Credit  1 Period
Orientation to Nursing Program
Overview of the philosophy, core values, policies, competencies and curricular components of the Maricopa Community College District Nursing Program. Basic concepts of therapeutic communication, normal growth and development, the nursing process, pharmacology, metrology, and concepts of intravenous therapy.
Emphasis on the use of the nursing process, utilization of critical thinking skills, sound decision-making principles in the clinical setting, the communication process, time management and stress reduction, and the transition in role expectations between Licensed Practical Nurse (LPN) and Registered Nurse (RN). Review and evaluation of Practical Nursing skills included. Prerequisites: Advanced placement into the Nursing program.

**NCE215AB 0.5 Credits 0.5 Periods**

**Nursing Update: Wound and Skin Care**
Wound and skin assessment and documentation guidelines. Skin care protocols and interventions to prevent pressure ulcers and promote optimal healing. Wound care products and treatment options. Prerequisites: Registered Nurse, or Licensed Practical Nurse, or currently enrolled in a nursing program, or permission of instructor. May be repeated for a total of five (5) Credits hours.

**NCE215AC 0.5 Credits 0.5 Periods**

**Nursing Update: Stoma Care**
Care of the patient with fecal and urinary diversions. Appliance selection, stoma care, and management of potential complications. Includes nutritional, psychological, and educational aspects of care. Prerequisites: Registered Nurse, or Licensed Practical Nurse, or currently enrolled in a nursing program, or permission of instructor.

**NCE215AD 0.5 Credits 0.5 Periods**

**Nursing Update: Advances in Diabetes Management**
Diabetes management and implications. Risk factors of diabetes and lifestyle modifications. Medication updates and new technological advances for the treatment of Type I and Type II diabetes. Prerequisites: None.

**NCE215AE 0.5 Credits 0.5 Periods**

**Nursing Update: Cardiac Care**
Provides nurses with up-to-date information on prevention, diagnosis, and treatment of cardiovascular and related diseases. Prerequisites: Registered Nurse (RN), or Licensed Practical Nurse (LPN), or other licensed personnel working with cardiac patients. May be repeated for a total of ten (10) Credits hours.

**NCE215ND 0.5 Credits 0.5 Periods**

**Nursing Skills Update**
Enhancement and reinforcement of specific nursing skills. Special needs patients, patient assessment techniques, medicolegal responsibilities, and diagnostic procedures. May be repeated for a total of ten (10) Credits. Prerequisites: None.

**NCE216AA 0.5 Credits 0.5 Periods**

**School Health Update: Assessment Skills**
Assessment skills for the school health setting. Assessment and management of selected school health problems including abdominal pain, head and spinal cord injuries, and environmental hazards. Prerequisites: Registered Nurse, or Licensed Practical Nurse, or currently enrolled in a nursing program, or permission of instructor.

**NCE216ND 0.5 Credits 0.5 Periods**

**School Nurse Skills Update**
Enhancement and reinforcement of specific skills encountered in the school health setting. Special needs of physically and emotional disabled children. Review of special procedures and medications used with special children populations. Prerequisites: Current school nurse or school health aide. May be repeated for a total of ten (10) Credits.
Course Listings 2017-2018

NCE218 0.5 Credits 0.5 Periods
Ventilator Management for Critical Care and Emergency Room Nurses
Patient care including indications, management and complications in mechanically ventilated patients. Types of mechanical ventilation, pharmacological management, care of the mechanically ventilated patient, intubation and extubation, and tracheostomy management. Prerequisites: Health care professional or permission of Department or Division

NCE221 LEC 2.5 Credits LEC 2.5 Periods / LAB .5 Credits LAB 1.5 Periods Patient Care Technician Skills
Patient care technician skills and techniques which include: drawing blood, performing a variety of specimen collections, observing and reporting patient status, assisting in patient preparation and electrode placement for electrocardiograms, suctioning patients, performing urinary catheterizations, documentation and reporting of skill completion, maintaining patient confidentiality, and recognizing legal and ethical commitments related to patient care technician skills. Prerequisites: Certified Nurse Assistant (CNA), Nurse Assistant course or equivalent within the past year, and permission of Continuing Education Program Director and/or Instructor.

NCE223 LEC 2.5 Credits LEC 2.5 Periods / LAB .5 Credits LAB 1.5 Periods LPN-IV Therapy and Medication Skills
Terminology and anatomy related to intravenous therapy. Drug response factors, dosage, calculations, intravenous site dressing change, intravenous administration equipment, and initiating intravenous therapy. Documentation and procedures for laboratory check lists. Meets state nursing board requirements for initiating intravenous therapy and administering intravenous medications. Prerequisites: Current license as Practical Nurse or permission of instructor.

NCE231 1 Credit 1 Period
Pharmacology for Critical Care and Emergency Room Nurses
Pharmacology update for emergency department and critical care personnel on new drug therapies and related patient care protocols. Pharmacological management of cardiac and respiratory system disorders, complications and emergency interventions. Patient management protocols for conscious sedation. New pharmacological agents for the treatment and management of diabetes and other endocrine disorders. Prerequisites: Registered Nurse or permission of instructor.

NCE235 0.5 Credits 0.5 Periods
Conscious Sedation
Conscious sedation criteria and protocols. Nursing responsibilities and interventions pre-, intra- and post-procedure. Medications commonly used for conscious sedation, monitoring equipment, potential complications and required documentation. Prerequisites: Registered nurse (RN) or permission of instructor.

NCE236 1 Credit 1 Period
Health Care Management for School Nurses
Introduction to management concepts, organizational theory, and leadership, and their application to the development of the nurse's role as manager in the health office. Explores managerial principles of planning, organizing, staffing, leading and controlling in the context of both individual and group behavior as experienced in health care systems. Prerequisites: Registered Nurse (RN) currently working in a school health office setting.

NCE237 0.5 Credits 0.5 Periods Care and Management of Vascular Access Devices
Types of vascular catheters, types of clients who use them and clinical indications for each. Care for the different devices, differences in tip locations and the types of infusion therapies infused through each device. Prerequisites: Current Arizona Registered Nurse (RN) license or Licensed Practical Nurse (LPN) license or registered as student nurse or permission of Instructor.
NCE242  0.5 Credits  0.5 Periods

Twelve (12) Lead Electrocardiogram (EKG) Interpretation

Normal and abnormal wave forms of the cardiac cycle. Normal and abnormal heart axis. Differences between ventricular and supraventricular tachycardia. Various types of blocks. Identification of heart chamber enlargement. Injury, ischemic and necrotic heart patterns. Effect of specific drugs and electrolyte disorders on electrocardiograms (EKG). Prerequisites: Basic electrocardiogram (EKG) experience or previous course work in dysrhythmia interpretation or permission of instructor.

NCE251  3 Credits  3 Periods

Telemetry Nursing

Cardiac anatomy and physiology and the conduction system. Elements of a cardiac assessment. Recognition of arrhythmia and cardiac abnormalities seen on electrocardiogram (EKG). Indications for temporary and permanent pacing. Drug groups and their interactions specific to the cardiac patient. Normal and abnormal lab values for the cardiac patient. Pre- and post-procedure care for cardiac procedures. Nursing interventions and emergency treatment. Prerequisites: Registered Nurse (RN) and NCE248, or NCE214CA, or equivalent.

NCE259  4 Credits  4 Periods

Advanced Critical Care Nursing

Provides the experienced Critical Care Nurse with an opportunity to build on basic critical care knowledge. Advanced concepts in assessment, hemodynamic monitoring, pathophysiology of disease processes, and use of the Nursing Process for critically ill patients with complex, multisystem disorders. Designed to help prepare experienced Critical Care Nurses for the certification examination for Critical Care Nursing offered by the American Association of Critical Care Nurses. Prerequisites: NCE249, or Registered Nurse working in Critical Care, or permission of instructor.

NCE265  0.5 Credits  0.5 Periods

Triage Skills for Urgent Care Staff

Identification of high risk aspects of frequent medical complaints. Instruction in avoiding errors when triaging patients in the urgent care setting. Prerequisites: Current Arizona Registered Nurse (RN) license or Licensed Practical Nurse (LPN) license or permission of Instructor.

OCCUPATIONAL SAFETY AND HEALTH (OSH)

OSH101  3 Credits  3 Periods

Introduction to Occupational Safety, Health, and Environmental Technology

Overview of occupational safety, health, and environmental regulations and technology. Overview of the regulatory framework related to safety and environmental program management. Career opportunities and the relationship to business management. Prerequisites: None.

OSH102  3 Credits  3 Periods

Introduction to Industrial Hygiene

Fundamental concepts of industrial hygiene, including terminology, basic toxicology, body entry routes, threshold limit values, and measurement. Control of typical occupational physical and chemical hazards, radiation and environmental concerns. Instruction and practice in basic sampling techniques. Prerequisites: None.

OSH103  0.5 Credits  0.5 Periods

General Industry Workplace Safety

Hazard recognition, reduction and accident prevention in workplace environments. Basic overview of Occupational Safety and Health Administration (OSHA) agency safety laws and record keeping requirements. Chemical and materials handling, ergonomic priorities, electrical safety, machine safety, safety requirements, planning and response to natural/man-made emergencies. Personal protective equipment, safety labels/signage, confined spaces, walking/working surfaces, management and employee responsibilities. Prerequisites: None.
OSH105  2 Credits  2 Periods
Construction Safety

OSH105AA  3 Credits  3 Periods
Construction Safety

OSH106  2 Credits  2 Periods
Industrial Safety
Safety, health management and accident prevention in industrial work environment. Role of Occupational Safety and Health Administration (OSHA) act, materials handling, electrical safety, machine safety, first response to fire and medical emergencies, safety signs and color codes, recognition of safety and health hazards accident prevention, and management’s responsibilities. Prerequisites: None.

OSH106AA  3 Credits  3 Periods
Industrial Safety
Safety, health management and accident prevention in industrial work environment. Role of Occupational Safety and Health Administration (OSHA) act, materials handling, electrical safety, machine safety, first response to fire and medical emergencies, safety signs and color codes, recognition of safety and health hazards accident prevention, and management’s responsibilities. Prerequisites: None.

OSH107  3 Credits  3 Periods
Occupational Safety Principles and Practice
Application of safety and health regulations and best practices. Hazard identification and accident investigation techniques. Major construction hazards and controls. Application of fire protection standards. Prerequisites: OSH106AA or permission of Instructor.

OSH108  0.5 Credits  0.5 Periods Safe Forklift Operations
Safe and proper operation of a forklift. Parts and function of a forklift, principles of operation, and safety precautions. Inspection procedures and safety standards. Hands-on operation of a forklift. Prerequisites: None.

OSH110  2 Credits  2 Periods
OSH Standards for Construction
Occupational Safety and Health Administration (OSHA) standards for construction and role of Occupational Safety and Health Administration Act. General Duty Clause and major sections of 1903, 1904, and 1926. Identification of violations and description of appropriate Abatement procedures for safety and health hazards. Prerequisites: None.

OSH111  2 Credits  2 Periods
OSH Standards for General Industry
Occupational Safety and Health Administration (OSHA) standards for general industry and the role of Occupational Safety and Health Administration act. General Duty Clause and major sections of 1903, 1904, and 1910. Identifications of violations and description of appropriate Abatement procedures for safety and health hazards. Prerequisites: None.

OSH112AA  1 Credit  1 Period
Workplace Hazard Analysis: OSHA Accident Reduction
Transitioning from Occupational Safety and Health Administration's (OSHA) former “Accident Investigation” protocol into a pro-active incident investigation program. Basic accident investigation procedures and accident analysis techniques. Basic skills for conducting an effective accident investigation at occupational workplaces. Prerequisites: None.

OSH113 1 Credit 1 Period
Urban Workplace Response: First Aid/Cardiopulmonary Resuscitation
Workplace employee injury/illness response when medical help is less than 15 minutes away. Cardiopulmonary Resuscitation and first aid for the adult, child and infant patients includes Automated External Defibrillator (AED), rescue breathing, obstructed airway, and other first aid procedures. Designed to train employee responders in basic lifesaving skills and procedures required during emergency situation. Application of verbal first aid solutions. Selection and use of appropriate first aid kits. Follow up with appropriate regulatory/insurance documentation. Prerequisites: None.

OSH118 1 Credit 1 Period
OSHA Standards and Regulations
Provisions of and implementation of OSHA (Occupational Safety and Health Administration) Act in the workplace. Rights and responsibilities under the OSHA Act. Appeals process, record keeping, and voluntary protection programs. OSHA's construction and general industry standards. Overview of the requirements of the more frequently referenced standards. Prerequisites: None.

OSH189 1 Credit 1 Period
Professional Leadership Development for Occupational Safety and Health
Personal and professional leadership development related to Occupational Health and Safety (OSH) through active participation in peer-to-peer and professional mentoring. Exposure to industry technical meetings, technical tours, seminars, college discipline specific campus club, scholarship awareness, career fairs, and other similar events. Supplemented by readings, and pre-and post-activity discussion and critique. Varied content due to variety of personal and professional development available. Prerequisites: HMT/OSH101 and GTC/MIT/OSH106 and a student member of the American Society of Safety Engineers. Course Notes: OSH189 may be repeated for a total of three (3) credit hours.

OSH201 2 Credits 2 Periods
Fall Arrest Systems
Evaluation and application of state-of-the art technology for fall protection. Analysis of fall protection, the components and limitations of fall arrest systems and relevant Occupational Safety and Health Administration (OSHA) standards and other requirements. Prerequisites: OSH105, or GTC/FAC/OSH/MIT106, or OSH110, or OSH111.

OSH203 3 Credits 3 Periods
Safety Program Management I
Introduction to safety program theory and principles needed to develop, manage, implement and evaluate a safety and health program. Systems safety and applied psychology theories that enhance safety program management. Hazard identification methods and controls, and application of these principles to case studies. Prerequisites: GTC/FAC/OSH/MIT106 or permission of instructor.

OSH204 3 Credits 3 Periods
Health and Safety Program Management II
Current and emerging topics in safety and health program management. Exploration of current topics through emerging regulatory and/or consensus standards organizations. Case study investigation and analysis with applications to safety and health management. Introduction to new and evolving online training courses, seminars, video and documents. Adult leaning and instructional theory. Prerequisites: GTC/FAC/OSH/MIT106 and OSH107 or (GTC/FAC/OSH/MIT106 and OSH203) or permission of instructor.
OSH205  3 Credits  3 Periods
**OSHA General Industry Training for Instructors**
Application of adult learning principles and training techniques to identify, define and evaluated general industry hazards and acceptable corrective measures to teach the 10 and 30 hour training in accordance with 29CFR1910 Occupational Safety and Health Administration (OSHA) General Industry Safety standards and other industry requirements. Prerequisites: OSH110.

OSH206  3 Credits  3 Periods
**Risk Management and Loss Control**
Statistical and cost analysis, report writing, and injury prevention related to loss control. Prevention programs designed to minimize or eliminate property and personnel loss or injury. Prerequisites: None.

OSH207  3 Credits  3 Periods
**OSHA Construction Training for Instructors**
Application of adult learning principles and training techniques to identify, define and evaluated construction hazards and acceptable corrective measures to teach the 10 and 30 hour training in accordance with 29CFR1926 Occupational Safety and Health Administration (OSHA) Construction Safety standards and other industry requirements. Prerequisites: OSH110.

OSH210  3 Credits  3 Periods
**Electrical Standards Low Voltage**
Electrical hazards of low voltage installations and special equipment. Application of appropriate occupational safety and health standards regarding control hazards and safety and health work practices. Electrical standards include 29 CFR 1910, the Occupational Safety and Health Administration (OSHA) general industry regulations, and OSHA construction regulations from 29 CFR 1926. Prerequisites: OSH105, or GTC/FAC/OSH/MIT106, or OSH110, or OSH111.

OSH212  1 Credit 1 Period Electrical
**Safety Arc Flash**
Identification and control of electrical safety hazards for workers near energized electrical systems and equipment. Control methods for preventing serious disabling injuries, preventing damage to equipment, sites, and saving lives. Prerequisites: OSH107. OSH210 suggested but not required.

OSH213  2 Credits  2 Periods
**Excavation, Trenching and Soil Mechanics**
Evaluation and application of state-of-the-art technology protection for trenches and excavations. Analysis of soil mechanics and implement safety controls for trenches and excavations. Training requirements for a competent person required by Occupational Safety and Health Administration (OSHA) standards and other requirements. Prerequisites: OSH105AA or OSH106AA.

OSH214  3 Credits  3 Periods
**Machine Guarding**
Evaluation and application of state-of-the-art technology for machine guarding hazards. Analysis of machine hazards including mechanical motion, point-of-operation, and other machinery processes. Implementation of Abatement options, control of hazardous energy, and relevant Occupational Safety and Health Administration (OSHA) standards and other requirements. Prerequisites: OSH105 or GTC/FAC/OSH/MIT106.

OSH218  3 Credits  3 Periods
**Ergonomics**
Analysis and evaluation of ergonomics risk factors for occupational tasks. Application of theories, methods, and techniques used in work design and systems. Methodological problems in human information processing, human control functions, human-machine interface, work design and process evaluation. Prerequisites: OSH107 or permission of Instructor.
OSH219  3 Credits  3 Periods
Safety Management and Environmental Regulations and Systems
Environmental regulations, legal requirements, and responsibilities of safety management. Prevention and management of environmental risks and solving environmental issues. Prerequisites: HMT/OSH101 and OSH107.

OSH220  3 Credits  3 Periods
Safety and Emergency Management
Assessment of emergency management systems for occupational safety program development. Planning and implementation of the four phases of emergency management: mitigation, preparedness, response, and recovery. Analysis of all hazards preparedness and response in emergency situations resulting from natural and technological hazards. Planning and budgeting for resources and staffing. Prerequisites: OSH105AA or OSH106AA.

OSH224  3 Credits  3 Periods
Emergency Planning for Safety Managers
Design and develop Emergency Operations Plans (EOP) for safety and emergency program managers in the private and public sector. Application of guiding principles to the planning process including hazard analysis, plan format, and emergency exercise development. Building a team of stakeholders from internal and external agency and government emergency organizations. Planning and development of exercise plans as required by local and federal authorities. Prerequisites: OSH220.

OSH230  3 Credits  3 Periods
Safety and Environmental Response to Hazardous Spills and Waste
Evaluation and demonstration of safety procedures regarding response to hazardous waste treatment sites, storage or hazardous waste facilities, and disposal operations specifically required in the Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1910.120. Prerequisites: OSH105, or OSH105AA, or FAC/GTC/ OSH/MIT106, or OSH106AA, or equivalent training as determined by the Program Director of the Occupational Safety and Health or Water Resources Technologies programs.

OSH240  3 Credits  3 Periods
Facilities Special Systems and Codes
Building occupant safety requirements including industry standards, regulations, building codes, fire codes and life safety codes. Fundamentals of fire alarm system operation, inspection and maintenance. Fundamentals of fire sprinkler system operation, inspection and maintenance. Principles of life safety smoke control systems, including fire damper and combination fire/smoke damper applications. Prerequisites: OSH105AA or OSH106AA. Cross Reference: FAC240

OSH270AB  2 Credits  12 Periods
Occupational Safety and Health Internship
Occupational Safety and Health (OSH) work experience in business, industry or government. One hundred and sixty (160) hours of designated work experience. Prerequisites: HMT/OSH101 and GTC/MIT/OSH106. Course Notes: OSH270AB may be repeated for a total of four (4) credit hours.

OSH270AB  3 Credits  18 Periods
Occupational Safety and Health Internship
Occupational Safety and Health (OSH) work experience in business, industry or government. Two hundred and forty (240) hours of designated work experience. Prerequisites: HMT/OSH101 and GTC/MIT/OSH106. Course Notes: OSH270AC may be repeated for a total of six (6) credit hours.
OSH275 3 Credits 3 Periods
Control of Transmissible Pathogens
Pathogens including bloodborne and airborne. Regulations, disease transmission, standard and transmission based precautions, exposure control, and exposure determination. Best practices for containment and identification and selection of engineering control devices. Prerequisites: Completion of Associate in Applied Science in Water Technologies degree or completion of Associate in Applied Science in Air Conditioning/Refrigeration/Facilities degree.

OSH290AC 3 Credits 3 Periods Case Study and Research Project
Completion of a selected safety project in policy and procedure development or training program curriculum design in actual or simulated work setting. Combined efforts of educators and employers to accomplish an outcome related to the career objectives of the students. Prerequisites: Permission of instructor.

OFFICE AUTOMATION SYSTEMS (OAS)
OAS090 0.5 Credits 0.5 Periods
Touch Keyboarding
Introduction to computer keyboarding skills for personal use. Emphasis on touch keyboarding of alphabetic and punctuation keys only. Prerequisites: None.

OAS101AA 1 Credit 1.7 Periods
Computer Typing I: Keyboard Mastery
Incorporates correct touch typing principles. Prerequisites: None.

OAS101AB 1 Credit 1.7 Periods
Computer Typing I: Letters, Tables & Reports
Letter, table, and report formatting. Prerequisites: OAS101 AA or permission of department/division.

OAS101AC 1 Credit 1.7 Periods
Computer Typing I: Production and Manuscript
Simple office projects and manuscripts. Prerequisites: OAS101AB or permission of department/division.

OAS103AA 1 Credit 1.7 Periods
Computer Typing: Skill Building I
Individual progression on speed/accuracy drills. Prerequisites: Ability to touch type at 25 words per minute or permission of department/division.

OAS103AB 1 Credit 1.7 Periods
Computer Typing: Skill Building II
Progression on speed/accuracy drills. Prerequisites: OAS103AA or permission of department/division.

OAS103AC 1 Credit 1.7 Periods
Computer Typing: Skill Building III
Progression on speed/accuracy drills. Prerequisites: OAS103AB or permission of department/division.

OAS108 3 Credits 3 Periods
Business English
Comprehensive coverage of correct use of English grammar including spelling, punctuation, capitalization, and number style mechanics in a business context. Prerequisites: None.
OAS118  1 Credit  1.7 Periods
10-Key by Touch
Touch system of numeric keys on ten-key pads. Prerequisites: None.

OAS130DK  1 Credit 2 Periods Beginning Word
Using Word for Windows to create, edit, and print documents. Prerequisites: Ability to keyboard a minimum of 20 wpm or permission of instructor.

OAS131DK  1 Credit  1 Period
Intermediate Word
Intermediate concepts in using Word for Windows. Prerequisites: BPC130DK or permission of instructor.

OAS135DK  2 Credits  2 Periods
Word: Level I
Using Word word processing software to create and name files, edit text, format, and print a variety of documents. Prerequisites: None.

OAS181  3 Credits  3 Periods
Medical Office: Vocabulary
Basic medical vocabulary with emphasis on pronunciation, spelling, and definition. Prerequisites: None.

PAINTING/DECORATING: APPRENTICESHIP (PNT)
PNT101  4 Credits  4 Periods
Introduction to Painting-Decorating Trade
Orientation to the trade, apprentice responsibilities and professionalism, communication skills and workplace behavior. Tools and equipment used in the trade. Preparation and application procedures of various types of surfaces, utilizing various types of materials used in the trade. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT102  4 Credits  4 Periods
Surface Preparation and Cleaning
Overview of surface preparation and cleaning, emphasis on materials, coating applications, various surface finishes, and safety procedures. Causes of paint failures and remedies. Also preparation procedures of plaster drywall, masonry and metal. Residential and commercial applications. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT104  2 Credits  2 Periods
Wood and Decorative Finishes
Wood and decorative finishing techniques including glazing, antiquing, wood graining and marbelizing. Sanding techniques of hardwoods and softwoods including fillers, sealers, stains and finishes. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT105  1 Credit  1 Period
Painting and Drywalling Orientation
Overview of the painting and drywalling labor history, workplace performance, green construction, workplace issues and sexual harassment. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.
PNT106  3 Credits  3 Periods
Health and Safety for Drywall Finishers
Purpose and limitation of Material Safety Data Sheet (MSDS). Occupational Safety and Health Administration (OSHA). Common safety and fall hazards. Requirements for erecting and dismantling scaffolds. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT107  2 Credits  2 Periods
Introduction to the Drywall Trade
Basic terminology and tools used in the drywall trade. Exhibiting professionalism in the trade in appearance, dealing with difficult customers, following workplace protocol and procedure. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT108  2 Credits  2 Periods
Materials of the Drywall Trade
Characteristics of drywall panels, types of fillers and proper lighting requirements. Surface preparation, ventilation and materials handling. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT109  2 Credits  2 Periods
Tools of the Drywall Trade
Selection, use, maintenance and safety procedures for common tools of the drywall trade. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT118  1.5 Credits  1.5 Periods
OSHA Standards and Regulations
Provisions of and implementation of OSHA (Occupational Safety and Health Administration) Act in the workplace. Rights and responsibilities under the OSHA Act. Appeals process, record keeping, and voluntary protection programs. OSHA’s construction and general industry standards. Overview of the requirements of the more frequently referenced standards. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT120  1.5 Credits  1.5 Periods
Basic Calculations for Construction
Addition, subtraction, multiplication and division of whole, decimal, fraction and metric numbers. Percentage and fraction conversions. Metric units of length, weight, volume and temperature. Metric system as it relates to the construction trade. Basic algebra and geometry operations and equations. Area and volume calculations of shapes. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT121  1 Credit  1 Period
Introduction to Hand and Power Tools
Overview of the use, maintenance and safety procedures for common hand and power tools. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT123  1 Credit  1 Period
Introduction to Blueprints
Basic concepts of blueprints, including terms and symbols, grid line systems and blueprint production techniques. Dimensions and blueprint reading. Prerequisites: Registered Apprentice status or permission of the apprenticeship coordinator.

PNT150  2 Credits  2 Periods
Construction Foreman
Examine the basic supervisory and leadership concepts and skills needed to manage a construction project. Includes basic theories of motivation, role of communications in construction project management, decision making process, planning and organizing, strategies, developing production schedules to control production, discussing accident prevention and loss control. Prerequisites: None.
PNT201  2 Credits  2 Periods
Coverings and Blasting
Application, installation, and estimating procedures for wallcoverings including abrasive and wet blasting guidelines and systems. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT202  3 Credits  3 Periods
Spray Painting
Operating and maintenance procedures for spray painting equipment and materials. Use of specialized painting systems and equipment. Application procedures for special coatings and parking lots. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT203  3 Credits  3 Periods
Non-Spray Application of Coatings
Best practices in the application of stain, clear coat, and wood finish on wood substrates. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT205  2 Credits  2 Periods
Paints, Coatings and Materials
Coating products and solvent type and compatibility following Product Data Sheet and Material Safety Data Sheet for products. Including common failures, causes and corrections, weatherization, properties and functions of paints or coatings. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT208  4 Credits  4 Periods
Filling, Taping and Sanding Applications
Characteristics of fillers, filling compounds, drying times. Taping techniques including taping and wiping procedures, tools and equipment. Functions and operations of boxes and fasteners as well as sanding application and bead and trim installation. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT209  3 Credits  3 Periods
Automatic Taping Tools of the Drywall Trade
Inspection and maintenance procedures for keeping automatic taping tools in proper working condition. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PNT210  3 Credits  3 Periods
Advanced Drywall Applications and Systems
Methods for making repairs, mixing procedures, and recognizing common defects in drywall finishing and wallboards. General texture spraying techniques and basics of Exterior Insulated and Finish Systems (EIFS) and Expanded Polystyrene (EPS). Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PERIOPERATIVE NURSING (PON)
PON105  2 Credits  2 Periods
Surgical Technology for the Operating Room Nurse
Direct observation of principles and culture of operating room. Traffic patterns, aseptic techniques, roles, professional surgical team work, case management, perioperative record, instrument handling, safety precautions with regard to exposure, surgical attire, surgical regimen and chain of command. Prerequisites: Acceptance into the Surgical Technology for the Operating Room Nurse Program, or permission of department or division.
Course Listings 2017-2018

**PON210  3 Credits  3 Periods**  
**Perioperative Principles I**  
Role and responsibilities of the professional nurse in the perioperative setting. Team concept, patient care, nursing process and impact of quality assurance. Role of Association of Operating Room Nurse Standards of Practice. Prerequisites: Acceptance into program or permission of department. Corequisites: PON214

**PON212  3 Credits  3 Periods**  
**Perioperative Principles II**  
Common pathogenic organism and methods of sanitation/sterilization. Instruments, procedures intervention measures related to the operating room. State and Federal regulating agencies. Moral and ethical issues. Prerequisites: PON 210 or permission of department. Corequisites: PON214

**PON214  4 Credits  9.5 Periods**  
**PeriOperative Laboratory**  

**PON218  3 Credits  15 Periods**  
**PeriOperative Clinical Practice I**  
Application of the nursing process in care of surgical patients during the perioperative Periods. Statements of competency established by the Association of Operating Room Nurses. Prerequisites: PON214.

**PON220  3 Credits  15 Periods**  
**PeriOperative Clinical Practice II**  
Application of the nursing process in care of surgical patients during the perioperative Periods. Statements of Competency, established by the Association of Operating Room Nurses. Prerequisites: PON 214 or permission of department.

**PON230  LEC 2 Credits  LEC 2 Periods / LAB 1 Credit  LAB 3 Periods**  
**Surgical Technology Materials Update**  
Current surgical technology materials. Surgical specialty modifications, introductions, technology. Specific uses, handling, application to surgical procedures. Prerequisites: Currently enrolled in Surgical Technology or Surgical Technology for the Operating Room Nurse Program, or Certified Surgical Technologist, or permission of program director. Cross-referenced: SGT230

**PHILOSOPHY (PHI)**

**PHI101  3 Credits  3 Periods**  
**Introduction to Philosophy**  
General consideration of human nature and the nature of the universe. Knowledge, perception, freedom and determinism, and the existence of God. Prerequisites: None.

**PHI105  3 Credits  3 Periods**  
**Introduction to Ethics**  
Major theories of conduct. Emphasis on normative ethics, theories of good and evil from Plato to the present. Prerequisites: None.

**PHI213  3 Credits  3 Periods**  
**Medical and Bio-Ethics**  
A philosophical consideration of moral problems that arise in relation to medicine and biology, e.g., death, patient’s rights and biological experimentation. Prerequisites: None.
PHYSICAL EDUCATION (PED)

PED101BA  1 Credit  2 Periods
Baseball
Basic skills and game strategy of baseball. Class emphasis on competition and drills. Prerequisites: None. Prior experience recommended. Note: PED101BA may be repeated for credit.

PED101BC  1 Credit  2 Periods
Boot Camp
Vigorous physical and mental conditioning incorporating cardiovascular, core fitness, strength training, and flexibility. Emphasis will be placed on proper body mechanics and safety. Prerequisites: None. PED101BC may be repeated for Credits.

PED101PS  1 Credit  2 Periods
Pilates
Mat-based exercise system focused on improving flexibility and strength for the total body. Teaches core control and stabilization while improving postural alignment. Prerequisites: None. PED101PS may be repeated for Credits.

PED101SO  1 Credit  2 Periods
Soccer
Basic skills and game strategy of soccer. Class emphasis on competition and drills. Prerequisites: None. PED101SO may be repeated for Credits.

PED101YO  1 Credit  2 Periods
Yoga
Promotion of overall health by strengthening muscles and stimulating glands and organs. Basic postures, breathing and relaxation techniques. Prerequisites: None. PED101YO may be repeated for Credits.

PED101ZU  1 Credit  2 Periods
Zumba Fitness
Zumba® dynamic fitness program. Features high energy, easy to follow rhythmic moves set to energizing Latin and international beats. Provides an enjoyable way to increase fitness level. Prerequisites: None. PED101ZU may be repeated for Credits.

PED102BA  1 Credit  2 Periods
Baseball - Intermediate
To improve upon basic skills and game strategy of baseball at the intermediate level. Class emphasis on competition and drills. Prerequisites: None. Prior experience recommended. Course Notes: PED102BA may be repeated for credit.

PED102SO  1 Credit  2 Periods
Soccer - Intermediate
To improve upon basic skills and game strategy of soccer at the intermediate level. Class emphasis on competition and drills. Prerequisites: None. Prior experience recommended. Course Notes: PED102SO may be repeated for credit.

PED115  2 Credits  4 Periods
Lifetime Fitness
Fitness activity and wellness study to help develop a lifetime of regular exercise, stress management, and proper nutrition. Workout includes warm-up/stretch, aerobic exercise, selected strength exercises, and cool down/stretch. May be repeated for Credits. Prerequisites: None.
**PED201SO  1 Credit  2 Periods**  
**Soccer - Elite**  
To improve upon intermediate skills and game strategy of soccer at the advanced level. Class emphasis on competition and drills. Prerequisites: None. Prior experience recommended. Note: PED201SO may be repeated for credit.

**PED202BA  1 Credit  2 Periods**  
**Baseball - Elite**  
To improve upon intermediate skills and game strategy of baseball at the advanced level. Class emphasis on competition and drills. Prerequisites: None. Prior experience at competitive level recommended. Note: PED201BA may be repeated for credit.

**PED202SO  1 Credit  2 Periods**  
**Soccer - Elite**  
Improve upon advanced skills and game strategy of soccer at the elite level. Class emphasis on competition and drills. Prerequisites: None. Prior experience at competitive level recommended. Note: PED202SO may be repeated for credit.

**PHYSICAL GEOGRAPHY (GPH)**  
**GPH111  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods**  
**Introduction to Physical Geography**  
Spatial and functional relationships among climates, landforms, soils, water, and plants. Prerequisites: None.

**GPH113  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods**  
**Introduction to Physical Geography**  
Spatial and functional relationships among climates, landforms, soils, water, and plants. Prerequisites: None.

**GPH212  3 Credits  3 Periods**  
**Introduction to Meteorology I**  
Atmospheric processes and elements. General and local circulation, heat exchange and atmospheric moisture. Prerequisites: None.

**GPH214  1 Credit  3 Periods**  
**Introduction to Meteorology Laboratory I**  
Basic meteorological and climatological measurements. Prerequisites: None. Corequisites: GPH212.

**PHYSICAL THERAPIST ASSISTING (PTA)**  
**PTA101  1.5 Credits  1.5 Periods**  
**Survey of Physical Therapy**  
History of physical therapy. Purpose, benefits, and goals of the Arizona and American Physical Therapy Associations (APTA). Roles and responsibilities of physical therapists (PT) and physical therapist assistants (PTA). Patient care, legal issues, principles of physical therapy treatment, education requirements, and functions of the American Physical Therapy Association. Prerequisites: Admission to the Physical Therapist Assisting Program, or permission of Department or Division.

**PTA102  1 Credit  1 Period**  
**Structured Physical Therapist Assisting Review**  
Structured physical therapist assisting tutorial assistance and physical therapist assisting study skills related to physical therapist assisting courses. Physical therapist assisting process and critical thinking application skills emphasized. Prerequisites: None. Corequisites: Enrollment in the Physical Therapist Assisting program or permission of department chair. Course offered as Credits (P) No Credits (Z) basis. May be repeated for a total of eight (8) Credits hours.
**PTA103  3 Credits  3 Periods**  
**Kinesiology**  
Physical principles of human motion. Emphasis on structure, movement, and stability of specific joints. Normal and abnormal human locomotion. Stabilizing and motion producing forces upon extremities and the spine. Kinesiological analysis of functional movement of the human body. Prerequisites: Admission to the Physical Therapist Assisting Program, or permission of Department or Division.

**PTA104  1.5 Credits  4.5 Periods**  
**Musculo-Skeletal Assessment Techniques**  
Theory and principles of goniometry and manual muscle testing. Normal range of motion of the spine and extremities. Normal posture and common postural deviations. Palpation and identification of pertinent bony and soft tissue structures. Documentation in goniometry, muscle testing, and posture assessment. Prerequisites: Admission to the Physical Therapist Assisting Program, or permission of Department or Division.

**PTA200  LEC 2 Credits  LEC 2 Periods  /  LAB 2 Credits  LAB 6 Periods**  
**Patient Mobility Techniques**  
Theory, principles and practice of proper body mechanics. Principles and techniques of gait training, patient bed mobility and transfers, wheelchair mobility. Theory, principles, and techniques of therapeutic exercise. Patient instruction, assessment techniques, assistive devices and equipment used by the physical therapy assistants and their patients. Safety and first aid in physical therapy practice settings. Documentation requirements for physical therapy interventions. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division.

**PTA202  LEC 3 Credits  LEC 3 Periods  /  LAB 2 Credits  LAB 6 Periods Selected**  
**Physical Therapy Modalities**  
Stages of inflammation responses and tissue repair. Theories on pain. Guidelines for patient positioning and safety. Principles and application of thermal agents. Application and documentation of superficial heat and cold, ultrasound, electromagnetic radiation, massage, hydrotherapy, light, intermittent venous compression, and traction. Indications and contraindications for treatment methods. Research in physical therapy. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division.

**PTA203  3 Credits  3 Periods**  
**Clinical Pathology**  
Pathologic terminology and definitions. Specific disease processes specific to physical therapy. Functional anatomy, select medical tests for diagnosis, and medication and effects on therapy. Principles of wellness and disease prevention. Prerequisites: Admission to the Physical Therapist Assisting program or permission of Department or Division.

**PTA205  1.5 Credits  1.5 Periods**  
**Communication in Physical Therapy**  
Communication skills in the Physical Therapy setting. Self-image in communication. Active listening, responding to problems, body language, patient interview skills. Communicating with chronically ill and dying patients and their families. Communicating with persons with disabilities. Cultural differences in communication and views of Health Care. Prerequisites: Admission to the Physical Therapist Assisting program or permission of the Department or Division.

**PTA206  3 Credits  15 Periods**  
**Clinical Practicum I**  
Clinical experience with maximum supervision for physical therapist assisting students. Application of physical therapy skills and techniques in specific clinical settings. Interaction with patients, family members and members of the health care team. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division. Corequisite: PTA207.
Course Listings 2017-2018

PTA207 1 Credit 1 Period
Clinical Practicum Seminar I
Integration of clinical experiences from clinical practicums and didactic theory and concepts. Emphasis on data collection, role of the physical therapist assistant (PTA), treatment techniques and procedures, equipment, patient/family education, and professional behaviors. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division. Corequisites: PTA206.

PTA208 LEC 3 Credits LEC 3 Periods / LAB 2 Credits LAB 6 Periods
Rehabilitation of Special Populations
Rehabilitation strategies for brain injured patients. Neurodevelopmental treatment (NDT) emphasized. Theories and alternative physical therapy treatment for neurologically impaired patients. Clinical applications and treatment of patients. Neurodevelopmental treatment (NDT), proprioceptive neuromuscular facilitation (PNF), cardiopulmonary rehabilitation, spinal cord injury management, and prosthetics/orthotics. Emphasis on proficiency in “hands on” techniques. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division.

PTA210 LEC 3 Credits LEC 3 Periods / LAB 1 Credit LAB 3 Periods
Orthopedic Physical Therapy
Response of human bone and soft-tissue to injury. Orthopedic management and physical therapy procedures for common injuries of the extremities and spine. Common orthopedic surgeries. Joint mobilization techniques. Body mechanics and therapeutic exercise programs. Documentation procedures. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division.

PTA214 LEC 1.5 Credits LEC 1.5 Periods / LAB 1 Credit LAB 3 Periods
Electromodalities
Electrical currents for physical therapy. Types of human muscular contractions. Safety stressed. Application of electrical currents for physical therapy. Uses and implications of electrical nerve tests. Bipophysical effects of transcutaneous electrical nerve stimulation. Use of low volt, high volt, and interferential electrical stimulation devices. Neuromuscular electrical stimulation (NMES). Use of biofeedback in physical therapy. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division.

PTA215 1 Credit 1 Period
Wound Care for the Physical Therapist Assistant
Introduction to current concepts in wound care management techniques for the physical therapist assistant including skin anatomy and physiology, principles of healing, types of wounds, and therapeutic interventions. Prerequisites: Admission to the Physical Therapist Assisting program or permission of Department or Division.

PTA217 2 Credits 2 Periods
Clinical Neurology
Anatomy and function of the brain, spinal cord and peripheral nervous system. Evaluation of the motor innervation and spinal tracts. Specific diseases of the central and peripheral nervous systems related to physical therapy. Emphasis on clinical signs and symptoms of neurological disorders. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division.

PTA230 2 Credits 2 Periods Physical Therapy Seminar
Current practices and issues in physical therapy. Clinical problem solving, ethics, legal aspects, reimbursement, case management, research. Resume preparation and job interviewing skills. Stress management techniques. Total quality management principles. Employment issues. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division.

PTA240 1 Credit 1 Period
Peripheral Joint Mobilization Techniques for the Physical Therapist Assistant
Peripheral joint mobilization techniques for the upper and lower extremity joints. Concepts, indications, and contraindications. Documentation. Statutes and policies regarding joint mobilizations. Prerequisites: Certification or licensure as a Physical Therapist Assistant and six months clinical practice.
PTA280  3 Credits  15 Periods
Clinical Practicum II
Clinical experience with moderate supervision for physical therapist assisting students. Application of physical therapy skills and techniques in various clinical settings. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division. Corequisites: PTA281.

PTA281  1 Credit  1 Period Clinical Practicum Seminar II
Integration of clinical experiences from clinical practicums and didactic theory and concepts. Emphasis on data collection, role of the physical therapist assistant (PTA), treatment techniques and procedures, equipment, patient/family education, and professional behaviors. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division. Corequisites: PTA280.

PTA290  3 Credits  15 Periods
Clinical Practicum III
Clinical experience with minimum supervision for physical therapist assisting students. Application of physical therapy skills and techniques in specific clinical settings. Prerequisites: Admission to the Physical Therapist Assisting program or permission of Department or Division. Corequisites: PTA292.

PTA292  1 Credit  1 Period
Clinical Practicum Seminar III
Integration of clinical experiences from clinical practicums and didactic theory and concepts. Emphasis on data collection, role of the physical therapist assistant (PTA), treatment techniques and procedures, equipment, patient/family education, and professional behaviors. Prerequisites: Admission to the Physical Therapist Assisting program, or permission of the Department or Division. Corequisites: PTA290.

PTA295  2 Credits  2 Periods
Physical Therapist Assistant Examination Review
Preparation for the physical therapist assistant examination administered by the Federation of State Boards of Physical Therapy. Topics include physical therapy management of patients with musculoskeletal, neurological, and cardiopulmonary diseases. Therapeutic modalities, therapeutic exercise, functional mobility activities, and patient assessment techniques. Documentation and ethical/legal considerations in practice of physical therapy. Prerequisites: Admission to the Physical Therapist Assisting program or permission of Department or Division.

PHYSICS (PHY)

PHY101  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods
Introduction to Physics
A survey of physics emphasizing applications of physics to modern life. Prerequisites: Grade of “C” or better in MAT090, or MAT091, or MAT092, or MAT093, or equivalent, or satisfactory score on Math Placement exam. Students may receive Credits for only one of the following: PHY101 or PHY101AA.

PHY111  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods General
Physics I
SUN# PHY1111
Includes motion, energy, and properties of matter. Prerequisites: MAT182, or MAT 187, or one year high school Trigonometry with a grade of C or better, or permission of Department or Division. PHY111 is recommended for preprofessional and suggested for certain other majors. Students may receive Credits for only one of the following: PHY111 or PHY111AA.

PHY112  LEC 4 Credits  LEC 3 Periods / LAB 0 Credits  LAB 3 Periods General
Physics II
SUN# PHY1112
Includes electricity, electromagnetism, and modern physics. Prerequisites: PHY105 or PHY111.
PLASTERING/CEMENTING: APPRENTICESHIP (PCM)

PCM157  5 Credits  5 Periods
Trade Math and Safety for Concrete
Application of mathematic concepts and operations for the construction trades. Introduction to safety rules and practices for workers in the concrete trade. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

PCM202  5 Credits  5 Periods
Interior and Exterior Basecoat

POLITICAL SCIENCE (POS)

POS110  3 Credits  3 Periods
American National Government
Study of the historical backgrounds, governing principles, and institutions, of the national government of the United States. Prerequisites: None.

POS120  3 Credits  3 Periods
World Politics
Introduction to the principles and issues relating to the study of international relations. Evaluation of the political, economic, national, and transnational rationale for international interactions. Prerequisites: None.

POS130  3 Credits  3 Periods
State and Local Government
Survey of state and local government in the United States. Special attention on Arizona State government. Prerequisites: None.

POLYSOMNOGRAPHIC TECHNOLOGY (PSG)

PSG150  4 Credits  6 Periods
Introduction to Sleep Medicine
Introduction to the fundamental concepts of polysomnography, sleep technology and sleep medicine. Emphasis on nomenclature, technical and medical roles, normal sleep, sleep disorders, and professional organizations and resources. Prerequisites: Admission into the Polysomnography Technology program.

PSG160  3 Credits  5 Periods
Polysomnographic Procedures
Practical application of clinical procedures germane to the performance of polysomnography. Emphasis on patient assessment and communications, pre-test preparations, patient hook-up, instrument calibration and operation, test termination, cleanup and troubleshooting. Prerequisites: Admission into the Polysomnography Technology program.

PSG165  3 Credits  15 Periods
Clinical Polysomnography I
Introduction to a sleep disorders center, observation of a center conducting polysomnography, and participation in performance of associated procedures. Emphasis on patient preparation, testing protocol, instrument calibration and operation, documentation, and patient interactions. Prerequisites: Admission into the Polysomnography Technology program.
PSG170 3 Credits  5 Periods
Sleep Therapeutics
Review of sleep therapies to include medical treatment of insomnia, hypersomnia, Restless Legs Syndrome, Periodic Limb Movement Disorder, Rapid Eye Movement Sleep Behavior Disorder, Parasomnias, the use of Positive Airway Pressure Therapy and/or Oxygen Therapy to treat sleep-disordered breathing. Prerequisites: Admission into the Polysomnography Technology program.

PSG250 3 Credits  5 Periods
Record Scoring
Polysomnographic Record Scoring including Visual, Arousal, Cardiac, Movement, and Respiratory scoring rules outlined by the American Academy of Sleep Medicine. Polysomnogram report generation and calculations, Technical and Digital Specifications, Multiple Sleep Latency Test/Maintenance of Wakefulness Test scoring and reporting, and Archive and Data Storage, Abnormal Polysomnographic Record events, and Artifact recognition. Prerequisites: Admission into the Polysomnography Technology program.

PSG260 2 Credits  2 Periods
Special Topics in Polysomnography
Specialized techniques, equipment and procedures used in polysomnography. Emphasis on infant, pediatric and geriatric populations, disabled and emotionally/mentally challenged, Polysomnograms with legal implications, research, and less commonly performed procedures. Prerequisites: Admission into the Polysomnography Technology program.

PSG265 2 Credits  10 Periods
Clinical Polysomnography II
Participation in clinical polysomnography testing. Emphasis on patient preparation, troubleshooting, therapeutics, proper documentation, record review, scoring and report generation. Prerequisites: Admission into the Polysomnography Technology program.

PSG275 3 Credits  15 Periods
Clinical Polysomnography III
Clinical polysomnography testing. Emphasis on independent function and decision making, time management, record review, scoring and report preparation. Prerequisites: Admission into the Polysomnography Technology program.

PSG282AA 1 Credit  1 Period
Volunteerism for Polysomnographic Technology: Service Learning Experience
Service learning field experience within private/public agencies, educational institution, and citizen volunteer groups. Prerequisites: Permission of Instructor.

PSYCHOLOGY (PSY)

PSY101 3 Credits  3 Periods
Introduction to Psychology
To acquaint the student with basic principles, methods and fields of psychology such as learning, memory, emotion, perception, physiological, developmental, intelligence, social and abnormal. Prerequisites: None.

PSY132 3 Credits  3 Periods
Psychology and Culture
Presents current knowledge about human diversity in behavior and culture using examples from a variety of contexts within western and global societies. Highlights topics in cross-cultural psychology, such as intergroup relations, diverse cognitive styles, ethnocentrism, gender, personality, emotion, language, communication, work and health. The role of enculturation throughout the lifespan will be explored to increase awareness of how behavioral and cognitive principles affect interactions in a multicultural world. Prerequisites: None.
PSY156  3 Credits  3 Periods  
Understanding Death and Dying  
Designed to give the student an understanding of the research and theories of death, dying and the bereavement process. Prerequisites: None

PSY230  3 Credits  3 Periods  
Introduction to Statistics  
An introduction to basic concepts in descriptive and inferential statistics, with emphasis upon application to psychology. Consideration given to the methods of data collection, sampling techniques, graphing of data, and the statistical evaluation of data collected through experimentation. Required of psychology majors. Prerequisites: PSY101 with a grade of “C” or better and MAT092 or equivalent, or permission of instructor.

PSY240  3 Credits  3 Periods  
Developmental Psychology  
Human development from conception through adulthood. Includes: physical, cognitive, emotional and social capacities that develop at various ages. Recommended for students majoring in nursing, education, pre-med, and psychology. Prerequisites: PSY101 with a grade of “C” or better or permission of the instructor.

PSY266  3 Credits  3 Periods  
Abnormal Psychology  
Distinguishes between normal behavior and psychological disorders. Subjects may include stress disorders, problems with anxiety and depression, unusual and abnormal sexual behavior, schizophrenia and addictive behaviors. Causes and treatments of psychological problems and disorders are discussed. Prerequisites: PSY101 with a grade of “C” or better, or permission of instructor.

PSY277  3 Credits  3 Periods  
Psychology of Human Sexuality  
Survey of psychological and physiological aspects of human sexual behavior. Emphasis placed on the integration of the cognitive, emotional, and behavioral factors in sexual functioning. Prerequisites: PSY101 with a grade of “C” or better, or permission of instructor. Student must be 18 years or older.

READING (RDG)  
RDG071  3 Credits  3 Periods  
Basic Reading  
Provide opportunities for practice and application of basic reading skills. Includes phonic analysis, word recognition, structural analysis, use of context clues, and use of dictionary, reinforced through practical application. Development of vocabulary required for success in content area courses. Emphasis on literal comprehension and development of inferential interpretation. Prerequisites: Appropriate reading placement test score, or grade of “C” or better in ESL/RDG046, or permission of instructor. Recommended for all students with limited reading experiences.

RDG081  3 Credits  3 Periods  
Reading Improvement  
Designed to improve basic reading skills. Includes word recognition, interdisciplinary vocabulary development, recognizing patterns of organization, interpreting inference. Reviews interpreting graphic materials. Emphasis on identifying main ideas and related details. Prerequisites: Appropriate reading placement test score, or grade of “C” or better in RDG071, or permission of instructor.

RDG091  3 Credits  3 Periods  
College Preparatory Reading  
Designed to improve basic reading and study skills, vocabulary and comprehension skills. Recommended to all students whose placement test scores indicate a need for reading instruction. Prerequisites: Appropriate reading placement test score, or grade of “C” or better in RDG081, or permission of instructor. Course Notes: RDG091 is recommended to all students whose placement test scores indicate a need for reading instruction.
RDG095 6 Credits 6 Periods
Intensive Foundations for College Reading
Accelerated format to improve basic reading skills, study skills, and information literacy skills including vocabulary development, main idea identification, patterns of organization recognition, and comprehension improvement. Prerequisites: Appropriate reading placement test score, or grade of “B” or better in RDG071, or permission of Instructor. Note: RDG095 is an accelerated and intensive learning program for students and meets the requirements for RDG081 and RDG091 in one semester.

RDG100 3 Credits 3 Periods
Successful College Reading
Emphasis on reading study strategies for any introductory class in any subject area. Introduction to Learning Management System (LMS), how to successfully read course textbooks and assessments, how to navigate information technology and development of academic vocabulary. Prerequisites: A grade of “C” or better in RDG081 or appropriate reading placement score or permission of Instructor. Core requisites: Any 100-level course in another content area or permission of Instructor. Notes: RDG100 satisfies RDG091 requirement. RDG100 may be repeated for a total of twelve (12) credit hours.

RECREATION (REC)
REC120 3 Credits 3 Periods
Leisure and the Quality of Life
Overview of the historical, psychological, social, and cultural aspects of play, leisure, and recreation and their role in contemporary society. Nature of play and leisure behavior in human development within different cultures and the contribution play, recreation, and leisure make to the quality of life for individuals in today’s society. Prerequisites: None.

RELIGIOUS STUDIES (REL)
REL100 3 Credits 3 Periods
World Religions
The development of various religions from the prehistoric to modern times. Political, economic, social and geographic relationships among world religions. Consideration of both Eastern and Western religions. Prerequisites: None

REL205 3 Credits 3 Periods
Religion and the Modern World
Introduction to the nature and role of religious beliefs and practices in shaping the lives of individuals and societies, with particular attention to the modern world. Prerequisites: ENG101, or ENG107, or equivalent.

RESPIRATORY CARE (RES)
RES109 0.5 Credits 0.5 Periods CPR for Health Care Provider
Current American Heart Association standards for one and two rescuer cardiopulmonary resuscitation (CPR) and obstructed airway procedures on the adult, infant, and pediatric victim. Use of automatic, external defibrillator and resuscitation equipment. Prerequisites: None.

RES130 LEC 3 Credits LEC 3 Periods / LAB 2 Credits LAB 6 Periods Respiratory Care Fundamentals I
Review of existing clinical data and recommendations. Data required to determine appropriateness of prescribed respiratory care plan. Administration of basic respiratory care therapeutics to include medical gas administration, oxygen therapy administration, and humidity/aerosol therapy administration. Use and maintenance of select respiratory equipment. Use of communication skills during interactions with members of the health care team and patients. Ethical, legal and professional work behaviors. Prerequisites: Admission into the Respiratory Care program or admission into the Polysomnographic Technology program.
RES131  1 Credit  1 Period
Infection Control for Respiratory Care
Techniques and procedures used by Respiratory Therapist to clean and sterilize equipment and environments, and prevent the transmission of nosocomial and other healthcare related infections. Prerequisites: Admission into the Respiratory Care program or admission into the Polysomnographic Technology program.

RES133  3 Credits  3 Periods
Respiratory Care Clinical Seminar
Clinical application of concurrent respiratory care course work with emphasis on professionalism, medical record evaluation, communication, universal precaution, infection control, patient safety, patient assessment, age related care, cultural competence, routine hospital regulations, patient education and introduction to respiratory disease and treatment. Prerequisites: Admission into the Respiratory Care program. Corequisites: RES130.

RES134  2 Credits  2 Periods
Respiratory Care Pharmacology
Pharmacologic principles related to the treatment of Acute and Chronic Pulmonary Disease. Information on bronchodilators, mucokinetics, surfactants, anti-inflammatory, antiasthmatic and anti-infective agents to include mechanism of action, general drug information, side effects, and respiratory care considerations. Prerequisites: Admission into the Respiratory Care program. Corequisites: HCC164.

RES136  3 Credits  3 Periods
Applied Biophysics for Respiratory Care
Physical principles specific to ventilation. Laws of physics and their relationship to the respiratory system and the application of respiratory care equipment. Role of respiratory care during specific diagnostic procedures. Use of mathematical formulae. Prerequisites: Admission into the Respiratory Care program.

RES140  LEC 3 Credits  LEC 3 Periods / LAB 2 Credits  LAB 6 Periods
Respiratory Care Fundamentals II
Continuation of basic respiratory care procedures to include patient assessment and monitoring, chest physiotherapy techniques and pulmonary rehabilitation. Hyperinflation therapy, airway management and introduction to mechanical ventilation. Equipment operation, quality assurance and maintenance. Use of communications skills during interactions with health care team members and patients. Ethical, legal and professional work behaviors. Prerequisites: Admission into the Respiratory Care program. Corequisites: RES 142.

RES142  4 Credits  27 Periods
Respiratory Care Clinical I
Clinical application of concurrent respiratory care course work with emphasis on professionalism, medical record evaluation and performance of oxygen therapy, aerosol therapy, chest physiotherapy techniques, hyperinflation therapy, airway management devices and techniques, and observation of mechanical ventilation. Prerequisites: Admission into the Respiratory Care program.

RES144  1 Credit  1 Period
Introduction to Mechanical Ventilation
Introduction to mechanical ventilation including, technology, impact of the use of technology on patient physiology, and how it affects the oxygenation and ventilation ability of the patient. Prerequisites: Admission into the Respiratory Care program or admission into the Polysomnographic Technology program.

RES200  4 Credits  4 Periods
Microbiology for Respiratory Care
Classification of microorganisms by cell type, cell characteristics, and microbial relationships. Select methods for identifying microorganisms. Gram-positive and negative bacteria. Structure and characteristics of mycoplasma organisms. Structure, characteristics and diseases caused by viruses. Types of fungi and diseases they produce. Frequently encountered pathogenic organisms and normal flora of the body. Prerequisites: Admission into the Respiratory Care program.
RES222  LEC + Lab  1 Credit  1 Period
Respiratory Care Fundamentals III
Standards of the American Heart Association for Basic Life Support. Procedures and skills for teaching cardiopulmonary resuscitation. Prerequisites: Health care provider CPR card

RES224  3 Credits  3 Periods
Respiratory Care Clinical Seminar

RES226  4 Credits  27 Periods
Respiratory Care Clinical II
Clinical application of all prerequisite respiratory care course work with emphasis on adult critical care and neonatal/pediatric care. Performance of general floor and critical care procedures. Advanced patient assessment and monitoring. Prerequisites: Admission into the Respiratory Care program.

RES230  LEC 3 Credits  LEC 3 Periods  /  LAB 1 Credit  LAB 3 Periods
Respiratory Care Fundamentals IV
Advanced respiratory care therapy and assessment techniques to include hemodynamic monitoring, performance and interpretation of pulmonary function testing. Assisting physicians during special procedures. Development of advanced respiratory care plans and clinical research techniques. Equipment operation, quality assurance, and maintenance. Use of effective communication skills with members of the health care team and patients. Prerequisites: Admission into the Respiratory Care program. Corequisites: RES232.

RES232  4 Credits  27 Periods
Respiratory Care Clinical III
Clinical application of all prerequisite respiratory care course work with emphasis on adult critical care and neonatal/pediatric care. Basic and critical care therapeutics, advanced patient assessment and monitoring. Assisting physician during special procedures. Increased responsibility for total patient care, work organization and time management. Prerequisites: Admission into the Respiratory Care program.

RES235  2 Credits  2 Periods
Respiratory Care Pharmacology II
Pharmacologic principles specific to the care of the respiratory patient in the acute care environment to include cardiac and renal agents, blood pressure and antithrombotic agents, neuromuscular, anesthetic, sedative, analgesic agents. Prerequisites: Admission into the Respiratory Care program.

RES240  LEC 3 Credits  LEC 3 Periods  /  LAB 1 Credit  LAB 3 Periods
Respiratory Physiology
Physiology of the respiratory, cardiovascular and renal systems as related to oxygenation and ventilation of the human body. Physiologic mechanisms of breathing. Role of capillary circulation in fluid regulation. Impact of respiratory care procedures on the organ systems. Prerequisites: Admission into the Respiratory Care program or admission into the Polysomnographic Technology program.

RES270  2 Credits  2 Periods
Neonatal and Pediatric Respiratory Care
Neonatal and pediatric respiratory care to include development, anatomical and physiological differences, assessment, basic respiratory care procedures, mechanical ventilation and common disorders and conditions. Specific computer and communication skills. Prerequisites: Admission into the Respiratory Care program.
RES280  2 Credits  2 Periods
Respiratory Care Review
Data interpretation, equipment operation and therapeutic procedures specified for the National Board for Respiratory Care Entry Level Therapist examination. Quality control and therapeutic procedures. Pharmacologic agents and treatment of cardiopulmonary collapse. Pulmonary rehabilitation and home care. Prerequisites: Admission into the Respiratory Care program.

RES291  1 Credit  1 Period
Respiratory Care Advanced Life Support

RES297  2 Credits  2 Periods
Respiratory Care Seminar
Presentation of case scenarios of various patient type and disease processes. Application of general principles of respiratory care to arrive at clinical solutions. Prerequisites: Admission into the Respiratory Care program.

SOCIAL WORK (SWU)
SWU171  3 Credits  3 Periods
Introduction to Social Welfare
Analysis of contemporary social welfare services and professional social work. Prerequisites: None.

SWU291  3 Credits  3 Periods
Social Service Delivery Systems
Purposes, structures, and delivery systems of human service agencies. Includes 40 hours of volunteer experience in local human service agencies. Prerequisites or Corequisites: SWU102, or SWU171, or permission of the department

SWU292  3 Credits  3 Periods
Effective Helping in a Diverse World
Introduction to professional helper communication skills with respect to cross-cultural practice and diversity issues, in a social work setting. Prerequisites: None. (SOC101 and SWU102) or SWU171 suggested but not required.

SOCIETY AND BUSINESS (SBU)
SBU200  3 Credits  3 Periods
Society and Business
The study of issues and demands placed on business enterprise by owners, customers, government, employees and society. Included are social, ethical and public issues and analysis of business responses. Prerequisites: None.

SOCIOLOGY (SOC)
SOC101  3 Credits  3 Periods
Introduction to Sociology
Fundamental concepts of social organization, culture, socialization, social institutions and social change. Prerequisites: None.

SOC180  3 Credits  3 Periods
Social Implications of Technology
Effects of development and implementation of technology on society. Historical and multi-cultural comparisons of this process, current concerns addressed, and prospects for the future analyzed. Prerequisites: None.
SOC212  3 Credits  3 Periods
**Gender and Society**
A sociological analysis of the way culture shapes and defines the positions and roles of both men and women in society. Major emphasis on social conditions which may lead to a broadening of gender roles and a reduction of gender role stereotypes and the implications of these changes. Open to both men and women. Prerequisites: None.

SOC220  3 Credits  3 Periods
**Sport and Society**
Applies the sociological perspective to the study of sport. Emphasizes how hierarchies of race, class, and gender in the United States impact the sport experience of both the fan and the athlete, as well as how both professional and amateur sport have at times played a transformative role in society. Prerequisites: None.

SOC253  3 Credit 3 Periods
**Social Class and Stratification**
Focus on the class structure of American Society. Effects of social class position on individual life chances. The occurrence, causes and consequences of poverty in the United States. Prerequisites: None.

SOC282AA  1 Credit 1 Period
**Service-Learning Experience in Sociology**
Unpaid Service-Learning (SL) experience, completed with approved community partner. Prerequisites: SOC101 and permission of Instructor. Course Notes: SOC282AA may be repeated for a total of six (6) Credits hours. Standard grading available according to procedures outlined in catalog. Prerequisites: SOC101 and permission of Instructor.

SOC282AB  2 Credits  2 Periods
**Service-Learning Experience in Sociology**
Unpaid Service-Learning (SL) experience, completed with approved community partner. Prerequisites: SOC101 and permission of Instructor. Course Notes: SOC282AB may be repeated for a total of six (6) Credits hours. Standard grading available according to procedures outlined in catalog.

SOC282AC  3 Credits  3 Periods
**Service-Learning Experience in Sociology**
Unpaid Service-Learning (SL) experience, completed with approved community partner. Prerequisites: SOC101 and permission of Instructor. Course Notes: SOC282AA-AC may be repeated for a total of six (6) SOC282 Credits hours. Standard grading available according to procedures outlined in catalog.

SOC298AA  1 Credit 1 Period
**Special Projects**
Organized and tailored around the interests and needs of the individual student. Structured to provide an atmosphere of individualized research and study paralleled by professional expertise and guidance. Professional-type facilities and equipment available for student use. Allows the best aspects of independent study and individualized learning to be combined to maximize student development. Prerequisites: Permission of Program Director or instructor.

SPANISH (SPA)
SPA101  4 Credits  4 Periods
**Elementary Spanish I**
Basic grammar, pronunciation and vocabulary of the Spanish language. Includes the study of the Spanish-speaking cultures. Practice of listening, speaking, reading, and writing skills. Prerequisites: None.
Course Listings 2017-2018

**SPA102  4 Credits  4 Periods**
**Elementary Spanish II**
Continued study of grammar and vocabulary of the Spanish language, and study of Spanish-speaking cultures. Emphasis on speaking, reading, and writing skills. Prerequisites: (A grade of "C" or better in SPA101 or SPA101AA), or permission of Department or Division. Completion of prerequisites within the last three years is required.

**SPA115  3 Credits  3 Periods**
**Beginning Spanish Conversation I**
Basic pronunciation, vocabulary, sentence structures, and cultural awareness, necessary to develop speaking and listening skills in Spanish. Prerequisites: None.

**SPA201  4 Credits  4 Periods**
**Intermediate Spanish I**
Continued study of essential Spanish grammar and Spanish-speaking cultures. Continued practice and development of reading, writing, and speaking skills in Spanish. Emphasis on fluency and accuracy in spoken Spanish. Prerequisites: A grade of "C" or better in SPA102, or SPA102AA, or SPA111, or permission of Department or Division. Completion of prerequisites within the last three years is required.

**SPA202  4 Credits  4 Periods**
**Intermediate Spanish II**
Review of grammar, continued development of Spanish language skills with continued study of the Spanish-speaking cultures. Prerequisites: A grade of "C" or better in SPA201, or permission of Department or Division. Completion of prerequisites within the last three years is required.

**SURGICAL TECHNOLOGY (SGT)**

**SGT100  4 Credit  4 Period**
**Fundamentals of Surgical Services**
Central Service functions, medical terminology, decontamination, isolation techniques, quality assurance, product transport, and billing methods. Duties and responsibilities of central service technicians. Instrument identification and care, assembling hospital prepared supplies, safety procedures, asepsis principles, monitoring procedures, sterilizer operations, portable equipment, sterile goods, rotation and storage inventory and distribution systems. Prerequisites: None. Corequisites: HCS/SGT102. Cross-References: HCS100

**SGT101  1 Credit  1 Period**
**Medical Terminology for Surgical Services**
Medical Terminology for patient care in surgery related areas. Use of word parts, term spelling, pronunciation and abbreviations related to all surgical specialties. Prerequisites: None. Corequisites: HCS/SGT100. Cross-References: HCS101

**SGT102  1 Credit  1 Period**
**Basic Surgical Instrumentation for Surgical Services**
History, construction and assembly of surgical instrumentation, categories, instrument set assembly, soft tissue foundation sets, general surgery instrumentation sets. Prerequisites: None. Corequisites: HCS/SGT100. Cross-References: HCS102

**SGT103AA  LEC 0.5 Credits LEC 0.5 Periods / LAB 0.5 Credits LEC 1.5 Periods**
**Surgical Asepsis**
Types of wounds and principles of healing. Techniques and principles of surgical asepsis. Regulatory agencies and their role. Operating room disinfection and clean up procedures. Correct surgical scrub technique and operating room preparation. Prerequisites: (BIO162 or BIO205) and PHY101.
SGT103AB  LEC 0.5 Credits LEC 0.5 Periods / LAB 0.5 Credits LEC 1.5 Periods
Sterilization and Disinfection

SGT104AA  LEC 0.5 Credits LEC 0.5 Periods / LAB 0.5 Credits LEC 1.5 Periods
Basic Surgical Instrumentation
Classification of surgical instruments. Common and proper names for instruments. Specific uses, handling, and care for surgical instruments. Prerequisites: SGT103AB.

SGT104AB  LEC 0.5 Credits LEC 0.5 Periods / LAB 0.5 Credits LEC 1.5 Periods
Specialty Surgical Instruments
Identification, care, and use of specialty surgical instruments to include endoscopes, stapling guns, and other specialty equipment. Prerequisites: SGT104AA.

SGT105  LEC 0.5 Credits LEC 0.5 Periods / LAB 0.5 Credits LEC 1.5 Periods
Surgical Technology Pre-Clinical
Direct observation of principles and culture of operating room. Traffic patterns, aseptic techniques, roles, professional surgical team work, instrument handling, safety precautions with regard to exposure, surgical attire, surgical regimen and chain of command. Prerequisites: (BIO162 or BIO205) and PHY101.

SGT110  LEC 2 Credits LEC 2 Periods / LAB 3 Credits LEC 8 Periods
Basic Surgical Procedures

SGT115  1 Credit  5 Periods
Operating Room Practicum I
Roles and responsibilities of operating room personnel focusing on the surgical technician under the direction of the clinical facility preceptor demonstrating the role of the surgical technologist and scope of practice and standard of recommendations. Prerequisites: SGT103AA, SGT103AB, and SGT105.

SGT120  2 Credits  10 Periods
Operating Room Practicum II
Reinforcement and broadening of knowledge and skills of the surgical technologist required for pre-operative, intra-operative and post-operative care of the patient undergoing general surgery and specialties. Prerequisites: SGT115.

SGT152  1 Credit  1 Period
Advanced Surgical Instruments for Surgical Services
Surgical specialty instrumentation care and assembly of instruments to include plastic, gynecologic, urologic, basic bone and joint, head and neck, neurosurgery, cardiovascular and thoracic, microscopic, endoscopes, stapling guns, and robotics procedures. Prerequisites: HCS/SGT102. Cross-References: HCS152

SGT208  LEC 0.5 Credits LEC 0.5 Periods / LAB 0.5 Credits LEC 1.5 Periods
Perioperative Case Management
Pre-operative procedures to include patient's charts and consent forms. Common diagnostic procedures prior to surgery. Operating room admission procedures and interview, charting, and checklist. Purpose of the post anesthesia care unit (PACU). Impact of specific chronic illnesses on body functions. Issues pertaining to death and dying. Special considerations for the pediatric and geriatric patient. Includes a clinical observation experience. Prerequisites: SGT105.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Periods</th>
<th>Description</th>
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<tbody>
<tr>
<td>SGT210</td>
<td>LEC 3 Credits</td>
<td>LEC 3 Periods / LAB 2 Credits</td>
<td>LEC 6 Periods</td>
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<td>Major body systems and anatomical structures with corresponding terms and abbreviations related to Surgical Technology. Advanced techniques for pre-operative, intra-operative and post-operative periods. Lasers and scopes. Application to surgical and specialized procedures including orthopedic, peripheral vascular, cardio-vascular, thoracic, neurosurgery, ophthalmic, plastic reconstructive with grafting. Prerequisites: SGT110.</td>
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<tr>
<td>SGT217</td>
<td>2 Credits</td>
<td>4 Periods</td>
<td>Pharmacology for Surgical Technology</td>
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<td>Role of surgical technologist in safe handling of drugs according to operating room policies and procedures. Uses and classification of drugs. Federal and state pharmacy regulations applicable to the surgical patient. Complications and safety issues during local, regional and general anesthesia administration. Prerequisites: SGT110.</td>
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<tr>
<td>SGT220</td>
<td>3 Credits</td>
<td>15 Periods</td>
<td>Operating Room Practicum III</td>
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<td>Intermediate level reinforcement and broadening of knowledge and skills of the surgical technologist required for pre-operative, intra-operative and post-operative care of the patient undergoing general surgery and specialties. Prerequisites: SGT120.</td>
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<tr>
<td>SGT225</td>
<td>3 Credits</td>
<td>15 Periods</td>
<td>Operating Room Practicum IV</td>
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<td>Advanced level reinforcement and broadening of knowledge and skills of the surgical technologist required for pre-operative, intra-operative and post-operative care of the patient undergoing general surgery and specialties. Prerequisites: SGT220.</td>
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<tr>
<td>SGT227</td>
<td>3 Credits</td>
<td>15 Periods</td>
<td>Operating Room Practicum V</td>
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<td>Continued advanced level reinforcement and broadening of knowledge and skills of the surgical technologist required for pre-operative, intra-operative and post-operative care of the patient undergoing general surgery and specialties. Prerequisites: SGT225.</td>
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<tr>
<td>SGT275</td>
<td>LEC 2 Credits</td>
<td>LEC 2 Periods / LAB 1 Credit</td>
<td>LAB 3 Periods</td>
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<td>Preparation for the National Surgical Technology Certification Examination. Review of the content specifications, techniques for preparation and review of current literature determined by the Liaison Council on Certification for Surgical Technologists. Prerequisites: SGT225 or SGT227.</td>
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<tr>
<td>SGT298AA</td>
<td>1 Credit</td>
<td>1 Period</td>
<td>Special Projects</td>
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<td>Organized and tailored around the interests and needs of the individual student. Structured to provide an atmosphere of individualized research and study paralleled by professional expertise and guidance. Professional-type facilities and equipment are made available for student use. Allows the best aspects of independent study and individualized learning to be combined to maximize student development. Prerequisites: Permission of Program Director or instructor.</td>
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<td>TOTAL QUALITY MANAGEMENT (TQM)</td>
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<td>TQM101</td>
<td>3 Credits</td>
<td>3 Periods</td>
<td>Quality Customer Service</td>
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<td>Examines the nature of quality customer service and the attitudes, knowledge, and skills needed to work effectively in a quality customer service environment. Foundation skills for quality customer service are taught, applied and practiced. Prerequisites: None.</td>
</tr>
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</table>
TQM240 3 Credits 3 Periods
Project Management in Quality Organizations
Presents methods for quality organizations in how to plan and schedule a project in use of Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT) techniques and software to monitor and control projects. Prerequisites: None.

TRADE RELATED (TDR)
TDR102 1 Credit 1 Period
Construction Soft Skills I: Workplace Skills
First impressions, relationship building, and team work. Diversity in the work place. Individual and group activities. Prerequisites: Registered apprentice status or permission of apprenticeship coordinator.

WATER RESOURCE TECHNOLOGY (WRT)
WRT100 3 Credits 3 Periods
Introduction to Water Resources
Fundamental principles of water resources. Basic concepts and strategies in the study of water, the current focus on water pollution and water purification. Topics include ground water, surface water, water quality, water purification, and water pollution. Presentation of ongoing studies related to work of earth scientists. Prerequisites: A grade of «C» or better in MAT081, or MAT082, or MAT083, or satisfactory score on District placement exam and permission of Department or Division.

WRT102 3 Credits 3 Periods
Water Resources Computations and Data Analysis
Fundamentals of water resources technology formulas for real-world problems. Discussion of best practices in water resources given the results of the calculations. Prerequisites: A grade of “C” or better in MAT081, or MAT082, or MAT083, or satisfactory score on District placement exam and permission of Department or Division.

WRT103 3 Credits 3 Periods
Industrial Pretreatment
Principles of industrial pretreatment programs. Overview of industrial facilities inspections and pollution prevention strategies. Sampling techniques of industrial wastewaters. Field exercises to acquire industrial wastewater quality data and industrial discharge flow measurements. Quality assurance, quality control (QA/QC), and data processing techniques included. Safety procedures stressed. Prerequisites: Permission of Department or Division.

WRT106 3 Credits 3 Periods
Small Water System Operation and Maintenance
Overview of safe and effective operation and maintenance of small drinking water systems and treatment plants. Also covers wells, pumps, disinfection and setting water rates. Prerequisites: WRT110, or permission of Department or Division.

WRT110 3 Credits 3 Periods
Principles of Water Treatment Plant Operations
Principles in the safe and effective operation and maintenance of drinking water treatment plants, reservoir management and intake structuring. The source of water, basic water laboratory test procedures and calculations also covered. Prerequisites: WRT100 and WRT102, or permission of Department or Division.

WRT114 3 Credits 3 Periods
Mineral Control
Operation and maintenance processes in the treatment for iron, manganese, hardness, trihalomethanes and minerals. The importance of fluoridating drinking water and water softening. Prerequisites: WRT110, or permission of Department or Division.
WRT115 3 Credits 3 Periods
Water Technology Calculations
Application of water technology formulas for operation and maintenance of water/wastewater plants and distribution and collections systems. Includes operator examination preparation and discussion of best practices in water technologies given the results of the calculations. Prerequisites: WRT100 and WRT102, or permission of Department or Division.

WRT121 3 Credits 3 Periods
Operation of Wastewater Treatment Plants
Safe and effective operation and maintenance of wastewater treatment plants. Overview of treatment processes and laboratory testing used in wastewater treatment plants. Principles and processes involved in waste treatment ponds, disinfection and chlorination process. Prerequisites: WRT100 and WRT102, or permission of Department or Division.

WRT130 3 Credits 3 Periods
Groundwater Hydrology
Fundamentals of groundwater resources. Includes basic flow equations, well hydraulics, groundwater fluctuations, artificial recharge and basic-data collection techniques. Emphasis on the use of data in analysis of local and regional flow systems. Prerequisites: WRT100 and WRT102, or permission of Department or Division.

WRT130LL 1 Credit 3 Periods
Groundwater Field Techniques
Field exercises to acquire groundwater data and service data-gathering equipment. Safety procedures stressed. Prerequisites or Corequisites: WRT130 or permission of department.

WRT131 3 Credits 3 Periods
Wastewater Collection System Operation and Maintenance
Overview of wastewater collection systems with an emphasis on inspection and cleaning of sewer systems. Safety considerations, maintenance and underground repair procedures also covered. Prerequisites: WRT100 and WRT102, or permission of Department or Division.

WRT134 3 Credits 3 Periods
Water Distribution Systems Operation and Maintenance
Safe and effective operation and maintenance of water distribution systems. Water contaminants, disinfection and chlorination in addition to development of a plant safety plan. Prerequisites: WRT100 and WRT102, or permission of Department or Division.

WRT140 3 Credits 3 Periods
Water Quality for Treatment Industry
Introduction to water quality including common parameters in the treatment industry, regulations, and types and methods of monitoring. Prerequisites: or Corequisites: WRT100 and WRT102, or permission of Department or Division.

WRT152 3 Credits 6 Periods
Water Resources Field Investigations I: Groundwater and Surface Water
Hands-on experience and field exercises to acquire surface water and groundwater data and service data-gathering equipment. Hands-on experience in surface water data collection while stressing safe practices. Map reading and navigation, field inspections, accessing, collecting, and recording surface water and groundwater data. Safety procedures stressed. Prerequisites: or Corequisites: WRT130 and WRT150, or permission of Department or Division.

WRT140LL 1 Credit 3 Periods
Water Quality for Treatment Industry Laboratory
Laboratory safety, sampling and reporting; wet analytical methods; sample analyses; process chemistry. Prerequisites: None. Corequisites: WRT140 or permission of Department or Division.
WRT190AA 1 Credit 1 Period
Water Technologies Seminar Level 1
Interaction with other students and professionals in the water technologies industry. Stress placed on sharing knowledge and demonstrating understanding through discussion of current issues in the industry, operational tasks, and emerging issues. Prerequisites: None.

WRT210 3 Credits 3 Periods
Membrane Technologies
Fundamentals of reverse osmosis. Basic theory and function of membrane technologies, membrane design and use, element configuration, maintenance, and record keeping. Prerequisites: WRT102 and WRT110 (or WRT121) and WRT140 and WRT140LL or permission of Department or Division.

WRT204 3 Credits 3 Periods
Water/Wastewater Maintenance/Mechanical Systems
Maintenance of facilities and equipment in both water and wastewater systems. Prerequisites: WRT110 and WRT121, or permission of Department or Division.

WRT221 3 Credits 3 Periods
Water and Wastewater Treatment Plants Administration
Administration safety and maintenance of a water and wastewater treatment plants. Handling and disposal of process wastes, and instrumentation use. Emphasis on reporting data in reports, graphs, and record keeping. Prerequisites or Corequisites: WRT110 or WRT121.

WRT240 3 Credits 3 Periods
Water Quality
Fundamental chemical and physical factors involved in evaluating water quality. Water quality deterioration from land fills, underground storage tanks, and hazardous waste. Sampling techniques of groundwater, soil, and surface water. Quality assurance, quality control, and data processing techniques included. Prerequisites: WRT140, or permission of Department or Division.

WRT240LL 1 Credit 3 Periods
Water Quality Field Techniques
Field exercises to acquire water quality data and service data gathering equipment. Safety procedures stressed. Prerequisites or Corequisites: WRT240 or permission of department.

WRT250 3 Credits 3 Periods
Surface Water Hydrology
Fundamentals of surface water, understanding of surface water features, and characteristics and parameters impacting surface water features. Conducting hydrologic modeling and on modeling itself. Prerequisites: WRT117, WRT150, and WRT102, or permission of Department or Division.

WRT252 Lec + Lab 3 Credits 6 Periods
Water Resources Field Investigations II: Surveying and Surface Water
Field reconnaissance of water resources. Lab experiences in surveying techniques and procedures. Field exercises to acquire surface water data and develop hydrologic models. Safety procedures stressed. Prerequisites or Corequisites: WRT125 and WRT250
WRT260  4 Credits  6 Periods
Applied Hydrology: Groundwater, Surface Water and Water Quality
Theory and project-based experience in water resources technology. Data collection, data processing and data interpretation for groundwater, surface water and water quality studies. Using and servicing data gathering equipment. Safety procedures stressed. Prerequisites: (WRT125, WRT130LL, WRT240LL, and WRT250LL), or permission of Department or Division.

WRT270AA  1 Credit 1 Period
Water Resources Internship
Water resources work experience in business, industry, or government. Eighty (80) hours of designated work per Credits. Prerequisites: Departmental approval. WRT270AA may be repeated for Credits for a total of three (3) Credits hours.

WRT270AB  2 Credits  2 Periods
Water Resources Internship
Water resources work experience in business, industry, or government. Eighty (80) hours of designated work per Credits. Prerequisites: Departmental approval. Note: Eighty (80) hours of designated work per Credits.

WRT270AC  3 Credits  3 Periods
Water Resources Internship
Water resources work experience in business, industry, or government. Prerequisites: Permission of Department or Division. Course Notes: Eighty (80) hours of designated work per Credits.

WRT280AA  0.5 Credits  0.5 Periods
Arizona Water Certification Review: Treatment Grades 1 and 2
Refresher course in preparation for state certification testing for the operation, supervision and administration of water treatment systems. Prerequisites: None.

WRT280AC  0.5 Credits  0.5 Periods
Arizona Water Certification Review: Distribution Grades 1 and 2
Refresher course in preparation for state certification testing for the operation, supervision and administration of water distribution systems. Prerequisites: None.

WRT281AA  0.5 Credits  0.5 Periods
Arizona Wastewater Certification Review: Wastewater Treatment Grades 1 and 2
Refresher course in preparation for state certification testing for the operation, supervision and administration of wastewater treatment systems. Prerequisites: None.

WRT281AC  0.5 Credits  0.5 Periods
Arizona Wastewater Certification Review: Collections Grades 1 and 2
Refresher course in preparation for state certification testing for the operation, supervision and administration of wastewater collection systems. Prerequisites: None.

WELDING TECHNOLOGY (WLD)
WLD100  2 Credits  2 Periods
Basic Welding
Shop procedures, safety and personal protection. Grinders, drill presses, and saws. Resistance and oxyacetylene welders. Arc welders: alternating current (AC) and direct current (DC) modes, electrodes, positioning and securing. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.
WLD101  3 Credits  6 Periods
Welding I
Principles and techniques of electric arc and oxyacetylene welding and cutting. Provides technical theory and basic skill training in these welding processes. Prerequisites: None.

WLD201  3 Credits  6 Periods
Welding II
Further study of electric arc and oxyacetylene welding with emphasis on GTAW (heliarc) and GMAW (mig) processes to weld both ferrous and nonferrous metal. Prerequisites: WLD101.

WLD202  6 Credits  6 Periods  Welding Certification Preparation
Emphasis on the weld certification process including the Welding Procedure Qualification Record (WPQR), Welder Performance Qualification Test Record (WPQTR), and the Weld Procedure Specification (WPS) in Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW), or Gas Metal Arc Welding (GMAW) welding processes. Prerequisites: Registered apprentice status or permission of the apprenticeship coordinator.

WLD203  6 Credits  6 Periods  Welding Certification Preparation
Emphasis on the weld certification process including the Welding Procedure Qualification Record (WPQR), Welder Performance Qualification Test Record (WPQTR), and the Weld Procedure Specification (WPS) in Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW), or Gas Metal Arc Welding (GMAW) welding processes. Prerequisites: Registered apprentice status or permission of the Apprenticeship Coordinator.

WLD214  2 Credits  2 Periods
American Welding Society Certification Preparation
Principles and techniques of electric arc welding and American Welding Society (AWS) certification requirements, certification pretest and preparation. Technical theory and skill training in all position welding processes. Prerequisites: (WLD101 and registered apprenticeship status) or permission of the apprenticeship coordinator.

WLD215AA  2 Credits  2 Periods
Weld Fabrication I for Millwrighting
Layout, fabrication and basic skills of measuring, cutting, shaping, grinding, drilling and tapping, welding, filing, shimming, heating and bending of metal parts. Safe and proper use of all necessary hand and power tools. Prerequisites: (WLD214 and registered apprenticeship status) or permission of the apprenticeship coordinator.

WLD215AB  2 Credits  2 Periods
Weld Fabrication II for Millwrighting
Welding layout and fabrication. Advanced skills in measuring, cutting, shaping, grinding, drilling and tapping, welding, filing, shimming, heating and bending of metal parts. Safe and proper use of all necessary hand and power tools. Prerequisites: (WLD215AA and registered apprenticeship status) or permission of the apprenticeship coordinator.

WELLNESS EDUCATION (WED)

WED110  3 Credits  3 Periods
Principles of Physical Fitness and Wellness
Stress basic, lifetime health and skill-related components of fitness to achieve total wellness. Topics include nutrition, weight control, exercise and aging, cardiovascular and cancer risk reduction, stress management, prevention of sexually transmitted diseases, substance abuse control, and overall management of personal health and lifestyle habits to achieve the highest potential for well-being. Prerequisites: None.

WED162  1 Credit  1 Period
Meditation and Wellness
Physiology of meditation and its effects on physical and mental health; scholastic abilities and interpersonal relationships; differentiation between meditation and other relaxation techniques. Prerequisites: None.
CERTIFICATES OF COMPETENCY

TRADES & TECHNICAL TRAINING
TRADE AND TECHNICAL TRAINING
CERTIFICATE PROGRAMS

GateWay Community College (GWC) Central City and Deer Valley campuses provide hands-on, industry-driven certificate training programs and offer a variety of short-term programs in Beauty & Wellness, Health Care, and Trades & Technology. GWC partners with business leaders and employers to develop curriculum relevant to the evolving needs of the industry. Many programs have both local and national certifications that prepare students for today's workforce.

GWC TRADE AND TECHNICAL TRAINING IS CENTRALLY LOCATED AT:
Central City - 1245 East Buckeye Road, Phoenix, AZ
Deer Valley Campus - 2931 West Bell Road, Phoenix, AZ

BEAUTY & WELLNESS
CERTIFICATES OF COMPETENCY
Aesthetician Certificate Program
Cosmetologist Certificate Program
Hair Stylist Certificate Program
Instructor Certificate Program
Massage Therapy Certificate Program

HEALTH CARE
CERTIFICATES OF COMPETENCY
Nurse Assistant/Patient Care Technician Certificate Program
Ophthalmic Medical Assistant Certificate Program
Pharmacy Technician Certificate Program
Phlebotomy Certificate Program

TRADES & TECHNOLOGY
CERTIFICATE OF COMPETENCY
Auto Body Worker Certificate Program
Computer Support Specialist Certificate Program
Computer Support Technician Certificate Program
Electrician Worker Level 2 Certificate Program
HVAC Level I Certificate Program
Certified Contact Center Preparation Certificate Program
Apprentice Meat Cutter Certificate Program
CNC Machinist Certificate Program
Advanced Welding I Certificate Program
Advanced Welding II Certificate Program
Advanced Welding III Certificate Program
BEAUTY & WELLNESS
CERTIFICATE OF COMPETENCY
To qualify, students must earn a passing grade and complete the clock hours required in all courses in the program.

CERTIFICATE OF COMPETENCY IN AESTHETICIAN CERTIFICATE PROGRAM
(648 CLOCK HOURS; CODE 1180)

Division: Beauty & Wellness - Aesthetics
Instructors: Shala Dveirin, Crissy Niezaag, Amy Bautista, Jennifer Swan

Aestheticians are trained skin care professionals who specialize in providing skin care and beauty-related services. As an aesthetician, you will perform facials, skin analysis, and body treatments, including full body exfoliation. You will also learn facial and full body hair removal techniques using both hard and soft wax, light exfoliation with fruit acids (peels), and microdermabrasion. Training includes day and evening makeup and artificial eyelash application. Students will perform services on each other throughout the program with 100% participation required. You will graduate from the program with the skills and knowledge necessary for establishing and maintaining a clientele, state laws pertaining to aesthetics as well as business management skills. Upon successful completion of this program, you will be prepared to sit for the Arizona State Board of Cosmetology Aesthetics licensing exam.

Program Notes:
You may apply for graduation from the Aesthetics program upon successfully completion of your program hours and a score of 80% or higher. Completion of the program does not guarantee you an Aesthetician License (in any state). The Arizona State Board of Cosmetology may deny your application if it's determined that you do not meet citizenship and/or high school education requirements. If you have concerns about your citizenship status and/or high school education requirements, you are strongly encouraged to immediately contact the Arizona State Board of Cosmetology via its website: HTTPS://BOC.AZ.GOV, give full disclosure of your situation, and save any written response. GateWay Community College will not give refunds or be held liable for graduates who do not receive an Arizona Aesthetician License.

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESP110</td>
<td>Tools for Industry Success</td>
<td>48</td>
</tr>
<tr>
<td>EST100</td>
<td>Aesthetic Orientation</td>
<td>6</td>
</tr>
<tr>
<td>EST103+</td>
<td>Facial Basics</td>
<td>94</td>
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<tr>
<td>EST104+</td>
<td>Advance Facials</td>
<td>100</td>
</tr>
<tr>
<td>EST105+</td>
<td>Facial Modalities</td>
<td>100</td>
</tr>
<tr>
<td>EST106+</td>
<td>Facial Clinic</td>
<td>50</td>
</tr>
<tr>
<td>EST150+</td>
<td>Hair Removal Methods/Makeup Application</td>
<td>100</td>
</tr>
<tr>
<td>EST151+</td>
<td>Spa Treatments</td>
<td>100</td>
</tr>
<tr>
<td>EST152+</td>
<td>Spa Treatment Clinic</td>
<td>50</td>
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<td>Total Program Hours:</td>
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<td>648</td>
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</tbody>
</table>

CERTIFICATE OF COMPETENCY IN AESTHETICIAN CERTIFICATE PROGRAM
(602 CLOCK HOURS; CODE 2183N – HIGH SCHOOL)

Aestheticians are trained skin care professionals who specialize in providing skin care and beauty-related services. As an aesthetician, you will perform facials, skin analysis, and body treatments, including full body exfoliation. You will also learn facial and full body hair removal techniques using both hard and soft wax, light exfoliation with fruit acids (peels), and microdermabrasion. Training includes day and evening makeup and artificial eyelash application. Students will perform services on each other with 100% participation required in the program. You will graduate from the program with the skills and knowledge necessary for establishing and maintaining a clientele, state laws pertaining to aesthetics as well as business management skills. Upon successful completion of this program, you will be prepared to sit for the Arizona State Board of Cosmetology Aesthetics licensing exam.
Course Listings 2017-2018

Program Notes:
You may apply for graduation from the Aesthetics program upon successfully completion of your program hours and a score of 80% or higher. Completion of the program does not guarantee you an Aesthetician License (in any state). The Arizona State Board of Cosmetology may deny your application if it’s determined that you do not meet citizenship and/or high school education requirements. If you have concerns about your citizenship status and/or high school education requirements, you are strongly encouraged to immediately contact the Arizona State Board of Cosmetology via its website: HTTPS://BOC.AZ.GOV, give full disclosure of your situation, and save any written response. GateWay Community College will not give refunds or be held liable for graduates who do not receive an Arizona Aesthetician License.

Program is not financial aid eligible.

Admission Requirements:
Admission is offered through participation in a high school partnership program.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHS102 Aesthetics Concepts and Clinic</td>
<td>339.5</td>
</tr>
<tr>
<td>EHS112+ Aesthetics Concepts and Clinic II</td>
<td>262.5</td>
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<td><strong>Total Program Hours:</strong></td>
<td><strong>602</strong></td>
</tr>
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</table>

CERTIFICATE OF COMPETENCY IN COSMETOLOGIST
(1648 CLOCK HOURS; CODE 1193–DAY/1194–NIGHT)

Division: Beauty & Wellness - Cosmetology
Program Managers: Shala Dveirin, Michael Zerilli

As a Cosmetologist, you will provide beauty services such as shampooing and conditioning, cutting, coloring, perming, and styling hair. Additionally, you will braid, press, curl, and relax hair, design hairstyles, and provide nail and skin services. All work will be performed safely using proper disinfection and sanitation techniques. You will graduate from the program with the skills and knowledge necessary for establishing and maintaining a clientele, state laws pertaining to cosmetologists, as well as business management skills to start and manage your own salon. Upon completing the Cosmetologist program, you will be prepared to sit for the Arizona State Board of Cosmetology licensing exam.

Program Notes:
You may apply for graduation from the Cosmetologist program upon successfully completion of your program hours and a score of 80% or higher. Completion of the program does not guarantee you a Cosmetologist License (in any state). The Arizona State Board of Cosmetology may deny your application if it’s determine that you do not meet citizenship and/or high school education requirements. If you have concerns about your citizenship status and/or high school education requirements, you are strongly encouraged to immediately contact the Arizona State Board of Cosmetology via its website: HTTPS://BOC.AZ.GOV, give full disclosure of your situation, and save any written response. GateWay Community College will not give refunds or be held liable for graduates who do not receive an Arizona Cosmetologist License.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESP110 Tools for Industry Success</td>
<td>48</td>
</tr>
<tr>
<td>COS100 Introduction to Cosmetology I</td>
<td>150</td>
</tr>
<tr>
<td>COS103+ Introduction to Cosmetology II</td>
<td>150</td>
</tr>
<tr>
<td>COS105+ Introduction to Cosmetology Clinic</td>
<td>102</td>
</tr>
<tr>
<td>COS109 Advanced Color Concepts</td>
<td>225</td>
</tr>
<tr>
<td>COS113 Advanced Texture Concepts</td>
<td>173</td>
</tr>
<tr>
<td>COS115+ Editorial Design Concepts</td>
<td>52</td>
</tr>
<tr>
<td>COS203+ Advanced Cosmetology Clinic</td>
<td>148</td>
</tr>
<tr>
<td>COS205+ Skin Care for Cosmetology</td>
<td>225</td>
</tr>
<tr>
<td>COS204+ Nail Technology for Cosmetology</td>
<td>225</td>
</tr>
<tr>
<td>COS206+ Future Focus</td>
<td>150</td>
</tr>
<tr>
<td><strong>Total Program Hours:</strong></td>
<td><strong>1648</strong></td>
</tr>
</tbody>
</table>
CERTIFICATE OF COMPETENCY IN COSMETOLOGIST CERTIFICATE PROGRAM  
(1600 CLOCK HOURS; CODE 2182N – HIGH SCHOOL) 
As a Cosmetologist, you will provide beauty services such as shampooing and conditioning, cutting, coloring, perming, and styling hair. Additionally, you will braid, press, curl, and relax hair, design hairstyles, and provide nail and skin services. All work will be performed safely using proper disinfection and sanitation techniques. You will graduate from the program with the skills and knowledge necessary for establishing and maintaining a clientele, state laws pertaining to cosmetologists, as well as business management skills to start and manage your own salon. Upon completing the Cosmetologist program, you will be prepared to sit for the Arizona State Board of Cosmetology licensing exam.

Program Notes:
You may apply for graduation from the Cosmetologist program upon successfully completion of your program hours and a score of 80% or higher. Completion of the program does not guarantee you a Cosmetologist License (in any state). The Arizona State Board of Cosmetology may deny your application if they determine that you do not meet their other requirements for citizenship and/or high school education requirements. If you have concerns about your citizenship status and/or high school education requirements, you are strongly encouraged to immediately contact the Arizona State Board of Cosmetology via its website: HTTPS://BOC.AZ.GOV, give full disclosure of your situation, and save any written response. GateWay Community College will not give refunds or be held liable for graduates who do not receive an Arizona Cosmetologist License.

Program is not financial aid eligible.

Admission Requirements:
Admission is offered through participation in a high school partnership program.

Required Courses | Clock Hours
--- | ---
CEA101 Cosmetology Concepts and Basic Clinic | 388
CEA105+ Cosmetology Concepts and Basic Clinic II | 412
CEA110+ Cosmetology Advanced Clinic and Certification Prep | 388
CEA115+ Cosmetology Advanced Clinic and Certification Prep II | 412
Total Program Hours: | 1600

CERTIFICATE OF COMPETENCY IN HAIR STYLIST CERTIFICATE PROGRAM  
(1048 CLOCK HOURS; CODE 1191N) 
As a Hair Stylist, you will provide beauty services such as shampooing and conditioning, cutting, coloring, perming, and styling hair. Additionally, you will braid, press, curl, and relax hair and design hairstyles. All work will be performed safely using proper disinfection and sanitation techniques. You will graduate from the program with the skills necessary for establishing and maintaining a clientele. Topics also include knowledge of laws pertaining to Hair Stylist, as well as skills necessary for starting and managing your own salon. Upon completing the Hair Stylist program, you will be prepared to sit for the Arizona State Board of Cosmetology licensing exam.

Program Notes:
You may apply for graduation from the Hair Stylist program upon successfully completion of your program hours and a score of 80% or higher. Completion of the program does not guarantee you a Hair Stylist License (in any state). The Arizona State Board of Cosmetology may deny your application if they determine that you do not meet their other requirements for citizenship and/or high school education requirements. If you have concerns about your citizenship status and/or high school education requirements, you are strongly encouraged to immediately contact the Arizona State Board of Cosmetology via its website: HTTPS://BOC.AZ.GOV, give full disclosure of your situation, and save any written response. GateWay Community College will not give refunds or be held liable for graduates who do not receive an Arizona Hair Stylist License.

This program is not financial aid eligible.

Financial aid eligibility is pending US Department of Education approval.
### Required Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Clock Hours</th>
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</thead>
<tbody>
<tr>
<td>ESP110</td>
<td>Tools for Industry Success</td>
<td>48</td>
</tr>
<tr>
<td>COS100</td>
<td>Introduction to Cosmetology I</td>
<td>150</td>
</tr>
<tr>
<td>COS103+</td>
<td>Introduction to Cosmetology II</td>
<td>150</td>
</tr>
<tr>
<td>COS105+</td>
<td>Introduction to Cosmetology Clinic</td>
<td>102</td>
</tr>
<tr>
<td>COS109+</td>
<td>Advanced Color Concepts</td>
<td>225</td>
</tr>
<tr>
<td>COS113+</td>
<td>Advanced Texture Concepts</td>
<td>173</td>
</tr>
<tr>
<td>COS115+</td>
<td>Editorial Design Concepts</td>
<td>52</td>
</tr>
<tr>
<td>COS203+</td>
<td>Advanced Cosmetology Clinic</td>
<td>148</td>
</tr>
</tbody>
</table>

**Total Program Hours:** 1048

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### CERTIFICATE OF COMPETENCY IN INSTRUCTOR CERTIFICATE PROGRAM

(398 CLOCK HOURS; CODE 1192N)

As an instructor, you will prepare to provide instruction for the Cosmetology or Aesthetics program dependent on the license held in the state of Arizona. Additionally, you will learn how to write and deliver a successful lesson plan. You will graduate from the program with the skills necessary for establishing and maintaining an effective classroom. Topics also include knowledge of laws pertaining to the Arizona State Board of Cosmetology, safety and sanitation, and state board regulations pursuant to Cosmetology and/or Aesthetics. Upon completing the Instructor program, you will be prepared to take the Arizona State Board of Cosmetology's Instructor licensing exam.

**Program Notes:**

Students must complete all required competencies and clocked hours as well as receive a score of 80% or higher in the Instructor Program in order to be eligible to apply for a certificate of competency. However, a certificate of competency does not guarantee you are an Instructor in any state. Students must pass the Arizona State Board licensing exam in order to teach in Arizona. The Arizona State Board of Cosmetology can deny your application should they determine you do not meet the requirements for citizenship and/or high school education requirements. If you have any concerns that you do not meet the requirements, you are strongly encouraged to contact the Arizona State Board of Cosmetology directly via its website: HTTPS://BOC.AZ.GOV, give full disclosure of your situation and save any written response. GateWay Community College is not liable for graduates who do not receive an Arizona Instructor License and will not give refunds for tuition. Completion of this program is not a guarantee of employment.

**Program is not financial aid eligible.**

**Admission Requirements:**

Arizona State Board of Cosmetology Cosmetologist or Aesthetician Licensure.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
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</thead>
<tbody>
<tr>
<td>ESP110</td>
<td>48</td>
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<tr>
<td>COS250</td>
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<tr>
<td>COS251+</td>
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<tr>
<td>COS252+</td>
<td>135</td>
</tr>
</tbody>
</table>

**Total Program Hours:** 398
Course Listings 2017-2018

CERTIFICATE OF COMPETENCY IN MASSAGE THERAPY CERTIFICATE PROGRAM
(768 CLOCK HOURS; CODE 1184)
Massage Therapists use the professional art of therapeutic touch to facilitate healing in the body. The Massage Therapy program builds strong foundational skills for students, equipping them with the tools necessary to succeed in the Massage Therapy industry. Focus is placed on structural massage – the ability to couple and apply a deep understanding of anatomy with powerful tissue sculpting techniques in order to create radical change in the body. Students learn how to use hands, fingers, forearms, knuckles, fists and elbows when working with the soft tissues of the body. While the program centers heavily on anatomy, Swedish massage and deep tissue massage, it rounds out your education with exposure to Asian modalities, sports massage, pregnancy massage and business classes. This program provides the training necessary for success in the massage therapy industry regardless of the setting: private practice, spas, fitness centers, sports teams, hospitals, rehabilitation centers and chiropractic offices.

Program Notes:
You may apply for graduation from the Massage Therapy program upon successfully completion of your program hours and a score of 80% or higher. Completion of the program does not guarantee you a Massage Therapy License (in any state). The Arizona State Board of Massage Therapy may deny the application if they determine the requirements for citizenship and/or criminal background are not met. If you have any concerns about citizenship status and/or a criminal background, you are encouraged to immediately contact the Arizona State Board of Massage Therapy via its website: HTTPS://MASSAGETHERAPY.AZ.GOV, give full disclosure of the situation, and save any written response. GateWay Community College will not give refunds or be held liable for graduates who do not receive an Arizona Massage Therapy License.

Admission Requirements:
High School Diploma or GED

Required Courses
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
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<tr>
<td>ESP110</td>
<td>Tools for Industry Success</td>
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<tr>
<td>PMP120</td>
<td>Massage Therapy Basics</td>
<td>180</td>
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<tr>
<td>PMP121+</td>
<td>Massage Therapy Advanced</td>
<td>180</td>
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<tr>
<td>PMP220+</td>
<td>Massage Therapy Mastery I</td>
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<tr>
<td>PMP221+</td>
<td>Massage Therapy Mastery II</td>
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</table>

Total Program Hours: 768

CERTIFICATE OF COMPETENCY IN MASSAGE THERAPY CERTIFICATE PROGRAM
(720 CLOCK HOURS; CODE 1189N – HIGH SCHOOL)
Massage Therapists use the professional art of therapeutic touch to facilitate healing in the body. The Massage Therapy program builds strong foundational skills for students, equipping them with the tools necessary to succeed in the Massage Therapy industry. Focus is placed on structural massage – the ability to couple and apply a deep understanding of anatomy with powerful tissue sculpting techniques in order to create radical change in the body. Students learn how to use hands, fingers, forearms, knuckles, fists and elbows when working with the soft tissues of the body. While the program centers heavily on anatomy, Swedish massage and deep tissue massage, it rounds out your education with exposure to Asian modalities, sports massage, pregnancy massage and business classes. This program provides the training necessary for success in the massage therapy industry regardless of the setting: private practice, spas, fitness centers, sports teams, hospitals, rehabilitation centers and chiropractic offices.

Program Notes:
You may apply for graduation from the Massage Therapy program upon successfully completion of your program hours and a score of 80% or higher. Completion of the program does not guarantee you a Massage Therapy License (in any state). The Arizona State Board of Massage Therapy may deny the application if they determine the requirements for citizenship and/or criminal background are not met. If you have any concerns about citizenship status and/or a criminal background, you are encouraged to immediately contact the Arizona State Board of Massage Therapy via its website: HTTPS://MASSAGETHERAPY.AZ.GOV, give full disclosure of the situation, and save any written response. GateWay Community College will not give refunds or be held liable for graduates who do not receive an Arizona Massage Therapy License.

Program is not financial aid eligible.
Admission Requirements:
Admission is offered through participation in a high school partnership program.

<table>
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<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
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<tbody>
<tr>
<td>PMH113</td>
<td>Massage Therapy Basic Techniques ................................. 180</td>
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<tr>
<td>PMH114+</td>
<td>Massage Therapy Advanced Techniques .................................. 180</td>
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<tr>
<td>PMH213+</td>
<td>Massage Therapy Mastery Techniques I .................................. 180</td>
</tr>
<tr>
<td>PMH214+</td>
<td>Massage Therapy Mastery Techniques II ................................. 180</td>
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</table>

Total Program Hours: .......................................................... 720

HEALTHCARE
CERTIFICATE OF COMPETENCY
To qualify, students must earn a passing grade and complete the clock hours required in all courses in the program.

CERTIFICATE OF COMPETENCY IN NURSING ASSISTANT / PATIENT CARE TECHNICIAN CERTIFICATE PROGRAM
(689 CLOCK HOURS; CODE 1503)

Division: Health Care
Program Contact: Debra Phillips

Nursing Assistants (NA) are trained to perform basic patient care under the supervision of registered nurses and/or licensed practical nurses. Their work responsibilities include measuring vital signs and assisting patients with daily living activities, such as feeding, bathing, moving, or grooming patients, changing linens, and storing or sterilizing equipment. The Patient Care Technician expands the NA role with additional training in several areas, including EKG, phlebotomy, and an introduction to physical therapy. You are prepared to care for patients in nursing homes, hospitals as well as in clients' homes.

Program Notes:
This training includes an increase in supervised clinical hours, a home health component and a component related to caring for patients in a hospital.

Admission Requirements:
Arizona Level One fingerprint clearance card (DPS), proof of immunizations, Healthcare level CPR card. Healthcare signature form completed and MCCCD Supplemental Background check. Accuplacer for English Comprehension (score of 56 or above) and Elementary Algebra (score of 20 or above) or transcript proof of passing score in class ENG091 and MAT081 or 75% HESI-A2 exam English Composite AND (MAT082 or MAT090 test score, or 75% HESI-A2 exam Math), as well as, current and valid government issued photo identification. Required to sign up and pay for myClinicalExchange.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESP110</td>
<td>Tools for Industry Success ...................................... 48</td>
</tr>
<tr>
<td>HLC145AA</td>
<td>Medical Terminology ............................................. 48</td>
</tr>
<tr>
<td>HLC130</td>
<td>Health Care Core .................................................. 113</td>
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<tr>
<td>NAC156</td>
<td>Nursing Assistant .................................................. 150</td>
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<tr>
<td>EHC109</td>
<td>Patient Care Tech Procedures ................................... 150</td>
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<tr>
<td>RHC270</td>
<td>Advance Medical Terminology (Bio) .............................. 48</td>
</tr>
<tr>
<td>HLC168</td>
<td>Pharmacology ......................................................... 48</td>
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<tr>
<td>HLC204</td>
<td>Clinical Pathophysiology .......................................... 48</td>
</tr>
<tr>
<td>HLC221</td>
<td>Study Skills and Test Review .................................... 36</td>
</tr>
</tbody>
</table>

Total Program Hours: .................................................................................. 689
CERTIFICATE OF COMPETENCY IN OPHTHALMIC MEDICAL ASSISTANT CERTIFICATE PROGRAM
(702 CLOCK HOURS; CODE 1501)

Division: Health Care
Program Contact: Debra Phillips

The Ophthalmic Medical Assistant program will serve as your initial education program for learning and understanding the core level of care for entry into the fascinating world of eye care in a clinical/office setting. The program will focus on learning how to assist and work with Ophthalmologists. Included will be an overview of patient services and even assisting with minor surgical procedures and instrument care and maintenance. Special attention will be given to complete comprehensive eye examinations, including chief complaints and history taking, anatomy and physiology of the visual system, eye terminology, general medical knowledge as well as hands-on skill instruction.

Program Notes:
The Ophthalmic Medical Assistant program serves as a pathway to excellent job opportunities and a lifelong and challenging career with the future opportunity of becoming a Certified Ophthalmic Assistant (COA).

Admission Requirements:
Arizona Level One fingerprint clearance card (DPS), proof of immunizations, Healthcare level CPR card. Healthcare signature form completed and MCCCD Supplemental Background check. Accuplacer for English Comprehension (score of 56 or above) and Elementary Algebra (score of 20 or above) or transcript proof of passing score in class ENG091 and MAT081 or 75% HESI-A2 exam English Composite AND (MAT082 or MAT090 test score, or 75% HESI-A2 exam Math), as well as, current and valid government issued photo identification. Required to sign up and pay for myClinicalExchange.

Required Courses | Clock Hours
--- | ---
ESP110 Tools for Industry Success | 48
ISP108B Keyboarding II | 36
ISP118 Computer Essentials | 48
OPH100 Electronic Medical Records | 42
OPH101+ Introduction to Eye Care | 54
OPH110+ Ocular Medical Terminology, Abbreviations, & Disease Processes | 42
OPH112+ Clinical Theory and Skills | 150
OPH114+ Basic Skills & Ocular Assessment | 150
ESP118 Career Readiness | 12
OPH190+ Ophthalmic Assisting Externship | 120
Total Program Hours: | 702

CERTIFICATE OF COMPETENCY IN PHARMACY TECHNICIAN CERTIFICATE PROGRAM
(692 CLOCK HOURS; CODE 1405)

Division: Health Care
Program Contact: Debra Phillips

Learn basic pharmacy principles and fundamentals to prepare you for entry-level positions in community and institutional pharmacy settings. Technicians assist in daily pharmacy operations, under supervision of a pharmacist; accountability to the pharmacist for accuracy and quality of the technician’s performance is key. Pharmacy technician gain training in medical terminology; pharmacology; preparing medications; using sterile and nonsterile techniques to count, measure, and compound drugs; receiving and verifying written prescriptions; taking prescription refill requests; preparing IV medications; operating computer and automation systems; applying prescription and auxiliary labels to medication bottles; control and price inventorying; ordering supplies; restocking shelves; preparing insurance claim forms; and operating cash registers.

Program Notes:
Graduates are eligible to apply for the National Pharmacy Technician Certification Examination (PTCE).
Admission Requirements:
Arizona Level One fingerprint clearance card (DPS), proof of immunizations, Healthcare level CPR card. Healthcare signature form completed and MCCCD Supplemental Background check. Accuplacer for English Comprehension (score of 56 or above) and Elementary Algebra (score of 20 or above) or transcript proof of passing score in class ENG091 and MAT081 or 75% HESI-A2 exam English Composite AND (MAT082 or MAT090 test score, or 75% HESI-A2 exam Math), as well as, current and valid government issued photo identification. Required to sign up and pay for myClinicalExchange.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESP110 Tools for Industry Success</td>
<td>48</td>
</tr>
<tr>
<td>ISP108B Keyboarding II</td>
<td>36</td>
</tr>
<tr>
<td>PHC101 Pharmacology for Pharmacy Technicians</td>
<td>60</td>
</tr>
<tr>
<td>PHC102+ Pharmacy Tech I</td>
<td>120</td>
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<tr>
<td>PHC102AB+ Pharmacy Tech II</td>
<td>108</td>
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<tr>
<td>PHC107 Math and Dosages</td>
<td>90</td>
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<tr>
<td>PHC122 Pharmacy Tech Certification Review</td>
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<tr>
<td>ESP118 Career Readiness</td>
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<tr>
<td>PHC114+ Pharmacy Tech Externship</td>
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<tr>
<td><strong>Total Program Hours:</strong></td>
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</tbody>
</table>

CERTIFICATE OF COMPETENCY IN PHLEBOTOMY CERTIFICATE PROGRAM  
(270 CLOCK HOURS; CODE 1403N)
The Phlebotomy program prepares you in basic anatomy, medical terminology, infection control, procedures necessary to appropriately and safely collect and process laboratory specimens, and use computers to record patient information in various health care settings. In addition to organization and attention to detail, phlebotomists should have good human relations and customer service skills.

Program is not financial aid eligible.

Admission Requirements:
Arizona Level One fingerprint clearance card (DPS), proof of immunizations, Healthcare level CPR card. Healthcare signature form completed and MCCCD Supplemental Background check. Accuplacer for English Comprehension (score of 56 or above) and Elementary Algebra (score of 20 or above) or transcript proof of passing score in class ENG091 and MAT081 or 75% HESI-A2 exam English Composite AND (MAT082 or MAT090 test score, or 75% HESI-A2 exam Math), as well as, current and valid government issued photo identification. Required to sign up and pay for myClinicalExchange.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
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<tbody>
<tr>
<td>PLC109 Phlebotomy Basic Skills</td>
<td>75</td>
</tr>
<tr>
<td>PLC111+ Phlebotomy</td>
<td>75</td>
</tr>
<tr>
<td>PLC122+ Phlebotomy Practicum</td>
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<td><strong>Total Program Hours:</strong></td>
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</table>
TRADES & TECHNOLOGY

CERTIFICATE OF COMPETENCY
To qualify, students must earn a passing grade and complete the clock hours required in all courses in the program.

CERTIFICATE OF COMPETENCY IN ADVANCED WELDING I
(900 CLOCK HOURS; CODE 1760–DAY/1765–NIGHT)

Division: Trades & Technology - Welding
Instructors: Al Gaiser, John Duran, Tom Spengler, M Grant Brumlow

Study welding theory in the classroom under the National Center of Construction Education and Research (NCCER) curriculum. Gain skills in the welding lab in accordance with welding codes including American Welding Society D1.1 (structure code) and, American Society of Mechanical Engineers Boiler and Pressure Vessel Code. Learn about thermal cutting processes with oxygen-fuel, plasma arc cutting and air carbon arc gouging, as well as shielded metal arc welding, gas metal arc welding, flux core arc welding and gas tungsten arc welding processes.

Program Notes:
Industry certifications are attained through The National Center for Construction Education and Research (NCCER).

Required Courses | Clock Hours
--- | ---
ESP110 Tools for Industry Success | 48
ISP118 Computer Essentials | 48
COR111 Core: Introduction to Craft Skills | 80
WTO111+ Introduction to Welding | 60
WTO112+ Basic Welding (SMAW) | 120
WTO113+ Welding Techniques (SMAW) | 94
WTO114+ Qualification Welds (SMAW) | 100
WTO121+ Welding (GMAW) | 140
WTO122+ Welding (FCAW) | 116
ESP120 Career Readiness for Trade and Technical | 24
WTO123+ Welding (GTAW) Carbon Steel | 70

Total Program Hours: 900

CERTIFICATE OF COMPETENCY IN ADVANCED WELDING II
(900 CLOCK HOURS; CODE 1770–DAY/1775–NIGHT)

Division: Trades & Technology - Welding
Instructors: Al Gaiser, John Duran, Tom Spengler, M Grant Brumlow

Learn the basics of pipe welding, including techniques for shielded metal arc welding and gas tungsten arc welding processes. Develop skills to industry standards and American Petroleum Institute-1104 Code along with the American Society of Mechanical Engineers Boiler Pressure Vessel Code.

Program Notes:
Industry certifications are attained through The National Center for Construction Education and Research (NCCER). Required

Required Courses | Clock Hours
--- | ---
ESP110 Tools for Industry Success | 48
ISP118 Computer Essentials | 48
COR111 Core: Introduction to Craft Skills | 80
WTO111+ Introduction to Welding | 60
WTO112+ Basic Welding (SMAW) | 120
CERTIFICATE OF COMPETENCY IN ADVANCED WELDING III
(888 CLOCK HOURS; CODE 1780–DAY/1785–NIGHT)

Division: Trades & Technology - Welding
Instructors: Al Gaiser, John Duran, Tom Spengler, M Grant Brumlow

Learn welding theory in the classroom using the National Center of Construction Education and Research (NCCER) curriculum. You will develop skills through performance tasks in the welding lab in accordance with American Welding Society D17.1 Sheet Materials in Aircraft and Aerospace welding code. Training in various welding processes: gas metal arc welding gas, gas tungsten arc welding, and gas metal arc welding techniques for aluminum.

Program Notes:
Industry certifications are attained through The National Center for Construction Education and Research (NCCER).

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESP110</td>
<td>Tools for Industry Success</td>
<td>48</td>
</tr>
<tr>
<td>ISP118</td>
<td>Computer Essentials</td>
<td>48</td>
</tr>
<tr>
<td>COR101</td>
<td>Core: Introduction to Craft Skills</td>
<td>80</td>
</tr>
<tr>
<td>WTO141+</td>
<td>GMAW Aluminum</td>
<td>134</td>
</tr>
<tr>
<td>WTO142+</td>
<td>GTAW Carbon Steel</td>
<td>134</td>
</tr>
<tr>
<td>WTO143+</td>
<td>GTAW Aluminum</td>
<td>210</td>
</tr>
<tr>
<td>ESP120</td>
<td>Career Readiness for Trade and Technical</td>
<td>24</td>
</tr>
<tr>
<td>WTO144+</td>
<td>GTAW Stainless Steel</td>
<td>210</td>
</tr>
</tbody>
</table>

Total Program Hours: 888

CERTIFICATE OF COMPETENCY IN APPRENTICE MEAT CUTTER CERTIFICATE PROGRAM
(894 CLOCK HOURS; CODE 1720)

Division: Trades & Technology – Apprentice Meat Cutter
Instructors: James (Jay) Hernandez, Andrew Salazar

You will safely use and maintain hand tools and all power equipment used in the meat cutting industry, including a variety of knives, meat saws, meat grinders, a meat tenderizer and meat slicers. You will identify, cut, wrap, weigh and display all retail cuts of meat for sale in a retail environment. You will maintain and merchandise a retail meat case and manage inventory. During your program, you will also gain experience filling customer orders, and during game season, you will break down and process a variety of meats like elk, deer, antelope and javelina. You may also process whole cattle, hogs and lamb. All tasks are performed while maintaining industry safety and sanitation standards.

Program Notes:
Food Handlers Card is completed in class and required before working in the lab.

Admission Requirements:
Must be able to lift 50 pounds.
Must be able to stand for extended periods of time.
Must be able to work in cold/freezing temperatures.
Course Listings 2017-2018

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESP110  Tools for Industry Success</td>
<td>48</td>
</tr>
<tr>
<td>ISP118  Computer Essentials</td>
<td>48</td>
</tr>
<tr>
<td>MCP100  Basics of Meat Cutting</td>
<td>167</td>
</tr>
<tr>
<td>MCP101+ Intro to Meat Helper</td>
<td>184</td>
</tr>
<tr>
<td>MCP102+ Intro into Apprentice Meat Cutter</td>
<td>73</td>
</tr>
<tr>
<td>MCP110+ Apprentice Meat Cutter</td>
<td>180</td>
</tr>
<tr>
<td>ESP120  Career Readiness for Trade and Technical</td>
<td>24</td>
</tr>
<tr>
<td>MCP111+ Intro to Meat Sales/Retail Display</td>
<td>170</td>
</tr>
<tr>
<td><strong>Total Program Hours</strong></td>
<td><strong>894</strong></td>
</tr>
</tbody>
</table>

CERTIFICATE OF COMPETENCY IN AUTO BODY WORKER CERTIFICATE PROGRAM
(744 CLOCK HOURS; CODE 1606)

Division: Trades & Technology – Auto Body
Instructors: Brent Cooper, Michael Hernandez

Gain the knowledge and hands on experience to start your career in the automotive collision repair industry. Learn about metal and plastic repair, Gas Metal Arc Welding (GMAW), Metal Inert Gas (MIG) welding, vehicle disassembly/reassembly, estimate reading, coolant removal/replacement, and A/C discharge/recharge and industry terminology.

Program Notes:
*National certifications are attained through I-CAR (Inter-Industry Conference on Auto Collision Repair) for the following: Non-Structural Technician ProLevel 1, Refinish Technician ProLevel 1.*

Admission Requirements:
Must be able to lift 50 pounds.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESP110  Tools for Industry Success</td>
<td>48</td>
</tr>
<tr>
<td>ISP118  Computer Essentials</td>
<td>48</td>
</tr>
<tr>
<td>ABO101  Introduction to Metal Repair Fundamentals</td>
<td>138</td>
</tr>
<tr>
<td>ABO102+ Introduction to Paint Refinishing Fundamentals</td>
<td>138</td>
</tr>
<tr>
<td>ABO201+ Auto Body Metal Repair</td>
<td>174</td>
</tr>
<tr>
<td>ESP120  Career Readiness for Trade and Technical</td>
<td>24</td>
</tr>
<tr>
<td>ABO202+ Auto Body Refinishing Fundamentals</td>
<td>174</td>
</tr>
<tr>
<td><strong>Total Program Hours</strong></td>
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</tr>
</tbody>
</table>
CERTIFICATE OF COMPETENCY IN CERTIFIED CONTACT CENTER PREPARATION CERTIFICATE PROGRAM  
(100 CLOCK HOURS; CODE 1215N)

Division: Trades & Technology – Customer Service  
Instructor: Cynthia Rochester

In this program, you will learn the foundational aspects for service agents in a customer-centered environment. The competencies have a heavy concentration on the interpersonal skills necessary to provide consistent, quality service as you learn your role as the “face” of the company. Technical skills are developed on a state of the art cloud based tele-communication platform that allows you the opportunity to understand how to communicate through various modalities (phone, chat, text, etc.). Upon successful completion of the program, you will be prepared to enter the workforce with confidence.

Program Notes:  
Upon successful completion of the program, students attain the Certified Customer Service Representative certification from the National Customer Service Management Association (NCSMA).

Program is not financial aid eligible.

Admission Requirements:  
Admission is offered through participation in a partnership program.

Required Courses | Clock Hours
--- | ---
CSS113 Certified Customer Service Preparation | 100
Total Program Hours | 100

CERTIFICATE OF COMPETENCY IN CNC MACHINIST  
(900 CLOCK HOURS; CODE 1700–DAY/1705–NIGHT)

Division: Trades & Technology – Precision Machining  
Instructors: Ron Hitti, Jr, Michael Kase, James Smith

Gain knowledge in reading blueprints and performing precision measurement. Learn to set up and operate manual mills, lathes and grinders. Learn to set up and operate Computer Numerical Control (CNC) lathes and mills. Develop skills maintaining manual and CNC machines.

Program Notes:  
Industry certifications are attained through the National Institute for Metalworking Skills (NIMS).

Required Courses | Clock Hours
--- | ---
ESP110 Tools for Industry Success | 48
ISP118 Computer Essentials | 48
MTO100 Machining Fundamentals | 96
MTO105+ Geometric Dimensioning & Tolerancing | 54
MTO111+ Bench Work and Layout | 42
MTO115+ Drill Press | 66
MTO120+ Manual Mill | 96
MTO125+ Manual Lathe | 82
MTO130+ Surface Grinding | 54
MTO135+ CNC Mill | 112
MTO141+ CNC Lathe | 112
ESP120 Career Readiness for Trade and Technical | 24
MTO145+ CAM Programming | 66
Total Program Hours | 900
CERTIFICATE OF COMPETENCY IN COMPUTER SUPPORT SPECIALIST CERTIFICATE PROGRAM (900 CLOCK HOURS; CODE 1161)

Division: Trades & Technology – Computer Support
Instructors: Adefemi (Femi) Allen, Michael Lopez

Build the skills to support desktop computers, printers, mobile devices, networks, popular applications and operating systems. Learn how to provide end-users with solutions for technical problems and companies with the technical tools necessary to conduct business in today's high-tech business environment. Prepare to take the CompTIA A+ certification exam, the industry standard certifications for entry-level positions, which also provides a solid foundation for advanced technical certifications.

Program Notes:
Upon successful completion of the program, students are prepared to sit for the CompTIA A+ certification exam.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESP110 Tools for Industry Success</td>
<td>48</td>
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<tr>
<td>ISP105 Computer Information Systems</td>
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</tr>
<tr>
<td>CNP100 Supporting the Windows Operating System and PC Hardware</td>
<td>192</td>
</tr>
<tr>
<td>CNP103+ Networking Basics</td>
<td>192</td>
</tr>
<tr>
<td>CNP141+ PC Peripherals and Troubleshooting I</td>
<td>168</td>
</tr>
<tr>
<td>ESP120 Career Readiness for Trade and Technical</td>
<td>24</td>
</tr>
<tr>
<td>CNP142+ PC Peripherals and Troubleshooting II</td>
<td>84</td>
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<tr>
<td>Total Program Hours:</td>
<td>900</td>
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</tbody>
</table>

CERTIFICATE OF COMPETENCY IN COMPUTER SUPPORT TECHNICIAN CERTIFICATE PROGRAM (192 CLOCK HOURS; CODE 1165N)

Division: Trades & Technology – Computer Support
Instructors: Adefemi (Femi) Allen, Michael Lopez

This eight-week accelerated program will prepare students to take CompTIA A+ certification and enter the field of information technology.

Program is not financial aid eligible.

Admission Requirements:
This program is not open to the general public, available through partnership program participation only.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
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<tbody>
<tr>
<td>CNP106 Hardware Trouble Shooting</td>
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<tr>
<td>CNP107 Software Networking Troubleshooting</td>
<td>96</td>
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<td>Total Program Hours:</td>
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</table>
CERTIFICATE OF COMPETENCY IN ELECTRICIAN WORKER LEVEL 2 CERTIFICATE PROGRAM
(672 CLOCK HOURS; CODE 1663)

Division: Trades & Technology – Construction Trades
Program Manager: R. Mark Woehl

Learn the fundamentals of electrical theory, residential wiring, along with a basic understanding of electrical requirements of the National Electric Code (NEC) for designing electrical layouts, installation methods and maintenance, troubleshooting, and repair of electrical circuits and equipment.

Program Notes:
Industry certifications are attained through The National Center for Construction Education and Research (NCCER).

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESP110 Tools for Industry Success</td>
<td>48</td>
</tr>
<tr>
<td>ISP118 Computer Essentials</td>
<td>48</td>
</tr>
<tr>
<td>COR101 Core: Introduction to Craft Skills</td>
<td>80</td>
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<td>YRG102 Your Role in the Green Environment</td>
<td>24</td>
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<td>ELR110+ Electrical Basics</td>
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<td>ELR111+ Electrical Installations</td>
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<td>ELR210+ Electrical Level 2</td>
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<tr>
<td>ESP120 Career Readiness for Trade and Technical</td>
<td>24</td>
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<td>ELR211+ Electrical Applications Level 2</td>
<td>109</td>
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<td><strong>Total Program Hours:</strong></td>
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</table>

CERTIFICATE OF COMPETENCY IN HVAC LEVEL I CERTIFICATE PROGRAM
(724 CLOCK HOURS; CODE 1670N)

Division: Trades & Technology – Construction Trades
Program Manager: R. Mark Woehl

Gain the basic principles of heating, ventilating, air conditioning (HVAC) and safety principles (OSHA). This program also introduces you to green technology – green alternatives to construction.

Program Notes:
Industry certifications are attained through The National Center for Construction Education and Research (NCCER).

This program is not financial aid eligible.
Financial aid eligibility is pending US Department of Education approval.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Clock Hours</th>
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<tbody>
<tr>
<td>ESP110 Tools for Industry Success</td>
<td>48</td>
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<tr>
<td>ISP118 Computer Essentials</td>
<td>48</td>
</tr>
<tr>
<td>COR101 Core: Introduction to Craft Skills</td>
<td>80</td>
</tr>
<tr>
<td>YRG102 Your Role in the Green Environment</td>
<td>24</td>
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<tr>
<td>HVC110+ HVAC Basics</td>
<td>162</td>
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<td>HVC111+ HVAC Systems</td>
<td>112</td>
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<td>HVC112+ HVAC Installations</td>
<td>114</td>
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<td>ESP120 Career Readiness for Trade and Technical</td>
<td>24</td>
</tr>
<tr>
<td>HVC113+ HVAC Troubleshooting</td>
<td>112</td>
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<tr>
<td><strong>Total Program Hours:</strong></td>
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</table>
ENRICHMENT COURSES

Division: Trades & Technology – Enrichment Courses
Instructors: Joanne Perez-Arreola, Bruce Thompson

Enrollment in Enrichment Courses requires Instructor approval

COMPUTER SKILL COURSES

<table>
<thead>
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<th>Course Name</th>
<th>Clock Hours</th>
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<tr>
<td>ISP105</td>
<td>Computer Information Systems</td>
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</tr>
<tr>
<td>ISP108A</td>
<td>Keyboarding I</td>
<td>36</td>
</tr>
<tr>
<td>ISP108B</td>
<td>Keyboarding II</td>
<td>36</td>
</tr>
<tr>
<td>ISP108C</td>
<td>Keyboarding III</td>
<td>72</td>
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<td>ISP108D</td>
<td>Keyboarding IV</td>
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<tr>
<td>ISP118</td>
<td>Computer Essentials</td>
<td>48</td>
</tr>
<tr>
<td>ISP120</td>
<td>Microsoft Access® - Basic</td>
<td>144</td>
</tr>
<tr>
<td>ISP120A</td>
<td>Microsoft Access® - Basic/Intermediate</td>
<td>72</td>
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<tr>
<td>ISP126</td>
<td>Microsoft Excel®</td>
<td>144</td>
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<tr>
<td>ISP126A</td>
<td>Microsoft Excel® - Basic</td>
<td>42</td>
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TRADES &
TECHNICAL
TRAINING

CERTIFICATES OF
COMPETENCY
AESTHETICIAN (ESH, EST)

EHS102  339.5 Clock Hours
Aesthetics Concepts and Clinic
This course will cover policies and procedures, program and industry expectations. Students will become proficient in effective client communication, interpersonal skills, client record keeping, client consultations and home care suggestions. Students will learn how to do a proper skin analysis, perform basic facials and sanitation as well as advanced aesthetic modalities such as dermaplaning, microdermabrasion and chemical peels. Students will also be required to write an industry ready cover letter, resume and will complete small business courses. Other topics will include soft skills and Skills USA, as well as student life. Cosmetic chemistry and various machine modalities will also be included. Students will have the opportunity to practice hands on competencies through public clinic and model days. Prerequisite: None.

EHS112  262.5 Clock Hours
Aesthetics Concepts and Clinic II
As students continue training as an Aesthetician, they will learn the theory and practical application of both hard and soft wax for facial and body waxing, makeup application as well as reflexology, aromatherapy, hot stone treatments. Students will participate in mock interviews and Skills USA. Students will also prepare for both the practical and written state board test through a concentrated boot camp. Prerequisite: EHS102.

EST100  6 Clock Hours
Aesthetic Orientation
Program orientation provides the knowledge needed to succeed in the Cosmetology, Aesthetics, and Nail Technician programs, and includes topics such as ethics, sanitation, Arizona state law, and other fundamentals of the modern salon. Prerequisite: None.

EST103  94 Clock Hours
Facial Basics
As you begin your training as an esthetician you will begin to develop and demonstrate proficiencies in effective client communication, interpersonal skills and will learn and demonstrate how to deliver an effective skin care facial treatment, client consultation and post care. Topics will include sanitation, AZ laws, client care, and facial care. Prerequisite: EST100 or Instructor's permission.

EST104  100 Clock Hours
Advanced Facials
This course covers topics such as working in a medical field, skin physiology, skin conditions, chemical peels, and microdermabrasion and cosmetic chemistry as well as product and ingredient knowledge. You will continue to develop communication skills as well as proper client documentation, waiver forms and pre and post care for chemical peels and microdermabrasion. You will continue to fine tune skin care facial services as well as learn more complex protocols. Prerequisite: EST103 or Instructor's permission.

EST105  100 Clock Hours
Facial Modalities
As you begin your training as an esthetician you will begin to develop and demonstrate proficiencies in effective client communication, interpersonal skills and will learn and demonstrate how to deliver an effective skin care facial treatment, client consultation and post care. Topics will include sanitation, AZ laws, client care, and facial care. Prerequisite: EST104 or Instructor's permission.
EST106  50 Clock Hours  
Facial Clinic  
You will apply all the theory and practical knowledge from the previous courses through facial services to the public. You will develop a customized protocol for each client as well as properly document treatments, follow all sanitation and AZ laws. You will also develop and recommend the proper home care products and retail them to your clients. Prerequisite: EST105 or Instructor’s permission.

EST150  100 Clock Hours  
Hair Removal Methods/Makeup Application  
You will learn the theory and application of hard and soft wax, contraindications for hair removal as well as hair removal for the body and face as well as brow shaping and tinting. You will also learn proper and sanitary makeup applications for day time, night time and special occasions. Topics will include hair growth cycles, different methods of hair removal, color theory, types of makeup and client consultations, documentation and client bookings. Prerequisite: EST106 or Instructor’s permission.

EST151  100 Clock Hours  
Spa Treatments  
Topics in this course will include aromatherapy, spa modalities, anatomy, business basics and business ownership. You will learn and be able to identify facial muscles as well as perform body scrubs, wraps and various other spa treatments. You will continue to develop effective communication and consultation skills. You will also practice for your state board practical examination. Prerequisite: EST150 or Instructor’s permission.

EST152  50 Clock Hours  
Spa Treatment Clinic  
You will apply the theory and hands on knowledge you have acquired in the previous courses by providing waxing and spa treatment services to the public. You will conduct both pre and post consultations, follow all sanitation and AZ laws as well as recommend home care and follow up with clients. You will continue to develop complex protocols and problem solving techniques and effective communication skills. Prerequisite: EST151 or Instructor’s permission.

AUTO BODY (ABO)  
ABO101  138 Clock Hours  
Introduction to Metal Repair Fundamentals  
Gain basic hands-on auto body repair skills in dent removal, body filler application, sanding, plastic repair, MIG (metal inert gas) welding, plasma cutting, estimate reading, air conditioning service, coolant recovery and vehicle inspection tear down. Prerequisite: None.

ABO102  138 Clock Hours  
Introduction to Paint Refinishing Fundamentals  
Learn the basics of automotive paint refinishing, paint chemistry and paint application processes. Prerequisite: ABO101

ABO201  174 Clock Hours  
Auto Body Metal Repair  
Build on your basic hands-on auto body repair knowledge by becoming more proficient in the skills acquired. Develop advanced competencies and speed in non-structural repairs and estimate reading. Prerequisite: ABO101

ABO202  174 Clock Hours  
Auto Body Refinishing Fundamentals  
Build on your basic automotive paint refinishing knowledge by becoming more proficient in the skills acquired in ABO102. Develop advanced competencies and speed in automotive refinishing. Prerequisite: ABO102
COMPUTER FOUNDATIONS (ISP)

ISP105  192 Clock Hours
**Computer Information Systems**
Overview of computer technology, concepts, terminology, and the role of computers in business and society. Discussion of social and ethical issues related to computers. Use of word processing, spreadsheet, database, and presentation software. Includes uses of application software and the Internet for efficient and effective problem solving. Exploration of relevant emerging technologies. Prerequisite: None.

ISP108A  36 Clock Hours
**Keyboarding I**
This keyboarding skills course teaches students to use the computer keyboard to enter letters, numbers, and symbols (15 WPM @ 98% accuracy). Prerequisite: None.

ISP108B  36 Clock Hours
**Keyboarding II**
This keyboarding skills course teaches students to use the computer keyboard to enter letters, numbers, and symbols. If you are already an experienced typist, you will learn to type faster and more accurately (25 WPM @ 98% accuracy). Prerequisite: None.

ISP108C  72 Clock Hours
**Keyboarding III**
This keyboarding skills course teaches students to use the computer keyboard to enter letters, numbers, and symbols. If you are already an experienced typist, you will learn to type faster and more accurately (35 WPM @ 98% accuracy). Prerequisite: None.

ISP108D  144 Clock Hours
**Keyboarding IV**
This keyboarding skills course teaches students to use the computer keyboard to enter letters, numbers, and symbols. If you are already an experienced typist, you will learn to type faster and more accurately (50 WPM @ 98% accuracy). Prerequisite: None.

ISP118  48 Clock Hours
**Computer Essentials**
Students learn computer concepts, how to navigate an operating system, control programs, manage files locally and in the "Cloud", and search the internet. Students will establish email habits necessary to accomplish workplace success. In Microsoft Word, students learn how to create and edit a document and upload assignments. With Microsoft Excel, students learn how to create and edit worksheets using simplified formulas and functions. Prerequisite: None.

ISP120  144 Clock Hours
**Microsoft Access®**
Using Microsoft Access, students learn to create and build a database; define table relationships; maintain and query a database; create forms and reports. Students learn to create advanced queries; enhance table designs; use form tools; and create custom forms and reports. Students learn to share, integrate, and analyze data; use action queries; and advanced table relationships. Students learn to automate tasks with Macros and create VBA code for a database. In addition, students learn to manage and secure a database. Prerequisite: None.

ISP120A  42 Clock Hours
**Microsoft Access®: Basic**
Using Microsoft Access, students learn to create and build a database; define table relationships; maintain and query a database; create forms and reports. Prerequisite: None.
ISP120AB  72 Clock Hours  
Microsoft Access®: Basic/Intermediate  
Using Microsoft Access, students learn to create and build a database; define table relationships; maintain and query a database; create forms and reports. Students learn to create advanced queries; enhance table designs; use form tools; and create custom forms and reports. Students learn to share, integrate, and analyze data. Prerequisite: None.

ISP126  144 Clock Hours  
Microsoft Excel®  
Using Microsoft Excel, students learn to create spreadsheets; design, edit and format worksheets; create and edit charts. They learn to use formulas and functions to automatically sum totals and perform common business-related mathematical functions on data to manage workbooks. Students work with Excel tables, PivotTables, and Pivot Charts; manage multiple worksheets and workbooks; develop an Excel application; work with advanced functions; automate worksheet tasks; and filter and sort lists. Students explore financial tools and functions; perform What-If analyses; connect with external data and collaborate on a shared workbook. Prerequisite: None.

ISP126A  42 Clock Hours  
Microsoft Excel®: Basic  
Using Microsoft Excel, students learn to create spreadsheets; design, edit and format worksheets; create and edit charts. They learn to use formulas and functions to automatically sum totals and perform common business-related mathematical functions on data to manage workbooks. Prerequisite: None.

ISP126AB  72 Clock Hours  
Microsoft Excel®: Basic/Intermediate  
Using Microsoft Excel, students learn to create spreadsheets; design, edit and format worksheets; create and edit charts. They learn to use formulas and functions to automatically sum totals and perform common business-related mathematical functions on data to manage workbooks. Students work with Excel tables, PivotTables, and Pivot Charts; manage multiple worksheets and workbooks; develop an Excel application; work with advanced functions; automate worksheet tasks; and filter and sort lists. Prerequisite: None.

ISP142  72 Clock Hours  
Microsoft PowerPoint®  
Using Microsoft PowerPoint, students learn how to plan, develop, and give a presentation. Students create a presentation and add media and special effects. Students learn to apply advanced formatting and animation to objects and to distribute presentations. Students learn to integrate PowerPoint with other programs, customize presentation, and customize the PowerPoint environment. Students create projects that reflect their creativity and incorporate the skills and techniques needed to share these presentations in the today's office setting. Prerequisite: None.

ISP142A  42 Clock Hours  
Microsoft PowerPoint®: Basic  
Using Microsoft PowerPoint, students learn how to plan, develop, and give a presentation. Students create a presentation and add media and special effects. Students create projects that reflect their creativity and incorporate the skills and techniques needed to share these presentations in the today's office setting. Prerequisite: None.

ISP152  144 Clock Hours  
Microsoft Word®  
Using the Microsoft Word, students learn to create, edit, navigate and format documents; create tables and multi-page reports; plus enhance design and layout of documents. Students work with templates, themes, and styles to create a summary report; use mail merge by creating a form letter, labels, and a telephone directory. Students collaborate with others and integrate data. Next, students learn to customize Word and automate their work; create online forms using advanced table techniques and manage long documents. Prerequisite: None.
ISP152A  42 Clock Hours  
Microsoft Word®: Basic  
Using the Microsoft Word, students learn to create, edit, navigate and format documents; create tables and multi-page reports; plus enhance design and layout of documents. Prerequisite: None.

ISP152AB  72 Clock Hours  
Microsoft Word®: Basic/Intermediate  
Using the Microsoft Word, students learn to create, edit, navigate, and format documents; create tables and multi-page reports; plus enhance design and layout of documents. Students work with templates, themes, and styles to create a summary report; use mail merge by creating a form letter, labels, and a telephone directory. Prerequisite: None.

COMPUTER SUPPORT (CNP)  
CNP100  192 Clock Hours  
Supporting the Windows Operating System and PC Hardware  
Explore technical and advanced technical aspects of personal computers, maintaining computers, including system components, installation, system configuration, peripheral devices, and notebooks. Emphasis placed on proper usage of tools, safety procedures, and professionalism. The course explore mobile devices, security, troubleshooting, and resolving various computer problems. Prerequisite: None.

CNP103  192 Clock Hours  
Networking Basics  
This introduction to the computer networking field covers network terminology and protocols, communication fundamentals in data networks and the Internet. Gain understanding of the Open Systems Interconnection (OSI) model, using a top-down approach; cabling and cabling tools; basic Cisco router configuration; Ethernet technologies; Internet Protocol (IP) addressing and overview of Internet Protocol version 6 (IPv6); and basic configuration and testing of the network and network standards. Prerequisite: CNP 100.

CNP106  96 Clock Hours  
Hardware Trouble Shooting  
Explore technical aspects of personal computers, including system components, installation, system configuration, peripheral devices, and notebooks. Emphasis placed on hardware installation, maintenance, and hardware troubleshooting. Helps prepare students for the CompTIA A+ examinations. Prerequisite: None.

CNP107  96 Clock Hours  
Software Networking Troubleshooting  
Explore advanced technical aspects of maintaining and servicing computers. Emphasis placed on OS installation, maintenance, mobile devices, security, software troubleshooting, and on proper usage of tools, safety procedures, and professionalism. Helps prepare students for the CompTIA A+ examinations. Prerequisite: None.

CNP141  168 Clock Hours  
PC Peripherals and Troubleshooting I  
Learn about Personal Computer (PC) peripherals and more advanced troubleshooting techniques. Topics covered include advanced troubleshooting of hardware, advanced troubleshooting of operating systems (OS), advanced troubleshooting of networks, malware removal, printers, scanners and security. Prerequisite: CNP101.

CNP142  84 Clock Hours  
PC Peripherals and Troubleshooting II  
Further your development in advanced troubleshooting of operating systems (OS), advanced troubleshooting of networks, malware removal, printers, scanners and security. Prerequisite: CNP141.
CORE CRAFT SKILLS (COR)
COR101  80 Clock Hours
Core:  Introduction to Craft Skills
Develop an understanding of basic safety, construction math, hand and power tools, construction drawings, materials handling, and communication and job readiness skills. Prerequisite: None.

COSMETOLOGY (CEA, COS)
CEA101  388 Clock Hours
Cosmetology Concepts and Basic Clinic
Students will be introduced to the basics of Cosmetology. Introduction to the Arizona State Board of Cosmetology; safety and sanitation, rules and regulations. Students will begin the basics of fundamental theory of Cosmetology in hair cutting, hair coloring, texture services and professional development. Students will be introduced to the concepts of guest services including, client consultations, and dispensary, laundry and front desk procedures. Prerequisite: None

CEA105  412 Clock Hours
Cosmetology Concepts and Basic Clinic II
Students will continue to develop the basics of fundamental theory of Cosmetology in hair cutting, hair coloring, texture services and professional development. Students will continue to develop guest services, client consultations, dispensary, laundry, inventory, and front desk procedures. Students will Assist other advanced students on clinic floor and begin to take clients. Students will learn advanced techniques for all color Services; to include coloring services, highlighting, foiling, balayage, free painting, ombre, color correction and fashion colors. Students will also learn hair extensions and enhancements. Students will learn advanced techniques for texture services, to Include, perming, relaxing, straightening, and natural styling. Students will also learn hair extensions and enhancements. Prerequisite: CEA 101 or Program Manager's permission

CEA110  388 Clock Hours
Cosmetology Advanced Clinic and Certification Prep
Students will complete a model using the techniques learned thus far and apply them to an editorial project. Students will work with models to complete Avant Garde looks for hair styling and will learn what job opportunities are available in this career. Students enrolled in this course will apply knowledge of what has been learned in hair styling, chemical services and hair cutting to the public in the clinic. Students will revisit safety and sanitation and AZ State Board rules and regulations. State Board boot camp will be started in this class. Fundamental nail technology will be covered. Prerequisite: CEA105 or Program Manager's permission.

CEA115  412 Clock Hours
Cosmetology Advanced Clinic and Certification Prep II
Students enrolled in this course will apply knowledge of what has been learned in hair styling, chemical services and hair cutting to the public in the clinic. Students will revisit safety and sanitation and AZ State Board rules and regulations. State Board boot camp will be completed in this class. Fundamental nail technology course for Cosmetology students who are looking to obtain a License Cosmetology. State Board prep for certification. Prerequisite: CEA110 or Program Manager's permission.

COS100  150 Clock Hours
Introduction to Cosmetology I
Students will continue the basics of Cosmetology. A continuation of the Arizona State Board of Cosmetology; safety and sanitation, rules and regulations. Students will continue to develop the basics of fundamental theory of Cosmetology in hair cutting, hair coloring, texture services and professional development. Prerequisite: None.
COS103   150 Clock Hours
Introduction to Cosmetology II
Students will continue the basics of Cosmetology. A continuation of the Arizona State Board of Cosmetology; safety and sanitation, rules and regulations. Students will continue to develop the basics of fundamental theory of Cosmetology in hair cutting, hair coloring, texture services and professional development. Prerequisite: COS100 or Program Manager's permission.

COS105   102 Clock Hours
Introduction to Cosmetology Clinic
Students will learn guest services, client consultations, dispensary, laundry, inventory, and front desk procedures. Students will assist other advanced students on clinic floor and begin to take clients. Prerequisite: COS103 or Program Manager's permission.

COS109   225 Clock Hours
Advanced Color Concepts
Students will learn advanced techniques for all color services; to include coloring services, highlighting, foiling balayage, free painting, ombre, color correction and fashion colors. Student will also learn hair extensions and enhancements. Prerequisite: COS100 or Program Manager's permission.

COS113   173 Clock Hours
Advanced Texture Concepts
Student will learn advanced techniques for texture services, to include, perming, and relaxing, straightening and natural styling. Students will also learn hair extensions and enhancements. Prerequisite: COS109 or Program Manager's permission.

COS115   52 Clock Hours
Editorial Design Concepts
Students will complete a model using the techniques learned thus far and apply them to an editorial project. Students will work with models to complete Avant-garde looks for hair styling and will learn what job opportunities are available in this career. Prerequisite: COS113 or Program Manager's permission.

COS203   148 Clock Hours
Advanced Cosmetology Clinic
Students enrolled in this course will apply knowledge what has been learned in hair styling, chemical services and hair cutting to the public in the clinic. Students will revisit safety and sanitation and AZ State Board rules and regulations. State Board boot camp will be completed in this class. Prerequisite: COS115 or Program Manager's permission.

COS204   225 Clock Hours
Nail Technology for Cosmetology
Fundamental nail technology course for Cosmetology students who are looking to obtain a license in Cosmetology. Prerequisite: COS203 or Program Manager's permission.

COS205   225 Clock Hours
Skin Care for Cosmetology
Fundamental skin care course for Cosmetology students who are looking to obtain a license in Cosmetology. Prerequisite: COS203 and COS204 or Program Manager's permission.

COS206   150 Clock Hours
Future Focus
State Board prep for certification. Prerequisite: COS205 or Program Manager's permission.
COS250  80 Clock Hours
Instructor in Training Orientation
Students will be introduced to the Arizona State Board of Cosmetology Instructor safety and sanitation, rules and regulations. This class is to prepare a student to become an instructor in their licensed field. Prerequisite: Arizona State Board of Cosmetology Licensure.

COS251  135 Clock Hours
Instructor in Training I
Students will train to become an instructor in their certified field of Cosmetology or Aesthetics. Students will learn the fundamentals of becoming an instructor by completing assigned work, shadowing instructors, creating lesson plans, coaching students and working hands on with students with clients. Prerequisite: COS250.

COS252  135 Clock Hours
Instructor in Training II
Students will continue to train to become an instructor in their certified field of Cosmetology or Aesthetics. Student will lean the fundamentals of becoming an instructor by completing assigned work, shadowing instructors, creating lesson plans, coaching students and working hands on with students with clients. State Board preparation for licensing. Prerequisite: COS251.

CUSTOMER SERVICE (CSS)
CSS112  50 Clock Hours
Contact Center Prep I
This class will coach and train individuals with disabilities for an entry level position in a contact center. This course prepares students by providing, soft skills as well as an overview of security and other technical skills needed to be successful. Students will come away with the basic skills needed to accept the challenging yet rewarding career path of contact centers. Prerequisite: None.

CSS113 100 Clock Hours
Certified Customer Service Preparation
This class will coach and train individuals for an entry level position in a Customer Service Center. This course prepares students by providing, soft skills as well as an overview of security and other technical skills needed to be successful. This course also provides students with a TESOL Business component if needed. There is an additional emphasis on technology that will enable students to apply their skills using Customer Service software. Students will come away with the basic skills needed to accept the challenging yet rewarding career path in Customer Service. This course prepares students to obtain a Customer Service Certification from National Customer Service Management Association (NCSMA). Prerequisite: None.

ELECTRICAL (ELR)
ELR110  136 Clock Hours
Electrical Basics
Gain an understanding of electrical trade, safety and electrical circuits, electrical theory voltage and current laws, and circuit analysis. Learn electrical codes and device boxes. Prerequisite: COR101.

ELR111  92 Clock Hours
Electrical Installations
Learn conduit bending fundamentals, raceway and fittings, applications of conductors and cables, electrical drawings, services, and test equipment. Prerequisite: ELR110.
Course Listings  2017-2018

ELR210   111 Clock Hours
Electrical Level 2
Learn about alternating currents (AC) circuits, motors and lighting, conduit bending, pull and junction boxes and cable tray. Prerequisite: ELR111.

ELR211   109 Clock Hours
Electrical Applications Level 2
Build an understanding of conductor terminations, splices, grounding and bonding, circuit breakers, fuses and control systems, with an introduction to solar. Prerequisite: ELR210.

ESSENTIAL SKILLS (ESP)

ESP110   48 Clock Hours
Tools for Industry Success
Effective communication, critical thinking, time management, exam preparation, and other workplace learning skills. Develop career and education plans to support continued success in school and the workplace. Prerequisite: None.

ESP118   12 Clock Hours
Career Readiness
Learn how to seek employment in your desired field, while using tools that guide you in looking for work, understanding the advantages of networking and the value of Continuous Improvement, as well as the importance of good communication skills (both verbal and written). You will build a resume, create a cover letter and learn about interviewing techniques. Prerequisite: None

ESP120   24 Clock Hours
Career Readiness for Trade and Technical
Learn how to seek employment in your desired field, while using tools that guide you in looking for work, understanding the advantages of networking and the value of Continuous Improvement, as well as the importance of good communication skills (both verbal and written). You will practice critical thinking skills, understand the necessity of ethics in the workplace, build a resume, create a cover letter and learn about interviewing techniques. Prerequisite: None

HEALTH CARE (HLC, RHC)

HLC130   113 Clock Hours
Health Care Core
Overview of current health care professions including career and labor market information. Health care delivery systems, third party payers, and facility ownership. Health organization structure, patient rights and quality care. Health care and life values. Definition and importance of values, ethics, and essential behaviors in the workplace. Worker rights and responsibilities. Healthful living practices to include nutrition, stress management and exercise. Occupational Safety and Health Administration (OSHA) standard precautions and facility safety. Use of principles of body mechanics in daily living activities. Basic communication skills which facilitate teamwork in the health care setting. Focus on development of personal communication skills and an understanding of how effective communication skills promote teamwork. Focus on intercultural communication strategies. Prerequisite: None.

HLC145AA  48 Clock Hours
Medical Terminology
Introduction to medical terms used in health care. Body systems approach to selected terms related to structures, functions, diseases, procedures, and diagnostic tests. Building and analyzing terms using basic word parts. Selected medical abbreviations and symbols and term spelling. Prerequisite: None.
HLC168  48 Clock Hours
Pharmacology
Use of drug references. Pharmacological principles of drugs. Routes of drug administration. Federal and Arizona regulations. Classification of drugs. Abbreviations and symbols for drug measurement, administration, and prescription. Prerequisite: None.

HLC204  48 Clock Hours
Clinical Pathophysiology

HLC221  36 Clock Hours
Study Skills and Test Review
HESI Exam prep. Preparation and study skills for the entrance exam for the PN program at Gateway. Basic study and test taking skills. Prerequisite: None.

RHC270  48 Clock Hours
Advanced Medical Terminology (Bio)
Comprehensive human anatomy and physiology medical terminology according to body systems. Terminology and abbreviations from pharmacology, surgery, psychiatry, oncology, radiology, laboratory and radiotherapy specialties. Emphasis on spelling and pronunciation. Prerequisite: None.

HVAC – HEATING, VENTILATION, AND AIR CONDITIONING (HVC)
HVC110  162 Clock Hours
HVAC Basics
Learn basic principles of HVAC (heating, ventilation, and air conditioning), trade-related mathematics and electrical concepts. Prerequisite: COR101.

HVC111  112 Clock Hours
HVAC Systems
Learn the principles of heating, cooling and air distribution. Prerequisite: HVC110.

HVC112  114 Clock Hours
HVAC Installations
Gain knowledge of the principles and procedures of HVAC piping installation. Prerequisite: HVC111.

HVC113  112 Clock Hours
HVAC Troubleshooting
Understand the principles and procedures of HVAC systems troubleshooting. Prerequisite: HVC112.

MASSAGE THERAPY (PMH, PMP)
PMH113  180 Clock Hours
Massage Therapy Basic Techniques
The foundational knowledge and hands-on basics necessary for success in the Professional Massage Therapy Program. Course includes: orientation, sanitation, hygiene, safety, massage contraindications, history, ethics, healthy therapeutic relationships, professional communication, overview of the human body, healthcare terminology, muscle theory, client care, self-care, Reflexology, and Swedish massage. Prerequisite: None.
PMH114 180 Clock Hours
Massage Therapy Advanced Techniques
Advanced anatomy and massage, focusing in detail on the skeletal and muscular components and manipulations of the upper body. Students are taught the bones and muscles of the upper body and the kinesiology that develops from their interactions. Corresponding Deep-Tissue Massage for the upper body is taught in conjunction with the advanced anatomy to ensure its practical application. Eastern Massage is taught with an emphasis on Thai Massage and its integration with Western Structural Massage. Recently learned skills will be practiced on the general public during clinic. Prerequisite: PMH113 or Instructor's permission.

PMH213 180 Clock Hours
Massage Therapy Mastery Techniques I
An advanced anatomy and massage course focusing in detail on the remaining skeletal and muscular components and manipulations of the upper body. Students are taught the remaining bones and muscles of the upper body and the kinesiology that develops from their interactions. Corresponding Deep-Tissue Massage for the upper body is taught in conjunction with the advanced anatomy to ensure its practical application. The course continues in this vein with the lower body, studying its skeletal and muscular anatomy as well as its corresponding kinesiology. Lower body deep tissue techniques will be introduced. Business skills and entrepreneurial perspectives conducive to the industry of massage therapy are taught along with promotional massage techniques such as chair massage. Course includes two-weeks of supervised clinic with coaching to gain practical experience working on the general public. Prerequisite: PMH114 or Instructor's permission.

PMH214 180 Clock Hours
Massage Therapy Mastery Techniques II
An advanced anatomy and massage course focusing in detail on the skeletal and muscular components and manipulations of the lower body. Students will learn all the remaining bones and muscles of the lower body and the kinesiology that develops from their interactions. Corresponding Deep-Tissue Massage for the lower body is taught in conjunction with the advanced anatomy to ensure its practical application. Students combine all of their program skills; integrating anatomy, kinesiology, concepts, theories, and techniques to properly assess clients and apply critical thinking in tailoring treatments to individuals. Clients with unique needs are covered such as athletes, expecting mothers, infants, older adults, obese individuals, people with disabilities, and end of life care. Persons with common injuries and conditions are also covered, teaching specific strategies and protocols to address them. Entrepreneurial skills conducive to the industry of massage therapy will continue to be reinforced while an exit plan is created for the student's entrance into the industry. The course concludes with two-weeks of supervised clinic with coaching to gain practical experience working on the general public and applying the assessment/treatment approaches focused on in the course. Prerequisite: PMH213 or Instructor's permission.

PMP120 180 Clock Hours
Massage Therapy Basics
The foundational knowledge and hands-on basics necessary for success in the Professional Massage Therapy Program. Course includes: orientation, sanitation, hygiene, safety, massage contraindications, history, ethics, healthy therapeutic relationships, professional communication, overview of the human body, healthcare terminology, muscle theory, client care, self-care, Reflexology, and Swedish massage. Prerequisite: None.

PMP121 180 Clock Hours
Massage Therapy Advanced
Advanced anatomy and massage, focusing in detail on the skeletal and muscular components and manipulations of the upper body. Students are taught the bones and muscles of the upper body and the kinesiology that develops from their interactions. Corresponding Deep-Tissue Massage for the upper body is taught in conjunction with the advanced anatomy to ensure its practical application. Eastern Massage is taught with an emphasis on Thai Massage and its integration with Western Structural Massage. Recently learned skills will be practiced on the general public during clinic. Prerequisite: PMP120 or Instructor's permission.
PMP220  180 Clock Hours
Massage Therapy Mastery I
An advanced anatomy and massage course focusing in detail on the remaining skeletal and muscular components and manipulations of the upper body. Students are taught the remaining bones and muscles of the upper body and the kinesiology that develops from their interactions. Corresponding Deep-Tissue Massage for the upper body is taught in conjunction with the advanced anatomy to ensure its practical application. The course continues in this vein with the lower body, studying its skeletal and muscular anatomy as well as its corresponding kinesiology. Lower body deep tissue techniques will be introduced. Business skills and entrepreneurial perspectives conducive to the industry of massage therapy are taught along with promotional massage techniques such as chair massage. Course includes two-weeks of supervised clinic with coaching to gain practical experience working on the general public. Prerequisite: PMP121 or Instructor's permission.

PMP221  180 Clock Hours
Massage Therapy Mastery II
An advanced anatomy and massage course focusing in detail on the remaining skeletal and muscular components and manipulations of the lower body. Students will learn all the remaining bones and muscles of the lower body and the kinesiology that develops from their interactions. Corresponding Deep-Tissue Massage for the lower body is taught in conjunction with the advanced anatomy to ensure its practical application. Students combine all of their program skills; integrating anatomy, kinesiology, concepts, theories, and techniques to properly assess clients and apply critical thinking in tailoring treatments to individuals. Clients with unique needs are covered such as athletes, expecting mothers, infants, older adults, obese individuals, people with disabilities, and end of life care. Persons with common injuries and conditions are also covered, teaching specific strategies and protocols to address them. Entrepreneurial skills conducive to the industry of massage therapy will continue to be reinforced while an exit plan is created for the student's entrance into the industry. The course concludes with two-weeks of supervised clinic with coaching to gain practical experience working on the general public and applying the assessment/treatment approaches focused on in the course. Prerequisite: PMP220 or Instructor's permission.

MEAT CUTTING (MCP)
MCP100  167 Clock Hours
Basics of Meat Cutting
Shop safety and sanitation, proper use of power and hand tools, equipment set up, breakdown, and clean up, safe lifting techniques, and customer service. Prerequisite: None.

MCP101  184 Clock Hours
Intro to Meat Helper
Introduction to the retail meat environment, weight conversions, inventory control, basic knife skills, packaging, stocking, and merchandising skills. Introduction to meat processing, and improve accuracy, quality, and productivity. Prerequisite: MCP100.

MCP102  73 Clock Hours
Intro Into Apprentice Meat Cutter
Identify and process cuts of meat, basic anatomy, improve accuracy, quality, and productivity. Continue to build sales and customer relationships. Prerequisite: MCP101.

MCP110  180 Clock Hours
Apprentice Meat Cutter
Mastery of skills in processing cuts of meat, including specialized cuts of meats, accuracy, quality, productivity, retail, sales, and customer service. Prerequisite: MCP102.
MCP111  170 Clock Hours
Intro to Meat Sales/Retail Display
Learn to identify, cut, wrap, weigh and display all retail cuts for a meat case. Topics include organization, sanitation, meat labels/tags and customer service. Prerequisite: MCP110.

NURSING ASSISTANT (NAC)
NAC156  150 Clock Hours
Nursing Assistant
Role of the nursing assistant for clients across the wellness/illness continuum within the nurse assisting scope of practice. Introduction to problem solving process specific to meeting the basic and holistic needs of clients. Professional communication skills essential for the nursing assistant. Nursing interventions to ensure the needs and safety of the client. Specific types of diseases, conditions and alterations in behavior of the client. Principles of nutrition and fluid balance. Special needs of the elder client in the acute and long-term care settings. Basic emergency care skills and procedures. Prerequisite: None.

OPHTHALMIC MEDICAL ASSISTANT (OPH)
OPH100  42 Clock Hours
Electronic Medical Records
Discover the daily workflow of an ophthalmic technician, and examine how healthcare technology and training on an electronic medical record system is both helpful, and essential, for every practicing technician. This course will allow you to learn how to quickly, and professionally, document your findings on a patient's electronic medical record. You will learn how to efficiently enter in all of the information that you gather from the diagnostic tests that you run, as well as how chart all of your examination findings effectively, on the most cutting edge ophthalmic electronic health system on the market. The knowledge gained from this course will allow you to have a complete understanding on how to operate a comprehensive ophthalmic electronic medical records system, a key component of every modern ophthalmic practice. Prerequisite: None.

OPH101  54 Clock Hours
Introduction to Eye Care
This course will introduce to you to an overview of the Ophthalmic front and back office including all the types of personnel roles; scheduling appointments, insurance plans, electronic medical records, communications, patient privacy, HIPPA, confidentiality, patient care and services, body mechanics, moving patients, and knowledge about geriatric patients including professional development. Prerequisite: None.

OPH110  42 Clock Hours
Ocular Medical Terminology, Abbreviations & Disease Processing
Each medical specialty is defined by its unique terminology. This course gives detailed instruction/practice of medical terminology/acceptable abbreviations as well as disease processes related to ophthalmology. Students will learn to spell define and use medical terms/abbreviation correctly including use of a medical/ophthalmic dictionary. You will learn the structure and functioning of the eye and adnexa, circulation of the eye, visual pathway, specific cranial nerves, as well as the pathophysiology of color vision. Students will also learn practice and record vital signs plus the introduction, documentation and use of their skills list throughout their classroom and clinical rotations. Prerequisite: None.

OPH112  150 Clock Hours
Clinical Theory and Skills
The ophthalmic assistant (OA) is often the first professional contact the patient. This course will introduce the student to information about medical ethics; regulatory and legal issues in the practice setting; patient confidentiality and safety; and laws/policies for the control, use, and release of medical information. Course content will focus on caring for the patient and family, providing counseling and education, as well as working with diverse populations within the community. Prerequisite: None.
OPH114 150 Clock Hours
Basic Skills & Ocular Assessment
This course will develop the knowledge and skills in the assessment, measurement, and documentation of the ophthalmic patient and examination: beginning with patient intake and obtaining detailed descriptions of ocular condition(s), complaint(s), and medical history. Students will learn to administer ocular medications, measuring and testing. You will also learn to document results to assist the ophthalmic provider to provide quality eye care. In addition, the student will begin their lab practice by using, measuring, and caring for the required equipment, understanding common ocular medications, prescription protocol, and allergic reactions. The importance and application of infection control and aseptic technique will be emphasized. Prerequisite: OPH101, OPH110, AND OPH112.

OPH190 120 Clock Hours
Ophthalmic Assisting Externship
Externships will better prepare the student for employment as an Ophthalmic Assistant (OA). Students will experience actual hands-on experiences with patients, staff, and other ophthalmic professionals applying your skills and techniques obtained from lecture and lab courses. Students are assigned to an approved practice within the ophthalmic community for eighty (80) Clock Hours externship. After 480 Clock Hours of clinical practice graduates may become a Certified Ophthalmic Assistant (COA) from the national certifying ophthalmic organization: Joint Commission Allied Health (JCAHPO). Prerequisite(s): Successful completion of all required program coursework. This course is supervised by the school as part of the student's program. Class is attended on a regular basis each week. Prerequisite: OPH114.

PATIENT CARE TECHNICIAN (EHC)
EHC109 150 Clock Hours
Patient Care Tech Procedures
A course designed to provide the student with the necessary training, skills, and knowledge needed to gain employment as a Patient Care Technician in a hospital setting. Prerequisite: None.

PHARMACY TECHNICIAN (PHC)
PHC101 60 Clock Hours
Pharmacology for Pharmacy Technicians
Overall history of pharmacy from ancient times to today; pharmacy technician job ethics and responsibilities; state and national drug laws and regulations; pharmacy information reference material; pharmaceutical abbreviations and introduction to prescription sig codes. Prerequisite: None.

PHC102 120 Clock Hours
Pharmacy Tech I
Technical aspects of prescription dispensing and drug distribution in the retail and hospital setting utilizing the computer. Bulk compounding, packaging, inventory control, drug storage and a variety of drug delivery systems. Laws that relate to specific technical tasks. Prerequisite: PHC101.

PHC102AB 108 Clock Hours
Pharmacy Tech II
Responsibilities of a pharmacy technician specific to working in a hospital and community setting; common drugs and their uses; drug routes of administration; basic biopharmaceutics; billing and reimbursement; sterile and non-sterile compounding; pharmacy career development; introduction to resume building, job search training. Prerequisite: PHC102.

PHC107 90 Clock Hours
Math and Dosages
Principles of household, metric and apothecary measurements, medical symbols and abbreviations. Emphasizes drug dose unit calculations and drug pricing. Prerequisite: None.
Course Listings  2017-2018

**PHC114  200 Clock Hours**
*Pharmacy Tech Externship*
On-the-job theory and training in an ambulatory pharmacy under the direct supervision of a registered pharmacist.
Prerequisite: PHC101, PHC102, PHC102AB, PHC107, PHC122.

**PHC122  18 Clock Hours**
*Pharmacy Tech Certification Review*
Pharmacy Technician Certification Board Exam. Preparation for the professional practice national examinations. Basic study and test taking skills. Prerequisite: None.

**PHLEBOTOMY (PLC)**

**PLC109  75 Clock Hours**
*Phlebotomy Basic Skills*
Theory and practice of basic phlebotomy including laboratory test codes, equipment, and procedures. Prerequisite: None.

**PHC111  75 Clock Hours**
*Phlebotomy*
Theory and practice of advanced techniques in phlebotomy and specimen processing including laboratory test codes, equipment, and procedures. Prerequisite: PLC109.

**PLC122  120 Clock Hours**
*Phlebotomy Practicum*
Application of phlebotomy and specimen processing techniques in a clinical laboratory setting or health care environment. Prerequisite: PLC111.

**PRECISION MACHINING (MTO)**

**MTO100  96 Clock Hours**
*Machining Fundamentals*
Understand basic terms, applications, measuring equipment, machining tools and machine theory. Prerequisite: None.

**MTO105  54 Clock Hours**
*Geometric Dimensioning & Tolerance*
Interpret blueprints and apply specifications to a given project with use of geometrical dimensioning and tolerances. Prerequisite: MTO100.

**MTO111  42 Clock Hours**
*Bench Work and Layout*
Learn about common bench work operations performed on the manual mill before and after machining operations. Prerequisites: MTO105.

**MTO115  66 Clock Hours**
*Drill Press*
Understand hole-making operations, work-holding devices, operations, and speeds/feeds theory. Prerequisites: MTO105.

**MTO120  96 Clock Hours**
*Manual Mill*
Gain knowledge of basic components manual mills, common work-holding devices, cutting tools, and tool holders. Prerequisites: MTO105.
MTO125  82 Clock Hours
Manual Lathe
Gain skills in manual lathes, common work holding devices, cutting tools, and tool holders. Prerequisites: MTO120.

MTO130  54 Clock Hours
Surface Grinding
Learn the steps involved in grinding horizontal and vertical surfaces with a horizontal-spindle, reciprocating-table grinding machine. Prerequisites: MTO105.

MTO135 112 Clock Hours
CNC Mill
Learn basic Computer Numeric Control (CNC) milling machines concepts and programming. Prerequisites: MTO100, MTO105, MTO111, MTO115, MTO120, MTO125, and MTO130.

MTO141 112 Clock Hours
CNC Lathe
Learn basic Computer Numeric Control (CNC) lathe machine concepts and programming. Prerequisites: MTO100, MTO105, MTO111, MTO115, MTO120, MTO125, and MTO130.

MTO145  66 Clock Hours
CAM Programming
Explore basic Computer Aided Machining (CAM). Learn how to convert part designs into precise machine toolpath movements. Prerequisites: MTO100, MTO105, MTO111, MTO115, MTO120, MTO125, and MTO130.

WELDING (WTO)
WTO111  60 Clock Hours
Introduction to Welding
Learn basic safety procedures and equipment, while using fuel and electric cutting processes for the preparation of base materials for welding operations. Prerequisite: COR101.

WTO112 120 Clock Hours
Basic Welding (SMAW)
Examines codes used in welding and testing procedures, welding equipment set-up, preparation, and striking an arc in the shielded metal arc welding (SMAW) process, while also learning the different types of filler materials and their proper storage. Prerequisite: WTO111.

WTO113  94 Clock Hours
Welding Techniques (SMAW)
Explore the importance of devices used to align, fit-up and prepare joints for welding, while introducing open-groove weld techniques for in-position and out-of-position applications using the shielded metal arc welding (SMAW) process. Prerequisite: WTO112.

WTO114 100 Clock Hours
Qualification Welds (SMAW)
Learn a procedure or specification to perform out-of-position welds to meet and qualify to a code or standard with focus on vertical and overhead welding using the shielded metal arc welding (SMAW) process. Prerequisite: WTO113.
WTO121  140 Clock Hours
Welding (GMAW)
Identify and learn how to read welding detail drawings with welding symbols, using notes and bill of materials. Train in safety procedures, general equipment, filler materials and shielding gases used and how to make fillet and groove welds in various positions for gas metal arc welding (GMAW). Prerequisite: WTO114.

WTO122  116 Clock Hours
Welding (FCAW)
Explore characteristics, properties, composition and classification of common ferrous and nonferrous metals along with preheating and post-heating procedures used for weld quality. Train in safety procedures, general equipment, filler materials and shielding gases used and how to make fillet and groove welds in various positions for Flux-Core Arc Welding (FCAW). Prerequisite: WTO121.

WTO123  70 Clock Hours
Welding (GTAW) Carbon Steel
Learn welding equipment set-up, safety and the different use of filler materials and shielding gases. Perform demonstrated welding techniques with fillet and groove welds in various positions on carbon steel, using gas tungsten arc welding (GTAW). Prerequisite: WTO122.

WTO131  150 Clock Hours
Weld Techniques Pipe (SMAW)
Learn welding equipment set-up and safety practices for welding pipe with an electric arc welding process, using open-root groove welds. Gain knowledge on procedures for the preparation of open-root V-groove welds in various positions on carbon steel pipe using the shielded metal arc welding (SMAW) process. Prerequisite: WTO114.

WTO133  176 Clock Hours
Weld Techniques Pipe (GTAW)
Learn welding equipment set-up and safety practices for welding pipe with an electric arc welding process, using open-root groove welds. Gain knowledge on procedures for the preparation of open-root V-groove welds in various positions on carbon steel pipe using the shielded metal arc welding (SMAW) process. Prerequisite: WTO131.

WTO141  134 Clock Hours
GMAW Aluminum
Understand the properties and characteristics of aluminum and how to clean and prepare plate coupons for welding. Gain knowledge on safety procedures, general equipment, filler materials and shielding gases used and how to make fillet and groove welds in various positions for Gas Metal Arc Welding (GMAW) of aluminum. Prerequisite: COR101.

WTO142  134 Clock Hours
GTAW Carbon Steel
Learn welding equipment set-up, safety and the different use of filler materials and shielding gases in the gas tungsten arc welding (GTAW) process. Perform advanced welding techniques with fillet and groove welds in various positions on carbon steel. Prerequisite: WTO141.

WTO143  210 Clock Hours
GTAW Aluminum
Learn safety procedures, general equipment set-up, filler materials and shielding gases used and how to make fillet and groove welds in various positions for the gas tungsten arc welding (GTAW) of aluminum. Gain an understanding of the properties and characteristics of aluminum and how to clean and prepare plate coupons for welding qualifications. Prerequisite: WTO142.
WTO144  210 Clock Hours
**GTAW Stainless Steel**
Learn safety procedures, general equipment set-up, filler materials and shielding gases used and how to make fillet and groove welds in various positions for gas tungsten arc welding (GTAW) of stainless steel. Gain an understanding of properties and characteristics of stainless steels and preparation of plate coupons for the qualification of welds. Prerequisite: WTO143.

YOUR ROLE IN THE GREEN ENVIRONMENT (YRG)
YRG102  24 Clock Hours
**Your Role in the Green Environment**
Learn about the green environment, green construction practices, green building rating systems, exercises on calculating your carbon footprint, and worksheets on inventory household and product impacts. Prerequisite: None.
ADMINISTRATION  
MARICOPA COMMUNITY COLLEGE DISTRICT

Dr. Maria Harper-Marinick ........................... Chancellor
Dr. Paul Dale ................................. Vice Chancellor and Provost
Ms. LaCoya Shelton-Johnson ..................... Vice Chancellor
Mr. Ed Kelty ........................................... Vice Chancellor
Mr. Gaye Murphy .................................... Vice Chancellor
Ms. Christina Schultz ................................. President & CEO,

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Ms. Jean McGrath ...................................... Member
Mr. Dana Saar ........................................... Member

COLLEGE PRESIDENTS  
Interim Chandler/Gilbert

Dr. William Guerriero ............................ Community College
Dr. Ernie Lara .............................. Estrella Mountain Community College
Dr. Steven R. Gonzales .......................... GateWay Community College
To be announced .................................. Glendale Community College
To be announced .............................. Maricopa Corporate College
Dr. Sasan Poureetezadi ... Interim Mesa Community College
Dr. Paul Dale ........................................ Paradise Valley Community College
Christina Haines .....................................Interim, Phoenix College
Dr. Chris Bustamante .............................. Maricopa Corporate College
Dr. Jan L. Gehler ........................... Scottsdale Community College
Dr. Shari Olson .............................. South Mountain Community College

GATEWAY COMMUNITY COLLEGE

Gonzales, Steven R ........................................ President
Wiseman, Maria ............................ Vice President, Academic & Student Affairs
Asthana, Tony .............................. Vice President, Administrative Services
Hinton-Rivera, Jake .......................... Dean of Enrollment Management
Wise, Maria ............................... Dean of Student Success & Retention

FACULTY

Acosta, Rosemary ............................... Counseling
Bautista, Charo ............................. Health Unit Coordinating
Bergh, Cheryl ............................... Math & Science & Biology
Bienert, Martha ............................... Communication/Sociology

Dean of Liberal Arts & 
Amy Diaz ............................... Learning Support, Academic Affairs
BA, University of Iowa; MsEd; EdD, Northern Illinois University

Dean of Professional 
Johnson, Nancy ............................... & Technical Education
A.A.S., Eastern Maine Vocational Technical Institute; B.A.,
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Wurster, CJ ............................... Dean of Trade & Technical Training
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Program Director Health Care Core

Bautista, Charo ............................. Health Unit Coordinating
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Borze, Ilene ............................... Nursing Continuing Education
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Program Director Occupational Safety
Bryant, Michael ............................... Occupational Safety & Health
B.S., Oklahoma State University; M.Ed., Northern Arizona
University

Cejka, Timothy ............................... Biology
D.C., Palmer University

Chang, Tsuhen ............................... Chemistry
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Godfrey, Susan ............................ Nuclear Medicine Technology
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Goodrich, Gregory ................................. Philosophy
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Goodman, Jessica ......................... Physical Therapist Assisting
D.P.T., Creighton University

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Administration, Faculty, and Program Managers

Program Director Electroneurodiagnostic Technology, Health Service Management Healthcare Regulatory Compliance, Nugent, Wendi.......................... Polysomnography Technology A.A., Golden West Community College; Certification Electroneurodiagnostic Technology, Orange Coast College; M.B.A., Simmons School of Management

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Lemongi, Candace................................................. Reading

Lemongi, Debra ................................................ Nursing

Lenartz, Andrew ................................................ Psychology

McGrath, Shannon ................................................ ESL/English

Mcke, Anderson Sharon ........................................ Nursing

Melenovich, Peter ................................................ Nursing

Mendoza-Moreno, Patricia................................. Nursing

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Program Director, HVAC/Facilities
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<tr>
<th>Name</th>
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<th>Education</th>
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<tr>
<td>Arizona State University</td>
<td>B.A., University of Miami; M.A., University of Florida; Ph.D., Northern Arizona University</td>
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<tr>
<td>Eisenhauer, Frank</td>
<td>Engineering</td>
<td>B.S., Northern Arizona State University</td>
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<td>Rasmussen, Geraldine A.</td>
<td>Liberal Arts</td>
<td>A.A., GateWay Community College</td>
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<td>Stewart, Scott</td>
<td>Manufacturing</td>
<td>A.A.S., Albuquerque Technical Vocational Institute</td>
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<td>Vrabel, Kerry S</td>
<td>Psychometrics &amp; Technology Management</td>
<td>B.S., Benedictine University, Illinois; M.A., Hunter College</td>
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<td>Yena, Lauren</td>
<td>English</td>
<td>B.A., University of Miami; M.A., University of Florida; Ph.D., Arizona State University</td>
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**PROGRAM MANAGERS**

**CENTRAL CITY & DEER VALLEY CAMPUS**

Woehl, Mark .................................................. Trades and Technology
Zerilli, Michael .................................................. Beauty and Wellness (Business Processes)

**GATEWAY EARLY COLLEGE**

**HIGH SCHOOL**

Smith, Lisa A ............................................... MEd, Principal
Boyd, Stacey Q. ........................................ Director of Federal Programs
Carroll, Teri .................................................. Social Worker
Frump, Jonathan ............................................ Counselor
Guillen, Blas .................................................. Student Success Liaison

**FACULTY**

Blake, Ashley .................................................. Faculty
Eric L. Blevins .................................................. Faculty
Maria E. Bracamontes ........................................ Faculty
Darnetta C. Fair ................................................ Faculty
Marina V. Filimon ........................................... Faculty
Karen C. Hawkes ............................................ Faculty
Andrea K. McFeely ........................................... Faculty
Erin K. McFeely ................................................ Faculty
Barry McPherron ............................................. Faculty
Blaine E. Montanaro ......................................... Faculty
Alex A. Pfordte ................................................ Faculty
Kanisha M. Saunders ....................................... Faculty
Robin M. Spaulding ......................................... Faculty
Deanna Vandenham ........................................ Faculty
Roger S. Wiersum ........................................... Faculty
GATEWAY WASHINGTON CAMPUS MAP

LEGEND

Administrative/Faculty Wing ......................... AF
Amphitheater .............................................. AT
Automotive Center ................................. AU
Center for Entrepreneurial Innovation .......... CEI
Center for Health Careers Education ............ CH
Central Plant ................................................. CP

Children’s Learning Center ......................... CC
Electrical Apprenticeship Lab ......................... EA
Integrated Educational Building .................... IE
Main Building ............................................. MA
Public Safety ............................................. PS
South Building ........................................... SO

108 N. 40th Street | Phoenix, AZ | 85034
ABOUT GATEWAY COMMUNITY COLLEGE
As one of the Maricopa Community Colleges, GateWay Community College is a fully accredited public institution of higher education, emphasizing both academic, career and technical training programs. GateWay offers approximately 160 degree, certificate and workforce training options in the following areas: Apprenticeships, Automotive, Business, Environment, Healthcare, Industrial Technology, Information Technology, Liberal Arts, Math and Science, Nursing, several self-paced, entry-level trade and technical training programs, and has emerged as a leading institution in meeting the needs of business and industry. GateWay is also home to GateWay Early College High School which provides students with the opportunity to earn a high school diploma and an associate degree, enough college credits to enter a four year university as a junior, or a certificate of completion in an occupational area.

ABOUT MARICOPA COUNTY COMMUNITY COLLEGE DISTRICT
The Maricopa County Community College District (MCCCD) consists of 10 nationally accredited community colleges and multiple education centers. The District ranks as one of the nation’s largest providers of higher education and is the largest single provider of higher education in Arizona. MCCCD is the largest provider of healthcare workers and job training in the state, educating and training more than 250,000 students year-round.

For the latest information on programs, graduation rates and other important consumer information, please visit our website at GATEWAYCC.EDU.

GateWay Community College is a Maricopa Community College, accredited by the Higher Learning Commission, a Commission of the North Central Association of Colleges and Schools (230 South LaSalle Street, Suite 7-500, Chicago, IL 60604, (800) 621-7440, NCAHLC.ORG).

The Maricopa County Community College District is an equal opportunity employer of protected veterans and individuals with disabilities.

Photos by Liam Frederick Photography, Mark Spomer Photography, Racine Photographic and Tevis Photography.

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