

ADDENDUM INFORMATION - PLEASE READ

The following replaces pages 29-124 of LCC's 2007-09 Catalog. All references to page numbers are referring to the 2007-09 Catalog. Items that are highlighted in yellow are either new or changed. Struck-through items have been deleted from our program offerings. For best results in viewing the catalog changes, print in color or view online.

For the full listing of LCC services and academic policies, please refer to the 2007-09 Catalog.

Credit by Examination

Credit will be granted for College Level Examination Program (CLEP) tests with a minimum score equivalent to the 35th percentile, for the General and Subject examinations. Subject examination credits will be granted as equivalent to credits earned in courses at LCC. Each CLEP Subject examination covers one or more quarters of work. Credit for CLEP Subject examination will not be granted when students have earned credit in equivalent courses. General examination credits may be counted toward satisfying the distribution requirements for any DTA, AS-T, or MRP degree.

Credit will be granted for Excelsior College Examinations on a case-by-case basis. Faculty may require students to exhibit proficiency in certain lab competencies through the evaluation of the student's prior work experience or they may require the student to demonstrate lab competencies in a manner that is mutually agreed upon with faculty. Students should be sure to discuss this option with faculty in the discipline for which credit is being sought.

Credit for CLEP or Excelsior College Examinations will be granted after a student earns a minimum of 12 credits at LCC. However, entry into a program may be provisionally granted pending satisfaction of this requirement.

Degree and Certificate Options

The following lists the degree and certificate options at Lower Columbia College.

University Transfer

- **AA – Associate in Arts and Sciences** – Transfer degree
- **AAS-T – Associate in Applied Science** – Transfer degree
- **AA-DTA – Associate in Arts degree** – Direct Transfer Agreement
- **AB-DTA/MRP – Associate in Business degree** – Direct Transfer Agreement (Major Related Program)

- **AEE-DTA/MRP – Associate in Elementary Education** – Direct Transfer Agreement (Major Related Program)
- **AM-DTA/MRP – Associate in Math Education degree** – Direct Transfer Agreement (Major Related Program)
- **AT-DTA/MRP – Associate in Technology** – Direct Transfer Agreement (Major Related Program)
- **AS-T-Option 1 – Associate in Science** – Transfer degree (Opt 1) – Biology, Environmental Science, Chemistry, Geology, and Earth Science
- **AS-T ABE/MRP – Associate in Biology Education** – Transfer degree (Major Related Program) (Opt 1)
- **AS-T ACE/MRP – Associate in Chemistry Education** – Transfer degree (Major Related Program) (Opt 1)
- **AS-T APE/MRP – Associate in Physics Education** – Transfer degree (Major Related Program) (Opt 1)
- **AS-T AGSE/MRP – Associate in General Science Education** – Transfer degree (Major Related Program) (Opt 1)
- **AS-T-Option 2 – Associate in Science** – Transfer degree (Opt 2) – Engineering, Engineering Technology, Computer Science, Physics, and Atmospheric Sciences
- **AS-T BIO/CHEM E/MRP – Associate in Bioengineering and Chemical Engineering** – Transfer degree (Major Related Program) (Opt 2)
- **AS-T COMP E EE/MRP – Associate in Computer and Electrical Engineering** – Transfer degree (Major Related Program) (Opt 2)
- **AS-T OTHER ENGINEER/MRP – Associate in Mechanical/Civil/Aeronautical/Industrial/Materials Science Engineering** – Transfer degree (Major Related Program) (Opt 2)
- **AS-T EET/CTE/MRP – Associate in Electrical Engineering Tech and Computer Engineering Tech** – Transfer degree (Major Related Program) (Opt 2)
- **AS-T MET/MRP – Associate in Mechanical Engineering Technology** – Transfer degree (Major Related Program) (Opt 2)

Professional/Technical

- **AAS** – Associate in Applied Science degree
- **COP** – Certificate of Proficiency (specialized one-year occupational training, 45 or more credits).
- **COC** – Certificate of Completion (short-term occupational training, 1–44 credits).



Transfer Degrees

Lower Columbia College's transfer degrees allow you to complete the first two years of a bachelor's degree at LCC. The Major Related Program (MRP) degrees build on these to provide specific preparation to enter bachelor programs in 13 high-demand fields. While requirements for LCC graduation and acceptance at a four-year college vary by degree type, field, and college, you must fulfill these general requirements to earn an LCC transfer degree:

General Requirements

- Minimum of 90 transferable credits in courses numbered 100 and above. No more than 6 credits in PHED activity courses; no more than 15 credits in Cooperative Work Experience and/or Independent Study, and no more than 5 credits in performance/skills courses are allowed.
- Maintain a minimum cumulative grade point average of 2.00 on the credits that may be used toward the degree.
- Complete at least two quarters—including the last quarter—at Lower Columbia College.
- Earn at least 24 credits at Lower Columbia College, exclusive of credits by examination.
- Earn no more than 15 pass/fail credits. Pass/fail courses may not be used to meet communication, quantitative skills, core program, or distribution requirements.
- Diversity requirement—5 credits. See quarterly schedule for diversity classes. Courses that meet this requirement may also be used toward other graduation requirements. Unless otherwise stated, Washington Online courses do not satisfy this requirement.

AA — Associate in Arts and Sciences

The program-specific AA transfer degree is for students who are sure of the four-year institution they wish to attend. If you plan to earn a bachelor's degree in a professional field this may be a good option for you. You must work closely with your program advisor to design a program that will fulfill the transfer institution's general admission and program entry requirements. You should expect to have courses evaluated on a course-by-course basis upon transfer to the upper division. Your program advisor and the appropriate department chair must approve your intended program, and you must file your intent to earn this degree when you apply for graduation from LCC.

AA — General Degree Requirements

General requirements listed for transfer degrees, plus:

- Communications requirement—15 credits
ENGL 101, ENGL 102 or ENGL 235 (was ENGL/ENGR 220), and SPCH 110.
- Courses as prescribed by the faculty advisor and approved by department chair.

AAS-T — Associate in Applied Science – Transfer

The AAS-T degree is built upon the technical courses required for job preparation and includes a college-level general education component. Baccalaureate institutions are not required to accept AAS-T degrees. The AAS-T does not fulfill general education requirements for a baccalaureate degree. Transferability of an AAS-T degree to a given baccalaureate institution is neither implied nor guaranteed. Each institution has its own transfer policies and each student is responsible for knowing the transfer and admission requirements of the receiving institution. Students are urged to check with their advisor at Lower Columbia College and a representative from the college they plan to attend.

AA-DTA — Associate in Arts - Direct Transfer Agreement

This degree, considered a general transfer option, is recommended as a starting point for students who plan to transfer but are unsure of their major when they first enter college. The AA-DTA is widely accepted as the first two years towards a bachelor's degree by public institutions in Washington, some in Oregon, and by most private institutions in Washington. In any degree program, you should work closely with your program advisor to ensure that you are taking the proper courses. Students should also try to complete sequence courses within one institution (i.e., BIOL 201, 202, and 203).

Degrees structured under the DTA umbrella provide:

- Priority admissions consideration at public universities for most humanities and social science majors ahead of non-degreed transfers.
- Completion of lower division general education requirements.
- Credit for all courses completed within the DTA up to and in some cases beyond 90 credits.
- Opportunity to explore several fields of study through the category of up to 30 credits of elective courses.
- Opportunity to complete prerequisites for a future major.

AA-DTA — General Degree Requirements

- Communications requirement—15 credits
ENGL 101, ENGL 102, and SPCH 110.
- Quantitative/symbolic reasoning skills requirement—5 credits.
MATH 099 or proficiency, AND one of the following:
BUS 206 (was BSAD 206), ENGR 214 (was ENGR 122) or ENGR 215 (was ENGR 261); MATH 107 MATH 112 or higher (excluding MATH 121); PHIL 120; or PHYS 101, 102, 103, 251, 252, or 253.
- Humanities requirement—15 credits from at least three areas on the Distribution List for Transfer Degrees. No more than 10 credits from any one discipline; no more than 5 credits in performance skills courses; no more than 5 credits in foreign language at the 100 level.
- Social Sciences requirement—15 credits from at least three areas on the Distribution List for Transfer Degrees. No more than 10 credits from any one discipline.



- Natural Science requirement—15 credits from at least three areas on the Distribution List for Transfer Degrees. No more than 10 credits from any one discipline; must include 5 credits of lab courses. No more than 5 credits from Math, Computer Science, and Engineering. If a course is used to fulfill the quantitative skills requirement, it may not be used to satisfy the natural science requirement.
- Capstone requirement—5 credits. These courses require students to demonstrate the knowledge, skills, attitudes, and values expected of students earning the AA-DTA. Courses that meet this requirement may also be used toward other graduation requirements and will be designated in course schedules. To enroll, students must have completed at least 60 credits toward the AA-DTA degree, including MATH 099 (or competency) and ENGL 102, both with a grade of C- or better.
- Diversity requirement—5 credits. Courses that meet this requirement may also be used toward other graduation requirements and will be designated in course schedules.
- Electives—Of the remaining credits taken to earn 90 credits for the degree, no more than 15 credits may be taken from the Restricted Course List.

DTA/MRP — Degree Requirements

Check with your LCC advisor and a representative from the college you plan to attend for specific degree requirements.

AS-T — Associate in Science — Transfer

The AS-T degree is designed to prepare students for upper division study in science-related fields. It will give students the broad background needed before beginning more specialized, upper-division courses.

Degrees structured under the AS-T umbrella provide:

- Priority admissions consideration at public universities for most science and engineering majors ahead on non-degreed transfers.
- Completion of similar lower division general education requirements as first- and second-year university students in engineering or science-based fields.
- Credit for all courses completed within the AS-T up to and in some cases beyond 90 credits.
- Opportunity to explore other fields within the electives included in the degree.

There are two AS-T degree options:

- Option One: biological sciences, environmental or resource sciences, chemistry, geology, and earth sciences.
- Option Two: computer science, engineering, physics, and atmospheric sciences.

For either of these options, you must work closely with your advisor and enroll in courses that meet your transfer institution's requirements.

AS-T General Degree Requirements

- Issued only to students who have earned a cumulative grade point average of at least 2.0, as calculated by Lower Columbia College.
- Based on 90 quarter hours of transferable credit distributed as follows:
 - General requirements listed for transfer degrees, plus:
 - Communications requirement—ENGL 101 (5 credits).
 - Mathematics requirement—MATH 151 and 152 (10 credits).
 - Humanities/Social Sciences requirement—15 credits.
 - “Learning Experience” course that demonstrates knowledge, skills, attitudes, and values. Program advisor must approve—5 credits.
 - Pre-major program courses specific to the appropriate track.
 - Remaining courses specific to the appropriate track—10–15 credits.

AS-T/MRP — Degree Requirements

- Check with your LCC advisor and a representative from the college you plan to attend for specific degree requirements



Distribution List for Transfer Degrees

Humanities

ART 100 (was ART 110) or 114, and ART 101*, 102*, 103*, 106*, 107*, 111*, 112*, 113*, 119, 151*, 152*, 206, 207, 208, 226, 227, 228, 241*, 242*

DRMA 101 (was DRAM 100), and DRMA 106*, 107*, 108*, 215, 255

ENGL 124*, 125*, 126*, 204, 205, 224*, 225*, 226*, 231, 232, 233, 234, ENGL 235 (was ENGL/ENGR 220) 239 (was 235), 240, 245, 251, 252, 254, 256, 260, 270

FRCH 121, 122, 123, (was FREN 101, 102, 103), and FRCH 110 or 114

HIST 116 (was HIST 106), HIST 126 (was HIST 116)

HUMN 110, 164, 165, 166, 210, 230

JOURN 200

LIBR 101

MUSC 100, 101, 102, 103, 117, 119, 130*, 134*, 135*, 140*, 144*, 150*, 209, and MUSC 105 (was MUSC 110)

PHIL 101 (was PHIL 200), and PHIL 210, 260

SPAN 121, 122, 123, (was SPAN 101, 102, 103), and SPAN 110 or 114

SPCH 104, 109, 204, 205, 210

Social Sciences

ANTH 206 (was ANTH 207)

BUS 101 (was BSAD 110), BUS 201 (was BSAD 251)

CJ 101 (was ADMJ 186)

CS 100 effective Fall 2006

ECON 105 or ECON 201 (was ECON 205), ECON 105 or ECON 202 (was ECON 206), 208

HLTH 106

HIST 117 (was HIST 107), HIST 127 (was HIST 117), HIST 128 (was HIST 118), HIST 136 (was HIST 156), HIST 137 (was HIST 157), and HIST 205, 254

POLS 107, and POLS 202 (was POLS 106), POLS 203 (was POLS 108)

PSYC 100 (was PSYC 111), PSYC 200 (was PSYC 205), PSYC 204, 214, and 220

SOC 101 (was SOCY 110), SOC 209, and 210

Natural Sciences

ANTH 205 (was ANTH 206)

ASTR 110**

BIOL 100**, BIOL 170 (was BIOL 120), and BIOL 130**, 150**, 201**, 202**, 203**, 221**, 222**

BUS 206, 207 (was BSAD 206, 207)

CHEM 105**, 120, and CHEM 121**, 131** (was CHEM 111**, 112**), CHEM 161**, 162**, 163** (was 151**, 152**, 153**)

CS 170 (was CIS 180), and CS 270 (was CIS 280)

ERSI 104** or 105 or GEOG 105**

ENGR 210

ENVS 120, 130**, 150, **200**, 210

GEOG 105 as a 5 credit course**

GEOG 105** or 116** or 117**, 118**, 170**

MATH 107 (was MATH 130), MATH 132 (was MATH 122), MATH 148 (was MATH 140), MATH& 151, 152, 153, 154 and MATH 112, 113, 125, 150, 210, 211, 220, 240

OCNG 140**

PHIL 120

PHYS 100**, and PHYS 101**, 102**, 103**, 210

Restricted Course List

ACCT 101, 150, 241, 294

AH – all courses

AMTC – all courses

APPEL—all courses

ADT—all courses

ITEC—all courses

BLPT—all courses

BUS 104 (was BSAD 104), BUS 165 (was BSAD 115), BUS 119 (was BSAD 190), BUS 250 (was BSAD 250), BUS 259 (was BSAD 111), BUS 294

BTEC—all courses

CDS—all courses except CDS 101

CS (was CIS) 100, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111 (was 150), 121 (was 120), 122 (was 220), 130, 144, 175 (was 185), 211, 212, 213, 216, 230, 245 (was 251), 249 (was 252), 281 (was 282), 282 (was 283), 285 (was 235)

COLL 100

DHET – all courses

DRFT—all courses

ECED 105, 115, 126, 127, 128, 205, 219, 260

ELEC—all courses

ENGL 100



FISC—all courses
 HOFL—all courses
 HDEV—all courses
 IMT – all courses
 INDV—all courses
 INTC—all courses
 JOURN 110, 120, 130, 210, 220, 230
 MASP—all courses
 MATH 105, 106
 METC—all courses
 MEDA—all courses
 MFG—all courses
MUSC 115, 131, 132, 133, 161, 162, 163, 231, 232, 233, 261, 262, 263
 NURS—all courses
 PULP—all courses
 TECH—100, 170
 WELD—all courses

HIST 128 (was HIST 118) – World Civilizations III
 HUMN 110—Introduction to Cultures
 HUMN 210—Myths and Rites
 MUSC 105 (was MUSC 110)—Music Appreciation
 MUSC 117—Music Cultures of the World
 MUSC 119—American Music
 MUSC 209—The Blues Culture
 SOC 101 (was SOCY 110)—Introduction to Sociology (includes WAOL's SOC 101)
 SOCY 209—Sociology and the Family
 SPAN 121 (was SPAN 101)—Spanish I
 SPAN 122 (was SPAN 102)—Spanish II
 SPAN 123 (was SPAN 103)—Spanish III
 SPCH 109—Intercultural Communication

*Courses may be added to this list on a quarterly basis. Check quarterly schedules for diversity course designations. Unless otherwise stated, Washington Online courses do not satisfy the Cultural Diversity Requirement.

* Performance-based course
 **Lab course
 Waived courses are subject to the 15-credit maximum.

Diversity Courses*

ANTH 206 (was ANTH 207)—Cultural Anthropology
 ART 100 (was ART 110)—Art Appreciation
 ART 206—Arts of the Americas
 ART 207—Arts of the World
 ART 208—Arts of the Northwest
 BIOL 150—Human Genetics and Society
 BUS 144 (was BSAD 126)—Management of Human Relations
 BUS 150 (was BSAD 164)—Customer Service/Management
 DRAMA 101 (was DRAM 100) —Intro to Theatre
 EDUC 205 (was EDUC 110)—Introduction to Education w/Field Experience
 ENGL 204—The Novel (intermittent Cultural Diversity course)
 ENGL 205—Film and Drama Appreciation
 ENGL 245—Contemporary Literature
 ENVS 150-Environment and Society
 HIST 126 (was HIST 116) – World Civilizations I
 HIST 127 (was HIST 117) – World Civilizations II



Professional/Technical Degrees & Certificates

AAS — Associate in Applied Science

This degree is not generally considered a transfer degree, although exceptions may be allowed for certain programs upon approval. AAS degrees provide occupational training that prepares you to enter the workforce with a solid education and specific skills. Representatives from local business and industry help define these degree programs so our graduates meet the standards defined by people actually in the workforce.

Degree Requirements

- Minimum of 90 credits in courses numbered 050 and above, including:
 - Communications requirement—5 credits. ENGL 100, ENGL 101, ENGL 102, or 110; BUS 119 (was BSAD 190); or SPCH 110.
 - Health requirement—2–5 credits. HLTH 100 or 106; NURS 101; or MEDA 161 or 162.
 - Computational requirement—5 credits. MATH 092 or higher or BUS 104 (was BSAD 104).
 - Human Relations requirement—2–5 credits. ANTH 206 (was ANTH 207); BUS 144 (was BSAD 126), BUS 150 (was BSAD 164), or BUS 240 (was BSAD 240); CDS 102 or 215; ECED 119; HDEV 110; NURS 101 or 202; PSYC 100 (was PSYC 111), PSYC 204, or 214; SOC& 101 (was SOCY 110); or SPCH 104.
- Note: courses that meet Human Relations requirement may also be used to satisfy another requirement of the degree.
- Social Sciences, Natural Sciences, and Humanities requirement—10 credits. At least 5 credits each in two of these three areas.
- Minimum of 45 credits for specific courses identified in the degree program and recommended by the advisor.
- No more than 6 credits in PHED activity courses; no more than 15 credits in Cooperative Work Experience, Tutoring, and/or Independent Study. No more than 15 pass/fail credits.
- Diversity requirement—5 credits. See quarterly schedule for diversity classes. Courses that satisfy this requirement may also be used to satisfy other graduation requirements. Unless otherwise stated, Washington Online courses do not satisfy this requirement.

COP — Certificate of Proficiency

This is generally considered a one-year program, although class scheduling may affect the actual length of time required. Specialized occupational courses are combined with requirements in communications, social science/human relations, and computational skills to provide a well-rounded experience that prepares you for entry-level work in a chosen field. Since many of the classes meet

general education requirements, many students choose to continue and earn an associate's degree in the same or similar field.

Certificate of Proficiency Requirements

- 45 credits or more, including:
 - Communications requirement—5 credits.
 - Computational requirement—5 credits.
 - Social Science/Human Relations requirement—5 credits.

Some programs also have a Natural Science and/or Health requirement.

COC — Certificate of Completion

This short-term program of occupational training consists of a sequence of courses totaling 1–44 credits. Many students choose to continue earning credits, going on to earn a certificate of proficiency or an associate's degree.

Distribution List for Associate in Applied Science (AAS)

Humanities

All courses from the Distribution List for Transfer Degrees, plus SPCH 110, and ENGL 102.

Natural Sciences

All courses from the Distribution List for Transfer Degrees, except mathematics courses, plus CHEM 100, MFG 130, and TECH 100.

Social Sciences

All courses from the Distribution List for Transfer Degrees, plus BUS 144 (was BSAD 126), and HOFL 131, 132, 133.

Accounting

You will learn basic skills to compete for entry-level accounting positions such as accounts payable and accounts receivable in private industry, state, and local government, and public accounting.

Program of Study: Accounting Technician

AAS — Associate in Applied Science

General Education Requirements

Communication Requirement:

BUS 119	Business Communications or <i>(was BSAD 190)</i>	
ENGL 101	English Composition I	5

Computation Requirement

MATH 092	Elementary Algebra	5
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Human Relations /Social Sciences/Diversity Requirement

BUS 144	Management of Human Relations <i>(was BSAD 126)</i>	5
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Humanities or Natural Sciences Requirement:

	From distribution list	5
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Health Requirement

HLTH 106	Health Today or	
HLTH 100	Occupational Safety and Health	2–3

Program Requirements

ACCT 101	Introduction to Accounting Concepts	5
ACCT 150	Payroll Accounting and Business Tax Reporting	5
ACCT 201	Prin of Accounting I <i>(was ACCT 231)</i>	5
ACCT 202	Prin of Accounting II <i>(was ACCT 232)</i>	5
ACCT 203	Prin of Accounting III <i>(was ACCT 233)</i>	5
ACCT 241	Computerized Accounting Concepts	4
ACCT 288/289	Cooperative Education	5
ACCT 294	Career Success	2
BUS 101	Intro to Business or <i>(was BSAD 110)</i>	
ECON 201	Micro Economics <i>(was ECON 205)</i>	5
BUS 104	Business Math Applications <i>(was BSAD 104)</i>	5
BUS 201	Business Law <i>(was BSAD 251)</i>	5
BTEC 130	Electronic Calculators	2
BTEC 145	Intro to MS Word	3
CS 111	Intro to Windows <i>(was CIS 150)</i>	4
CS 121	Introduction to Spreadsheets <i>(was CIS 120)</i>	5
CS 130	Introductory Database Appl. <i>(was CIS 130)</i>	5

Total Credits **92–93**

AAS-T — Associate in Applied Science — Transfer

General Education Requirements

Communications Requirement

ENGL 101	English Composition I	5
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Computation Requirement

MATH 112	College Algebra	5
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Social Science Requirement

BUS 201	Business Law <i>(was BSAD 251)</i>	5
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Natural Science & Humanities Requirement

	5 cr. each in Natural Sciences and Humanities, chosen from the distribution list	10
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Human Relations Requirement

BUS 144	Management of Human Relations <i>(was BSAD 126)</i>	5
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Program Requirements

ACCT 101	Introduction to Accounting Concepts	5
ACCT 150	Payroll Accounting and Business Tax Reporting	5
ACCT 201	Prin of Accounting I <i>(was ACCT 231)</i>	5
ACCT 202	Prin of Accounting II <i>(was ACCT 232)</i>	5
ACCT 203	Prin of Accounting III <i>(was ACCT 233)</i>	5
ACCT 241	Computerized Accounting Concepts	4
ACCT 288-289	Cooperative Education	5
BUS 150	Customer Service/Management <i>(was BSAD 164)</i>	5
BTEC 130	Electronic Calculators	2
BTEC 145	Intro to MS Word	3
CS 111	Intro to Windows <i>(was CIS 150)</i>	4
CS 121	Introduction to Spreadsheets <i>(was CIS 120)</i>	5
CS 130	Introductory Database Appl. <i>(was CIS 130)</i>	5
HLTH 100	Occupational Safety and Health	3

Total Credits **91**



Automotive Technology

The Automotive Technology program is an LCC option to prepare you for employment in the automotive repair industry. You will study classroom theory and receive extensive hands-on experience. To graduate, you must successfully complete ASE task competencies set by local standards and the National Automotive Technician Education Foundation (NATEF), an arm of the National Institute for Automotive Service Excellence (ASE).

AAS — Associate in Applied Science

General Education Requirements

Communications Requirement

ENGL 110 Industrial Communications recommended 5

Computation Requirement

MATH 092 Elementary Algebra or higher, 5
(MATH 106 Industrial Mathematics recommended)

Human Relations/Social Sciences/Diversity Requirement

BUS 144 Mgmt of Human Relations recommended 5
(was BSAD 126)

Natural Sciences Requirement

TECH 100 Adv Prin of Technology recommended 5

Health Requirement

HLTH 100 Occupational Safety and Health 3

Program Requirements

You may complete some of these requirements through an approved high school Tech Prep program.

(AMTC sections previously ADT sections)

AMTC 100 Essentials of Mechanics 5

AMTC 101 Electrical Systems I 5

AMTC 102 Electrical Systems II 10

AMTC 104 Vehicle Climate Control 6

AMTC 111 Hydraulic Brakes 5

AMTC 112 Advanced Brakes 3

AMTC 121 Gas Engines I 5

AMTC 122 Gas Engines II 10

AMTC 201 Fuels and Emissions 10

AMTC 202 Computerized Engine Controls 10

AMTC 215 Suspension and Alignment 8

AMTC 216 Automatic Transmission 8

AMTC 217 Power Trains 6

Electives Select from list below 1–15

Total Credits 115–129

Electives—Select electives to meet individual needs:

ACCT 101, BUS 101 (was BSAD 110), CS 110 (was CIS 110), DHET 216, IMT 131, WELD 151, 152, 221.

Biology Education

Program of Study: Undergraduate Studies for Future Secondary Biology Teachers

AS-T ABE/MRP — Associate in Biology Education — Transfer degree (Opt 1)

Note: For this degree, specific grade requirements vary from course to course and among transfer institutions. The student will need to check with transfer advisors. Some baccalaureate institutions require physics with calculus. It is your responsibility to check your baccalaureate institution's specific major requirements the year prior to transferring.

Program Requirements

Communications Requirements

ENGL 101 English Composition I 5

ENGL 102 English Composition 5

Mathematics Requirements

MATH 151 Calculus I 5

MATH 152 Calculus II 5

MATH 210 Elements of Statistics 5

(Pre-Calculus cannot be used to satisfy the mathematics requirement)

Humanities/Social Science/Diversity Requirements

PSYC 100 General Psychology and ten more credits with no more than ten credits from any one discipline 15
(was PSYC 111)

General Chemistry Requirements

CHEM 161 General Chem w/Lab I 5

(was CHEM 151)

CHEM 162 General Chem w/Lab II 5

(was CHEM 152)

CHEM 163 General Chem w/Lab III 5

(was CHEM 153)

Organic Chemistry Requirements

CHEM 261 Organic Chem w/Lab I 5

(was CHEM 251)

CHEM 262 Organic Chem w/Lab II 5

(was CHEM 252)

CHEM 263 Organic Chem w/Lab III 5

(was CHEM 253)

Biology for Science Majors Requirements

BIOL 201 General Biological Science 5

BIOL 202 General Biological Science 5

BIOL 203 General Biological Science 5

(15 credits of PHYS is recommended but not required)

Electives

EDUC 205 Intro to Ed w/Field Experience 5

(was EDUC 110)

Total Credits

90 minimum



Business

Program of Study: Business

AB-DTA/MRP — Associate in Business — Direct Transfer Agreement

This degree is for students planning to prepare for various business majors at universities in Washington. You will need to ask an advisor at the transfer institution regarding specific course choices in each area (Humanities, Social Science and Business Law or Introduction to Law) and for the electives. It is also up to you to check with the transfer institution regarding requirements for overall minimum GPA, a higher GPA in a selected subset of courses, or a specific minimum grade in one or more courses such as math or English.

Program Requirements

Communications Requirements

ENGL 101	English Composition I	5
ENGL 102	English Composition	5

Quantitative/Symbolic Reasoning Skills Requirements

(MATH 099 proficiency is required)

MATH 125	Finite Mathematics	5
MATH 148	Business Calculus	5

(was MATH 140)

Humanities/Diversity Requirements

No more than 10 credits per discipline area.
 No more than 5 credits in world languages.
 No more than 5 credits of performance/skills classes are allowed.

Social Science Requirements

ECON 201	Micro Economics	5
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(was ECON 205)

ECON 202	Macro Economics	5
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(was ECON 206)

5 additional credits 5

Natural Science Requirements

BUS 206	Statistical Methods	5
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(was BSAD 206)

10 additional credits in two different disciplines is required in physical, biological, and/or earth sciences, including at least one lab course. 10

Business Requirements

ACCT 201	Prin of Accounting I	5
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(was ACCT 231)

ACCT 202	Prin of Accounting II	5
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(was ACCT 232)

ACCT 203	Prin of Accounting III	5
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(was ACCT 233)

BUS 201*	Business Law	5
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(was BSAD 251)

Electives

See a business advisor for a list of approved electives. 5
 **See note.

Total Credits 90

*Business Law and Introduction to Law are two distinct subject

areas with minimal (approximately 20 percent) content overlap. Please note:

UW (all campuses) requires a course equivalent to: Intro to Law (MBMT 200)

EWU, CWU, WSU (all campuses), SMU, SPU require a course equivalent to: Business Law

Heritage, PLU, SU, and Walla Walla College do not require a lower division Business Law course and agree to accept the course taken as part of this degree as a lower division elective, but generally not as an equivalent to the course required at the upper division.

**Four institutions have requirements for admission to the major that go beyond those specified above that students can meet by careful selection of the elective course:

UW (all campuses) requires a course equivalent to Management Information Systems (MIS 250)

Gonzaga requires a course equivalent to Management Information Systems (BMIS 235)

PLU requires a course equivalent to Computer Applications (CSCE 120), or equivalent course or skills test

SPU requires a course equivalent to Spreadsheet (BUS 1700), or equivalent course or skills test

Program of Study: General Business

COP — Certificate of Proficiency

The General Business Certificate Program prepares students for entry-level employment in a business office support function. The program generally can be completed within one academic year. Students may enter the program in the fall, winter, or spring quarter.

General Education Requirements

Communications Requirement

ENGL 101	English Composition I or	
BUS 119	Business Communication or	
ENGL 110	Industrial Communication	5

Computation Requirement*

BUS 104	Business Mathematics	5
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(was BSAD 104)

Human Relations/Social Sciences Requirement

BUS 144	Mgmt of Human Relations	5
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(BSAD 126)

Program Requirements

ACCT 101	Introduction to Accounting Concepts	5
BUS 101	Introduction to Business	5

(was BSAD 110)

BUS 150	Customer Service/Mgmt.	5
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(was BSAD 164)

BUS 165	Salesmanship	5
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(was BSAD 115)

CS 108	Internet Fundamentals	1
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(was CIS 108)

CS 109	Fundamentals of PowerPoint	1
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(was CIS 109)



CS 110 <i>(was CIS 110)</i>	Intro to Microcomputer Applications	3
CS 121 <i>(was CIS 120)</i>	Introduction to Spreadsheets	5
Total Credits		45

*MATH 92, Elementary Algebra, or higher-level math courses may be substituted for BUS 104 (was BSAD 104).

Program of Study: Business Management

The Business Management Program prepares students for entry level employment in a broad range of business enterprises spanning both the for-profit and non-profit sectors. The AAS degree can be a foundational step in preparing you to launch and manage your own business or begin a career in supervision/management.

If you want a 4-year degree in Business Management from The Evergreen State College, LCC's Business Management AAS-T transfer degree will cover your first two years.

AAS — Associate in Applied Science

General Education Requirements

Communications Requirement

ENGL 101	English Composition I <i>or</i>	
BUS 119	Business Communications	5

Computation Requirement

BUS 104	Business Math Applications	5
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Human Relations/Social Sciences /Diversity Requirement*

BUS 144	Management of Human Relations	5
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Natural Sciences/Humanities Requirement

From distribution list 5

Health Requirement

HLTH 106	Health Today <i>or</i>	
HLTH 100	Occupational Safety and Health	2-3

Program Requirements

ACCT 101	Introduction to Accounting Concepts <i>or</i>	
ACCT 201	Principles of Accounting I	5
BUS 101	Introduction to Business	5
BUS 259	Starting/Managing a Small Business	5
BUS 165	Salesmanship	5
BUS 150	Customer Service/Management	5
BUS 240	Principles of Supervision	5
BUS 244	Human Resource Mgmt.	5

BUS 201	Business Law	5
BUS 264	Principles of Marketing	5
BUS 245	Principles of Management	5
BUS 294	Career Success	2
CS 121	Introduction to Spreadsheets	5
ECON 105	Intro to Economics <i>or</i>	
ECON 201	Micro Economics	5
Technical Electives		5-6
Total Credits		90

*MATH 92, Elementary Algebra, or higher-level math courses may be substituted for BUS 104 (was BSAD 104).

AAS-T — Associate in Applied Science — Transfer

General Education Requirements

Communications Requirement

ENGL 101	English Composition I	5
ENGL 102	English Composition	5

Computation Requirement

MATH 112	College Algebra	5
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Human Relations/Diversity Requirement

BUS 144	Mgmt of Human Relations	5
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Social Sciences

BUS 201	Business Law	5
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ECON 105 Intro to Economics *or*

ECON 201	Micro Economics	5
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Natural Sciences

From distribution list 5

Humanities Requirement

From distribution list 5

Health Requirement

HLTH 100	Occupational Safety and Health	3
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Program Requirements

ACCT 201	Principles of Accounting I	5
BUS 101	Introduction to Business	5
BUS 259	Starting/Managing a Small Business	5
BUS 165	Salesmanship	5
BUS 150	Customer Service/Management	5



BUS 240	Principles of Supervision	5
<i>(was BSAD 240)</i>		
BUS 264	Principles of Marketing	5
<i>(was BSAD 263)</i>		
BUS 245	Principles of Management	5
<i>(was BSAD 275)</i>		
CS 121	Introduction to Spreadsheets	5
<i>(was CIS 120)</i>		
Technical Electives		2
Total Credits		90

Program of Study: Retail Management

COP — Certificate of Proficiency

The Retail Management Certificate of Proficiency prepares current and future retail employees for success in the fast-paced retail industry. This program will help you understand the scope and requirements of a management position in a retail business, including grocery stores, department stores, specialty retailers, and e-tailers. This program was developed with, and is endorsed by, the Western Association of Food Chains (WAFC). Students completing the Retail Management COP may earn an AAS degree in Business Management by completing additional course work at LCC.

General Education Requirements

Communications Requirement

ENGL 101	English Composition I	<i>or</i>
BUS 119	Business Communications	5
<i>(was BSAD 190)</i>		

Computational Requirement

BUS 104	Business Math (or higher)	5
<i>(was BSAD 104)</i>		

Computational Requirement

BUS 144	Mgmt of Human Relations	5
<i>(was BSAD 126)</i>		

Program Requirements

ACCT 101	Intro to Accounting Concepts	5
BUS 159	Principles of Retailing	5
<i>(was BSAD 160)</i>		
BUS 245	Principles of Management	5
<i>(was BSAD 275)</i>		
BUS 244	Human Resource Management	5
<i>(was BSAD 260)</i>		
BUS 264	Principles of Marketing	5
<i>(was BSAD 263)</i>		
CS 110	Intro Microcomputer Applications	3
<i>(was CIS 110)</i>		
SPCH 110	Intro to Public Speaking	5
Total Credits		48

COC — Certificate of Completion

Some colleges offering WAFC-endorsed Retail Management

Certificates utilize courses with fewer credits than the comparable LCC course. If you have started a Retail Management Certificate with these colleges, you may obtain a Certificate of Completion from LCC by transferring in courses in the content areas listed below, with the following provisions:

- A maximum of six of the ten content areas may be satisfied with transfer courses (i.e., four of the content areas must be completed at LCC, 18 credits minimum);
- Courses transferred in must equate to at least 3 quarter credits per content area;
- After transfer evaluation, students completing all requirements but having fewer than 45 quarter credits will receive a Certificate of Completion.

Program advisors can explain options to students wishing to transfer in credits.

Content Areas

- Business Communication
- Business Mathematics
- Leadership and Human Relations
- Microcomputer Applications
- Oral Communication (Business or Speech)
- Bookkeeping or General Accounting
- Introduction to Management
- Marketing Management
- Human Resources Management
- Retail Management & Merchandising

Total Minimum Credits 36

Business Technology

The Business Technology program prepares students for careers as administrative support professionals in a variety of business and medical offices. Administrative support professionals are responsible for performing and coordinating administrative activities, managing the constant flow of information, providing excellent customer service, and operating and maintaining office equipment.

Programs of Study: Administrative Assistant and Medical Administrative Support

AAS — Associate in Applied Science

General Education Requirements

Communications Requirement	
ENGL 101	English Composition I 5

Computation Requirement	
BUS 104	Business Math Applications 5
<i>(was BSAD 104)</i>	

Human Relations/Social Sciences/Diversity Requirement

BUS 144	Management of Human Relations
<i>(was BSAD 126)</i>	or



BUS 150 <i>(was BSAD 164)</i>	Customer Service	5
Natural Sciences/Humanities Requirement		
	From distribution list	5

Health Requirement

HLTH 100	Occupational Safety and Health	3
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Program Core

ACCT 101	Introduction to Accounting Concepts	5
BUS 119 <i>(was BSAD 190)</i>	Business Communications	5
BTEC 104	Introduction to Business Technology	5
BTEC 106	Proofreading Skills	2
BTEC 111	Intermediate Word Processing	5
BTEC 112	Advanced Word Processing	5
BTEC 211	Machine Transcription	3
CS 130 <i>(was CIS 130)</i>	Introductory Database Applications	5

Total Credits 58

In addition to the General Education and Program Core requirements, complete one of the two options listed below to earn an AAS degree:

Administrative Assistant

BUS 101 <i>(was BSAD 110)</i>	Intro to Business	5
BTEC 113	Applied Word Processing & Desktop Publishing	5
BTEC 125	Filing	3
BTEC 130	Electronic Calculators	2
BTEC 260	Office Procedures	5
BTEC 294	Career Success	2
CS 111 <i>(was CIS 150)</i>	Intro to Windows	4
CS 121 <i>(was CIS 120)</i>	Intro to Spreadsheets	5
Elective	ACCT, BUS (was BSAD), BTEC or CS (was CIS) elective	3

Total Credits 34

Total Minimum AAS Degree Credits 92

Medical Administrative Support

BTEC 125	Filing	2
BTEC 130	Electronic Calculators	1
BTEC 171	Medical Reception Procedures	3
BTEC 172	Medical Office Procedures	3
BTEC 173	Computers in the Medical Office	3
BTEC 181	Medical Terminology I	3
BTEC 182	Medical Terminology II	3
BTEC 185	Medical Machine Transcription	3
BTEC 186	Advanced Medical Machine Transcription	3

BTEC 294	Career Success	2
CS 121 <i>(was CIS 120)</i>	Intro to Spreadsheets	5
Elective	Social Sciences Elective	5
Total Credits		36
Total Minimum AAS Degree Credits		94

COP — Certificate of Proficiency

Five Certificates of Proficiency are available in Business Technology. Complete courses for the option you choose. The first four options share the same General Education Requirements:

General Education Requirements

Communications Requirement

BUS 119 Business Communications

(was BSAD 190) **or**

ENGL 101 English Composition I 5

Computation Requirement

MATH 091 Pre-Algebra **or**

BUS 104 Business Math Applications 5
(was BSAD 104)

Human Relations/Social Sciences Requirement

BUS 144 Management of Human Relations **or**

(was BSAD 126)

BUS 150 Customer Service/Management 5
(was BSAD 164)

Total Credits 15

Administrative Support

General Education Requirements 15

BTEC 101	Basic Word Processing/Formatting	5
BTEC 104	Introduction to Business Technology	5
BTEC 106	Proofreading	2
BTEC 111	Intermediate Word Processing	5
BTEC 112	Advanced Word Processing	5
BTEC 125	Filing	1
BTEC 130	Electronic Calculators	1
BTEC 211	Machine Transcription	2
BTEC 260	Office Procedures	5
BTEC 294	Career Success	2

Total Credits 48

Legal Transcription

General Education Requirements 15

BTEC 101	Basic Word Processing/Formatting	5
BTEC 104	Introduction to Business Technology	5
BTEC 106	Proofreading	2
BTEC 111	Intermediate Word Processing	5
BTEC 112	Advanced Word Processing	5



BTEC 211	Machine Transcription	2
BTEC 231	Legal Terminology/Transcription	3
BTEC 232	Legal Transcription	3
BTEC 294	Career Success	2
Total Credits		47

Medical Reception

General Education Requirements

		15
BTEC 101	Basic Word Processing/Formatting	5
BTEC 104	Introduction to Business Technology	5
BTEC 106	Proofreading	2
BTEC 111	Intermediate Word Processing	5
BTEC 125	Filing	3
BTEC 130	Electronic Calculators	1
BTEC 171	Medical Reception Procedures	3
BTEC 181	Medical Terminology I	3
BTEC 182	Medical Terminology II	3
BTEC 294	Career Success	2
Total Credits		47

Medical Transcription

General Education Requirements

		15
BTEC 106	Proofreading	2
BTEC 111	Intermediate Word Processing	5
BTEC 112	Advanced Word Processing	5
BTEC 125	Filing	3
BTEC 171	Medical Reception Procedures	3
BTEC 181	Medical Terminology I	3
BTEC 182	Medical Terminology II	3
BTEC 185	Medical Machine Transcription	3
BTEC 186	Adv Medical Machine Transcription	3
Total Credits		45

Medical Billing and Coding Specialist

General Education Requirements

Communication requirement

BUS 119	Business Communications or	
<i>(was BSAD 190)</i>		
ENGL 101	English Composition I	5

Computation Requirement

BUS 104	Business Math Applications	
<i>(was BSAD 104)</i> or		
MATH 105	Mathematics for Health Sciences	5

Human Relations/Social Sciences

BUS 144	Management of Human Relations	
<i>(was BSAD 126)</i> or		
BUS 150	Customer Service/Management	5
<i>(was BSAD 164)</i>		

Program Requirements

BTEC 104	Introduction to Business Tech or	
CS 110	Intro to Microcomputer Applications	5 or 3
<i>(was CIS 110)</i>		
BTEC 130	Electronic Calculators	1
BTEC 161	Intro to ICD-9 Coding in the Medical Office (Part I)	4
BTEC 162	Intro to ICD-9 Coding in the Medical Office (Part II)	4
BTEC 164	Legal Aspects of the Medical Office	2
BTEC 169	Intro. To Basic CPT Coding	3
BTEC 171	Medical Reception Procedures	3
BTEC 172	Medical Office Procedures	3
BTEC 173	Computers in the Medical Office	3
BTEC 181	Medical Terminology I or	
MEDA 101	Medical Vocabulary I	3
BTEC 182	Medical Terminology II or	
MEDA 102	Medical Vocabulary II	3
BIOL& 170	<i>(was BIOL 120)</i> Human Biology or	
MEDA 120	Survey of Human A & P	5
Total Credits		52-54

Chemical Dependency Studies

Get a working knowledge of theory and practice as a health care provider to clients who are experiencing chemical abuse/dependence. Washington State mandates additional certification requirements. Placement testing is required before entering the program; additional courses may be required.

Take CDS courses in the recommended quarter sequence, as they are only offered once a year. See the CDS advisor for additional information and course sequences.

AAS — Associate in Applied Science

General Education Requirements

Communications Requirement

ENGL 100	English Fundamentals or higher	5
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Computation Requirement

MATH 092	Elementary Algebra or higher	5
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Human Relations/Social Sciences Requirement

PSYC 100	Intro to General Psychology	5
<i>(was PSYC 111)</i>		

Natural Sciences Requirement

BIOL 100, 170	<i>(was BIOL 120)</i> , BIOL 221, 222,	
CHEM 100, or CHEM 121	<i>(was CHEM 111)</i>	5-6

Diversity Requirement

SOC 101	Intro to Sociology	
<i>(was SOCY 110)</i> or		
SPCH 109	Intercultural Communication	5

Health Requirement

HLTH 100	Occupational Safety and Health	3
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Program Requirements



CDS 101*	Intro to Chemical Dependency Counseling	3	MATH 152	Calculus II <i>and</i>	5
CDS 102*	Intro to Theories/Counseling of Chemically Dependent Clients	3	MATH 153	Calculus III <i>or</i>	
CDS 107	Adolescent Developmental Issues and Chemical Dependency	3	MATH 210	Elements of Statistics	5
CDS 110*	Alcohol/Drug Pathophysiology and Pharmacology	3	Humanities/Social Science/Diversity Requirements		
CDS 111*	Record Keeping and Case Management	3	PSYC 100	and ten more credits with no more than ten credits from any one discipline	15
CDS 113	Treatment Principles of Chemical Dependency	3	<i>(was PSYC 111)</i>		
CDS 121*	Ethical Issues in Chemical Dependency Counseling	3	Pre-Major Requirements		
CDS 201	Dynamics of the Family and Chemical Dependency Counseling	3	CHEM 161	General Chem w/Lab I	5
CDS 202	Chemical Dependency Counseling with Diverse Populations	3	<i>(was CHEM 151)</i>		
CDS 203	Relapse Prevention and Intervention	3	CHEM 162	General Chem w/Lab II	5
CDS 215*	Group Counseling: Theories/Application	3	<i>(was CHEM 152)</i>		
CDS 220	Co-occurring Disorders: Mental Health Disorders in CDS	3	CHEM 163	General Chem w/Lab III	5
CDS 288	Cooperative Work Experience/Field Placement I (5 credits/quarter)	10	<i>(was CHEM 153)</i>		
CDS 289	Cooperative Work Experience Seminars/Field Placement II (1 credit/quarter)	2	CHEM 261	Organic Chem w/Lab I	5
PSYC 200	Lifespan Psychology	5	<i>(was CHEM 251)</i>		
<i>(was PSYC 205)</i>			CHEM 262	Organic Chem w/Lab II	5
CDS 105	Chemical Dependency/Domestic Violence	3	<i>(was CHEM 252)</i>		
CDS 106	Prevention/Intervention Specialist	3	CHEM 263	Organic Chem w/Lab III	5
CDS 108	Running School-Based Support Groups	3	<i>(was CHEM 253)</i>		
Total Credits		90-91	PHYS 251	General Physics	5
			PHYS 252	General Physics	5
			PHYS 253	General Physics	5
			Electives		
			EDUC 205	Intro to Ed w/Field Exp	5
			<i>(was EDUC 110)</i>		
			Total Credits		90 minimum

Also see AS-T BIO/CHEM E/MRP – Associate in Bioengineering and Chemical Engineering on [page 48](#).

Computer Aided Design

Skills developed in LCC's Computer Aided Design (CAD) program can be applied in many fields including architectural, civil, mechanical, construction, and electrical/electronic design. Graduates may work as drafters or in support of engineers using CAD software to prepare technical drawings and plans. The Certificate of Completion option focusing just on technical drawing and computer aided drafting is a great way to upgrade job skills. The Certificate of Proficiency program includes additional studies in other aspects of design and manufacturing.

COP — Certificate of Proficiency

General Education Requirements

Social Sciences/Human Relations:

BUS 144 recommended 5
(was BSAD 126)

Communications Requirement

(ENGL 100, 110, or ENGL 101) 5

Computation Requirement

MATH 099 Intermediate Algebra (or higher level math) 5

Health Requirement

HLTH 100 Occupational Safety and Health 3

Chemistry

Program of Study: Undergraduate Studies for Future Secondary Chemistry Teachers

ACE-AS-T/MRP — Associate in Chemistry Education — Transfer degree (Opt. 1)

Note: For this degree, specific grade requirements vary from course to course and among transfer institutions. Check with the transfer advisors. Some baccalaureate institutions require physics with calculus. It is up to you to check their specific major requirements the year before you transfer.

Program Requirements

Communications Requirements

ENGL 101 English Composition I 5

ENGL 102 English Composition 5

Mathematics Requirements

MATH 151 Calculus I *and* 5



Program Requirements

DRFT 107	Technical Graphics	3
DRFT 210	Advanced Technical Graphics	3
DRFT 252	Advanced Computer Aided Drafting	3
DRFT 260	Survey of Civil and Architectural Graphics	3
MFG 110	Project Management <i>or</i>	
MFG 115	Manufacturing Processes	4–5
MFG 130	Materials Science	5
MFG 140	Applied Hydraulics	4
MFG 211	Statics	4

(was MFG 210)

Total Credits 47–48

COC — Certificate of Completion

Program Requirements

DRFT 107	Technical Graphics	3
DRFT 210	Advanced Technical Graphics	3
DRFT 252	Advanced Computer Aided Drafting	3
DRFT 260	Survey of Civil and Architectural Graphics	3
MFG 110	Project Management <i>or</i>	
MFG 115	Manufacturing Processes <i>or</i>	
MFG 130	Materials Science	4–5

Total Credits 16–17

Computer Science

You can start your bachelor's degree in Computer Science at LCC. Select the 4-year college to which you will be transferring and work closely with your LCC advisor to be sure your coursework matches the requirements of your target college. Qualify for entry-level employment as a computer support specialist, utilizing skills in networking, programming and application by successfully completing program requirements and select areas of emphasis. You can also update your current computer skills by taking individual courses in an area of interest.

Program of Study: Computer Science

AS-T — Associate in Science — Transfer (Opt. 2)

If you want to transfer to a university to major in computer science consider completing this degree. Be sure to work with an advisor, as many universities have different requirements.

General Education Requirements

Communications Requirement

ENGL 101	English Composition	5
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Computation Requirement

MATH 151	Calculus I	5
MATH 152	Calculus II	5

Humanities/Social Science/Diversity Requirement

See the Distribution List for Humanities and Social Science classes that meet this requirement.

Minimum of 5 credits in Humanities, minimum of 5 credits in Social Science, and an additional 5 credits in either Humanities or Social Science **15**

Pre-Major Requirements

CS 170	Fundamentals of Computer Programming	5
(was CIS 180)		
CS 270	Data Structures I	5
(was CIS 280)		
CS 280	Advanced Data Structures	5
(was CIS 284)		
CS 275	Object Oriented Programming in Java	5
(was CIS 285)		
PHYS 251	General Physics	5
PHYS 252	General Physics	5
PHYS 253	General Physics	5
MATH 153	Calculus III	5
MATH 215	Discrete Structures	5
MATH 220	Linear Algebra	5
Electives**		10

Total Credits 90

WSU transfer students must also take CS 285 (was CIS 235) Programming Tools, CS 281 (was CIS 282) Digital Design and CS 282 (was CIS 283) Microprocessors in order to transfer as a junior—15 credits.

A "Learning Experience" 5-credit course that evaluates the student's knowledge, skills, attitudes, and values must be completed after earning 60 credits. A list of courses that will meet this requirement will be available from departmental advisor, and may also satisfy a Pre-Major requirement if included in the list above.

**Electives—Consult with a departmental advisor for remaining credits to be taken to earn a total of 90 credits.

Program of Study: Computing Specialist

AAS — Associate in Applied Science

To complete an AAS degree, complete general education requirements, program core requirements, and any two of the four Certificates of Completion listed on page 44. Please note: If your two Certificates of Completion total only 25 credits, you will need to take one additional course from the Certificates of Completion listed to complete your AAS degree.

General Education Requirements

Communications Requirement

ENGL 101	English Composition	5
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Computation Requirement

MATH 99	Intermediate Algebra or higher (excluding MATH 121/122)	5
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Human Relations/Diversity/ Social Science Requirement

BUS 144	Management of Human Relations	
(was BSAD 126)	or	
SOC 101	Introduction to Sociology	5
(was SOCY 110)		

Humanities Requirement/Natural Science Requirement

CS 170	Fundamentals of Computer Programming	5
(was CIS 180)		

Health Requirement

HLTH 100	Occupational Safety and Health	3
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Program Core Requirements

CS 100	Introduction to Information Systems	5
(was CIS 100)		
CS 102	Internet and Web Page Design	5
(was CIS 102)		
CS 144	Principles of PC Operating Systems	3
CS 121	Intro to Spreadsheets	5
(was CIS 120)		
CS 130	Introductory Database Applications	5
(was CIS 130)		
CS 211	Networking Basics	5
(was CIS 211)		
CS 260	Network Security	
(was CIS 240)	or	
CS 264	Computer Forensics	5
CS 245	Computer Configuration and Maintenance	6
(was CIS 251)		
CS 288/289	Cooperative Education	2

Total AAS credits 92–95

AAS-T Associate in Applied Science — Transfer

Complete all of the same requirements listed for the AAS except for the computation requirement. Complete the following computation requirement for the AAS-T degree: MATH 112 College Algebra or higher, excluding MATH 121/122.

Total AAS-T credits 92–95

COC — Certificate of Completion

If you are looking to upgrade your skills, you can complete a Certificate of Completion by completing courses listed in a certificate block.

Help Desk Technician

BTEC 145	Intro to MS Word	5
BTEC 148	Outlook	2
BUS 150	Customer Service	5
(was BSAD 164)		

Total Credits 12

Networking

CS 212	Local Area Networks: Theory & Application	5
CS 213	Local Area Networks: Theory & Application	5
CS 249	Advanced Operating Systems	3
(was CIS 252)		

Total Credits 13

Web Development

ART 162	Basic Photoshop	3
CS 230	Database Development	5
(was CIS 230)		
CS 175/275	Event-Driven Programming or	
(was 185/285)	Object-Oriented Programming in Java	5

Total Credits 13

Programming

CS 175	Event-Driven Programming	5
(was CIS 185)		
CS 270	Data Structures I	5
(was CIS 280)		
CS 275	Object-Oriented Programming in Java	5
(was CIS 285)		

Total Credits 15

Certificate: COP — Certificate of Proficiency

Complete the general education and program core requirements from the Associate in Applied Science degree to complete a certificate of proficiency.

Total COP Credits 64

Also see AS-T COMP E EE/MRP – Associate in Computer and Electrical Engineering on [page 48](#) and AS-T EET/CTE/MRP – Associate in Electrical Engineering and Computer Engineering Technology

Criminal Justice

Modern law enforcement is a highly competitive career field. The more education you have, the greater your chance of employment and advancement. You can prepare for entry-level employment in law enforcement agencies and in some correctional facilities with an Associate in Applied Science degree in Criminal Justice. People working within those areas can use the program to enhance their skills.

AAS — Associate in Applied Science**General Education Requirements**

Communications Requirement		
ENGL 101	English Composition I	5
ENGL 102	English Composition	5
SPCH 110	Intro to Public Speaking	5



Computation Requirement		
MATH 092	Elementary Algebra	5
Human Relations/Social Sciences Requirement*		
PSYC 100	General Psychology	5
<i>(was PSYC 111)</i>		
Natural Sciences Requirement/Humanities Requirement		
From distribution list		5
Diversity Requirement		
SOC 101	Intro to Sociology	5
<i>(was SOCY 110)</i>		
Health Requirement		
HLTH 106	Health Today	2
Program Requirements		
BUS 201	Business Law	5
<i>(was BSAD 251)</i>		
CJ 101*	Intro to Criminal Justice	5
<i>(was ADMJ 186*)</i>		
CJ 110*	Criminal Law	5
<i>(was ADMJ 182*)</i>		
CJ 154*	American Legal System	5
<i>(was ADMJ 154*)</i>		
CJ 181	Report Writing for Law Enforcement	3
<i>(was ADMJ 181)</i>		
CJ 183*	Administration of Justice	5
<i>(was ADMJ 183*)</i>		
CJ 260*	Physical Evidence & Criminalistics	5
<i>(was ADMJ 260*)</i>		
CS 110	Microcomputer Applications	3
<i>(was CIS 110)</i>		
POLS 202	American Government	5
<i>(was POLS 106)</i>		
POLS 220	Law and Social Issues	5
Electives	See Criminal Justice advisor for electives	11–13
Total Credits		94–96

Note: Full-time law enforcement officers who have completed the training commission curriculum and are enrolled in the Criminal Justice program may waive three of the courses marked with asterisks (*) and substitute CJ 100 (was ADMJ 100), Basic Law Enforcement, for the three courses. The training commission curriculum consists of 450 hours of classroom instruction.

Diesel/Heavy Equipment Technology

The Diesel/Heavy Equipment Technology program prepares students for a wide variety of careers in any industry that utilizes trucks, excavators, bulldozers, and other heavy equipment, as well as industrial equipment utilizing diesel power and hydraulic devices. As a graduate, you could work for truck and heavy equipment dealers, railroads, and marine operations using tug and fishing boats. Graduates may also work in industrial maintenance, auto, and RV repair.

Your LCC course work will be a mixture of basic theory and intensive hands-on application that focuses on the major mechanical systems found in a wide variety of industries and applications. LCC's Diesel/Heavy Equipment Technology program is one of the few programs that have been accepted for membership in the National Fluid Power Association.

You may enter the program any quarter and may transfer to pursue a four-year degree in Diesel Power at several four-year institutions.

Program of Study: Diesel/Heavy Equipment Technology

AAS — Associate in Applied Science

General Education Requirements

Communications requirement

ENGL 110 Industrial Communication recommended 5

Computation Requirement

MATH 092 Elementary Algebra or higher, (MATH 106 Industrial Mathematics recommended) 5

Human Relations/Social Sciences/Diversity Requirement

BUS 144 Management of Human Relations recommended 5
(was BSAD 126)

Natural Science requirement

Tech 100 Adv Principles of Technology **or**
MFG 130 Materials Science recommended 5
HLTH 100 Occupational Health and Safety 3

Program Requirements

(You may complete some of these requirements through an approved high school Tech Prep program.)

(DHET sections previously ADT sections)

DHET 100* Essentials of Mechanics 5
(was ADT 100)*

DHET 101 Electrical Systems I 5
(was ADT 101)

DHET 102 Electrical Systems II 10
(was ADT 102)

DHET 104 Vehicle Climate Control 6
(was ADT 104)

DHET 111 Hydraulic Brakes 5
(was ADT 111)



ADT 122	Gas Engines II	5
DHET 115	Air Brake Systems	5
DHET 125	H.D. Chassis Maintenance	10
<i>(was ADT 207)</i>		
DHET 141	Hydraulics I	4
<i>(was ADT 205)</i>		
DHET 142	Hydraulics II	6
<i>(was ADT 210)</i>		
DHET 210	Diesel Engine Rebuild	16
<i>(was ADT 223)</i>		
DHET 215	Heavy Duty Engine Performance	15
<i>(was ADT 226)</i>		
DHET 220	H.D. Power Trains	10
<i>(was ADT 206)</i>		
DHET 230	Advanced Shop Practices	5
Total Credits		120

*Note: Program advisor may recommend substituting COLL 100 (College Success) if you have basic mechanical experience.

Program of Study: Heavy Equipment Preventive Maintenance

COP — Certificate of Proficiency

(This certificate is a shorter route to an entry-level job.)

General Education Requirements

Communications Requirement

ENGL 110 Industrial Communications 5

Computation Requirement

MATH 070 Review of Math Fundamentals or higher 5

Human Relations/Social Sciences Requirement

BUS 144 Management of Human Relations recommended 5
(was BSAD 126)

Program Requirements

Any **DHET** (was ADT) courses approved by program advisor 45

Total Credits 60

Early Childhood Education

Program of Study: Early Childhood Education

Preschools, licensed in-home care, childcare centers, and Head Start/Early Childhood Education and Assistance programs offer many opportunities. If you want a career working with preschool children, you can get training and experience through LCC's Early Childhood Education Program. You may be required to pay for the required criminal background check and proof of a negative tuberculin (TB) skin test.

AAS — Associate in Applied Science

General Education Requirements

Communications Requirement

(Must include ENGL 101 English Composition I) 10

Computation Requirement

BUS 104 Business Math Applications
(was BSAD 104) **or**

MATH 092 Elementary Algebra or higher 5

Human Relations/Social Sciences

PSYC 100 General Psychology 5
(was PSYC 111)

PSYC 200 Lifespan Psychology 5
(was PSYC 205)

Natural Sciences/Humanities Requirement

From distribution list 5

Diversity Requirement

EDUC 205 recommended 5
(was EDUC 110)

Health Requirement

HLTH 100 Occupational Safety and Health 3

Program Requirements

ECED 109 Literature and Language Development for Young Children 3

ECED 115 Health, Safety, & Nutrition for Young Children 3

ECED 119 Guidance Techniques for Young Children 3

ECED 126,127,128 Practicum I, II, III 9

ECED130 Introduction to Early Childhood Education 3

ECED 204 Music & Movement for Young Children 3

ECED 215 Early Childhood Curriculum Development 3

ECED 216 Family System 3

ECED 219 Math, Science, & Computers for Young Children 3

ECED 220 Arts & Crafts for Young Children 3

ECED 260 Practicum IV 9

EDUC 114 Child Development 3
(was ECED 114)

EDUC 203 Exceptional Child 3
(was ECED 210)

Electives 3–5

Total Credits 92–94



AAS-T — Associate in Applied Science — Transfer degree

General Education Requirements

Communications Requirements

ENGL 101	English Composition I	5
ENGL 102	English Composition	5
SPCH 110	Intro to Public Speaking	5

Quantitative Skills Requirements

(MATH 099 proficiency required through course completion or placement assessment)

MATH 121	Math for Elementary Teachers I	5
MATH 122	Math for Elementary Teachers II	5

Humanities Requirements

DRMA 101	Intro to Theatre <i>(was DRAM 100)</i>	5
MUSC 100	Fundamentals of Music	5

Natural Science Requirements (must be lab course)

ASTR 110	Descriptive Astronomy or	
BIOL 100	Survey of Biology <i>(was BIOL 100)</i>	or
ERSI 104	Intro to Earth Sciences	5

Social Science Requirement

PSYC 100	General Psychology <i>(was PSYC 111)</i>	or
PSYC 200	Lifespan Psychology <i>(was PSYC 205)</i>	5
SOC 100	Intro to Sociology <i>(was SOCY 110)</i>	5

Program Requirements

50 credits required from the following specified critical content areas: (a minimum of 3–5 credits from each area)

Child Development and Learning including Typical and Atypical

ECED 130	Intro to Early Childhood	3
EDUC 114	Child Development <i>(was ECED 114)</i>	3
EDUC 203	Exceptional Child <i>(was ECED 210)</i>	3

Child Guidance

ECED 119	Guidance Techniques for Young Children	3
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Family and Community Relationships

ECED 216	Family Systems	3
SOC 209	Sociology and the Family <i>(was SOCY 209)</i>	5

Diversity, Inclusion, Multicultural

EDUC 205	Intro to Ed w/Field Exp <i>(was EDUC 110)</i>	5
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Health, Safety, and Nutrition

ECED 115	Health, Safety, and Nutrition for Young Children	3
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Observation, Assessment and Evaluation

ECED 126	Practicum I	3
ECED 127	Practicum II	3

Professionalism

ECED 209	Early Childhood Mentor Development	1
ECED 215	Curriculum Development	3

Practicum/Field Experience (suggested min. 300 hours)

ECED 128	Practicum III	3
ECED 260	Practicum IV	9

Curriculum Development & Implementation

ECED 109	Literature & Language	3
ECED 219	Math, Science & Computer	3
ECED 220	Arts & Crafts for Young Children	3

Total Minimum Credits 100

COC — Certificate of Completion

ECED 109	Literature and Language Development for Young Children	3
ECED 115	Health, Safety and Nutrition for Young Children	3
ECED 119	Guidance Techniques for Young Children	3
ECED 126, 127, 128	Practicum I, II, III	9
ECED 130	Introduction to Early Childhood Education	3
ECED 204	Music and Movement for Young Children	3
ECED 219	Math, Science, and Computers for Young Children	3
ECED 220	Arts and Crafts for Young Children	3
EDUC 114	Child Development <i>(was ECED 114)</i>	3
EDUC 203	Exceptional Child <i>(was ECED 210)</i>	3
ENGL 100	English Fundamentals or	
ENGL 101	English Composition I	5
HLTH 100	Occupational Safety and Health	3

Total Credits 44

Education

Program of Study: Elementary Education

Elem Ed-DTA/MRP — Associate in Elementary Education — Direct Transfer Agreement

Program Requirements

Communications Requirements

ENGL 101	English Composition I	5
ENGL 102	English Composition	5

Quantitative Skills Requirements

(MATH 099 proficiency required through course completion or placement assessment)

MATH 121	Math for Elementary Teachers I	5
MATH 122	Math for Elementary Teachers II	5

Humanities/Diversity Requirements

SPCH 110	Intro to Public Speaking	5
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10 additional credits from the following list:
art, music, literature, or drama

Social Science Requirements (see note 2)

HIST 126 World Civilization I
(was HIST 116) **or**

HIST 127 World Civilization II
(was HIST 117) **or**

HIST 128 World Civilization III
(was HIST 118) **and**

HIST 136 U.S. History I
(was HIST 156) **or**

HIST 137 U.S. History II
(was HIST 157) **and**

10 additional credits from the following list:
economics, geography, political science, psychology (ECON 201 or 202, PSYC 100 or 200, POLS 202, or POLS 107 **recommended**)

Natural Science Requirements

5 credits biological sciences

5 credits geology or earth science

5 credits physical science (chemistry or physics)

Two of the above must be with lab

Other Requirements (see note 3)

CS 110 Intro to Microcomputer Applications
(was CIS 110)

EDUC 205 Intro to Ed w/Field Experience
(was EDUC 110)

Electives

Select electives from this recommended list of content courses to meet endorsement competencies and/or academic majors:

social sciences, humanities, sciences, or mathematics.

Total Minimum Credits 90

Notes:

1. Only coursework in which an individual receives a grade of C (2.0) or higher or a grade of pass on a pass-fail system of grading shall be counted toward the course work required for the approved endorsement program.

2. To fulfill social science requirements, students are encouraged to take "Protest, Power, & Persuasion" combining HIST 137 (was HIST 157) and POLS 202 (was POLS 106) to meet state requirements during winter quarter

3. If the student can demonstrate computer literacy in software programs including word processing, PowerPoint, spreadsheets, in addition to being proficient on the Internet, he/she does not need to take CS 110 (was CIS 110).

4. WSU, CWU, and SM require PSYC& 200—Lifespan Psychology.

5. Students must take the WEST-B test in order to apply to teacher preparation programs. Plan to test prior to the final quarter to allow sufficient time for scoring.

6. Where the degree allows for student choice in classes, it is the student's responsibility to contact the potential transfer institution regarding their choices.

Other LCC teacher education programs: Biology on [page 36](#), Chemistry on [page 42](#), Math on [page 56](#), Physics on [page 59](#), and General Science on [page 61](#).

Program of Study: Paraeducator

COP — Certificate of Proficiency

Prepare for entry-level employment with school districts with this certificate program of introductory courses. Students pursuing an apprenticeship program should contact an advisor for appropriate course offerings.

General Education Requirements

Communications Requirement

ENGL 100 English Fundamentals **or**

ENGL 101 English Composition I 5

Computation Requirement

MATH 099 Intermediate Algebra **or**

MATH 121 Math for Elementary Teachers I 5

Human Relations/Social Sciences Requirement

PSYC 100 General Psychology 5

(was PSYC 111)

Program Requirements

CS 110 Intro to Microcomputer Applications 3
(was CIS 110)

EDUC 203 Exceptional Child 3
(was ECED 210)

EDUC 205 Intro to Ed w/Field Experience 5
(was EDUC 110)

EDUC 119 Curriculum & Instruction 2
(was EDUC 114)

EDUC 115 Education & the Law 3

EDUC 214 Instructional Strategies 3

EDUC 215 Classroom Management 3

PSYC 200 Lifespan Psychology 5
(was PSYC 205)

Electives from the list below: 3–5

Total Credits 45–47

Electives: ART 100 (was ART 110), ECED 204, ECED 220, or MUSC 100



Engineering

LCC's engineering programs give you the opportunity to build a strong basic background for successful transfer to four-year institutions, with the option of building more immediately marketable engineering skills during your studies. With an engineering degree, you can prepare for entry into aeronautical, chemical, civil/environmental, computer, electrical, manufacturing, materials, and mechanical engineering. You could work in research, development, design, operations management, teaching, sales, and consulting.

Program of Study: Undergraduate Studies in Bioengineering and Chemical Pre-Engineering

AS-T Bio/Chem E/MRP (Opt. 2)

Program Requirements

Communications Requirements

ENGL 101 English Composition I 5

Mathematics Requirements

MATH 151 Calculus I 5

MATH 152 Calculus II 5

MATH 153 Calculus III 5

MATH 241 Differential Equations 5

Humanities/Social Science/Diversity Requirements

Minimum 5 credits in Humanities, minimum 5 credits in Social Sciences.

5 additional credits in either Humanities *or* Social Sciences from the distribution list (Economics course recommended) 15

Pre-Major Requirements

CHEM 161 General Chem w/Lab I (was CHEM 151) *and* 5

CHEM 162 General Chem w/Lab II (was CHEM 152) *and* 5

CHEM 163 General Chem w/Lab III (was CHEM 153) *and* 5

CHEM 261 Organic Chem w/Lab I (was CHEM 251) *or* 5

CHEM 262 Organic Chem w/Lab II (was CHEM 252) 5

CS 270 Intro to Data Structures (was CIS 280) 5

PHYS 251 General Physics *and* 5

PHYS 252 General Physics *and* 5

PHYS 253 General Physics 5

Electives

Select two electives as appropriate for intended major and intended baccalaureate institution:

BIOL 201 General Biological Science I

BIOL 202 General Biological Science II

CHEM 262 Organic Chemistry (was CHEM 252) *or*

CHEM 263 Organic Chemistry (was CHEM 253)

ENGL 235 Technical Writing (was ENGL 220)

ENGR 204 Electrical Circuits (was ENGR 215)

ENGR 224 Engineering Thermodynamics (was ENGR 260)

MATH 220 Linear Algebra 10

Total Minimum Credits 90

Program of Study: Undergraduate Studies in Computer and Electrical Pre-Engineering

AS-T Comp E EE/MRP (Opt. 2)

Program Requirements

Communications Requirements

ENGL 101 English Composition I 5

Mathematics Requirements

MATH 151 Calculus I 5

MATH 152 Calculus II 5

MATH 153 Calculus III 5

MATH 220 Linear Algebra 5

MATH 240 Differential Equations 5

Humanities/Social Science/Diversity Requirements

Minimum 5 credits in Humanities, minimum 5 credits in Social Science.

5 credits additional in either Humanities *or* Social Sciences from the distribution list (Economics course is recommended) 15

Pre-Major Requirements

CHEM 161 General Chem w/Lab I (was CHEM 151) 5

CS 170 Fundamentals of Computer Prog (was CIS 180) 5

CS 270 **Data Structures I** (was CIS 280) 5

PHYS 251 General Physics 5

PHYS 252 General Physics 5

PHYS 253 General Physics 5

ENGR 204 Electrical Circuits (was ENGR 215) 5

Electives

Select two electives as appropriate for intended major and intended baccalaureate institution:

BIOL 170 Human Biology (was BIOL 120)

BIOL 201 General Biological Science I

ENGR 214 Statics (was ENGR 122)

ENGR 224 Engineering Thermodynamics (was ENGR 260)

ENGL 235 Technical Writing 10 (was ENGL 220)

Total Minimum Credits 90



**Program of Study: Undergraduate Studies in
Electrical Engineering and Computer Engineering
Technology**

AS-T EET/CTE/MRP (Opt. 2)

Program Requirements

Communications Requirements

ENGL 101 English Composition I

ENGL 235 Technical Writing

(was ENGL 220/ENGR 220)

Mathematics Requirements

MATH 151 Calculus I **and**

MATH 152 Calculus II **and**

MATH 153 Calculus III **or**

MATH 210 Elements of Statistics

Humanities/Social Science/Diversity Requirements

Minimum 5 credits in Humanities, minimum 5 credits in Social Science.

5 additional credits in either Humanities or Social Sciences from the distribution list

(Economics course recommended)

Pre-Major Requirements

CHEM 161 General Chemistry w/Lab I

(was CHEM 151)

CS 170 Fundamentals of Computer Programming

(was CIS 180)

CS 270 Data Structures I

(was CIS 280)

CS 281 Digital Design

(was CIS 282)

ENGR 204 Electrical Circuits

(was ENGR 215)

PHYS 151 Introductory Physics **and**

PHYS 152 Introductory Physics **and**

PHYS 153 Introductory Physics **or**

PHYS 251 General Physics **and**

PHYS 252 General Physics **and**

PHYS 253 General Physics

(PHYS 251, 252, and 253 preferred)

Electives

Select two electives as appropriate for intended major and intended baccalaureate institution.

MATH 153 Calculus III **or**

MATH 210 Elements of Statistics may count as electives

Total Minimum Credits

90

**Program of Study: Undergraduate Studies in
Mechanical/Civil/Aeronautical/Industrial Materials
Science/Pre-Engineering**

AS-T Other Engineer/MRP (Opt. 2)

Program Requirements

Communications Requirements

ENGL 101 English Composition I

Mathematics Requirements

MATH 151 Calculus I

MATH 152 Calculus II

MATH 153 Calculus III

MATH 220 Linear Algebra

MATH 240 Differential Equations

Humanities/Social Science/Diversity Requirements

Minimum 5 credits in Humanities

minimum 5 credits in Social Science.

5 additional credits in either Humanities or

Social Science from the distribution list

Pre-Major Requirements

CHEM 161 General Chem w/Lab I

(was CHEM 151)

CHEM 162 General Chem w/Lab II

(was CHEM 152)

CS 270

Data Structures I

(was CIS 280)

ENGR 214 Statics

(was ENGR 122)

ENGR 215 Dynamics

(was ENGR 261)

ENGR 225 Mechanics of Materials

(was ENGR 254)

PHYS 251 General Physics

PHYS 252 General Physics

PHYS 253 General Physics

Electives

Select three electives as appropriate for intended major and intended baccalaureate institution:

ENGL 235 Technical Writing

(was ENGL/ENGR 220)

ENGR 121 Engineering Graphics

(was ENGR 111)

ENGR 204 Electrical Circuits

(was ENGR 215)

ENGR 224 Mechanics of Thermodynamics

(was ENGR 260)

ENGR 225 Mechanics of Materials

(was ENGR 254)

Total Minimum Credits

105



Program of Study: Undergraduate Studies in Mechanical Engineering

AS-T MET/MRP (Opt. 2)

Program Requirements

Communications Requirements

ENGL 101	English Composition I	5
ENGL 235	Technical Writing <i>(was ENGL/ENGR 220)</i>	5

Mathematics Requirements

MATH 151	Calculus I	5
MATH 152	Calculus II	5
MATH 153	Calculus III or	
MATH 210	Elements of Statistics	5

Humanities/Social Science/Diversity Requirements

Minimum 5 credits in Humanities, minimum 5 credits in Social Sciences.

5 additional credits in either Humanities or Social Science from the distribution list

Pre-Major Requirements

CHEM 161	General Chem w/Lab I <i>(was CHEM 151)</i>	5
ENGR 121	Engineering Graphics I <i>(was ENGR 111)</i>	3
ENGR 122	Engineering Graphics II <i>(was ENGR 112)</i>	3
PHYS 101	Introductory Physics and	
PHYS 102	Introductory Physics and	
PHYS 103	Introductory Physics or	
PHYS 251	General Physics and	
PHYS 252	General Physics and	
PHYS 253	General Physics	15

(PHYS 251, 252, and 253 preferred)

Electives

Select five electives as appropriate for intended major and intended baccalaureate institution:

ECON 201	Micro Economics <i>(was ECON 205)</i> or	
ECON 202	Macro Economics <i>(was ECON 206)</i>	
ENGR 214	Statics <i>(was ENGR 122)</i>	
ENGR 215	Dynamics <i>(was ENGR 261)</i>	
ENGR 225	Mechanics of Materials <i>(was ENGR 254)</i>	
MATH 153	Calculus III <i>(was MATH 153)</i> or	
MATH 210	Elements of Statistics	
SPCH 110	Introduction to Public Speaking	25

Total Minimum Credits 91

Note: This degree is only applicable for students planning to attend Central Washington University, Eastern Washington University or Western Washington University.

Fire Science Technology

Prepare for occupations and advancement in modern fire service with LCC's Fire Science Technology program, which includes fire suppression, fire investigation, fire prevention, emergency medical and rescue services, and hazardous materials emergency response. The program correlates classroom, laboratory, and clinical field experience in public and private fire organizations.

Associate in Applied Science

General Education Requirements:

Communications Requirement

ENGL 101	English Composition I or	
ENGL 110	Industrial Communications	5

Computation Requirement

MATH 099	Intermediate Algebra or higher or	
MATH 106	Industrial Mathematics	5

Human Relations/Social Sciences Requirement/Diversity

BUS 144	Mgmt of Human Relations <i>(was BSAD 126)</i>	5
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Natural Sciences Requirement

CHEM 100	Preparatory Chemistry or	
PHYS 100	Physics for Non-Sci Majors	5

Health Requirement

HLTH 100	Occupational Safety and Health	3
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Program Requirements

FISC 101	Introduction to Fire Protection	3
FISC 105	Fundamentals of Fire Prevention	3
FISC 109	Fire Service Safety	3
FISC 110	Fire Science I	3
FISC 111	Basic Fire Fighting Skills	10
FISC 125	Emergency Service Rescue	5
FISC 129	Emergency Incident Management	3
FISC 205	Fire Investigation / Cause Determination	3
FISC 206	Hazardous Materials Operations	3
FISC 207	Fire Apparatus & Pumping Equipment	3
FISC 210	Building Construction for Fire Protection	3
FISC 215	Fixed Systems and Extinguishers	3
FISC 220	Wildland Fire Fighter 2 (S-130-S190)	4
FISC 224	Fire Service Instructor	3
FISC 255	Fire Fighting Tactics and Strategy	3
FISC 288	Cooperative Education	4
FISC 289	Cooperative Education Seminar	1
Electives*		7

Total Credits 90

*Elective credits may be waived for EMT training.



Program of Study: Fire Prevention Specialist

COP — Certificate of Proficiency

Prepare for employment in public and private fire organizations with this program.

General Education Requirements

Communications Requirement

ENGL 101	English Composition I	5
SPCH 110	Introduction to Public Speaking	5

Computation Requirement

MATH 099	or higher or	
MATH 106	Industrial Math	5

Human Relations/Social Sciences Requirement*

BUS 144	Mgmt of Human Relations (was BSAD 126)	5
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Program Requirements

FISC 101	Introduction to Fire Prevention	3
FISC 105	Fundamentals of Fire Prevention	3
FISC 110	Fire Science I	3
FISC 205	Fire Cause Determination	3
FISC 206	Hazardous Materials Operations	3
FISC 210	Building Construction for the Fire Service	3
FISC 215	Fixed Systems and Extinguishers	3
FISC 288/289	Cooperative Education	9
Total Credits		50

COC — Certificate of Completion

Fire Inspector

FISC 105	Fundamentals of Fire Prevention	3
FISC 110	Fire Science I	3
FISC 206	Hazardous Materials Operations	3
FISC 210	Building Construction for the Fire Service	3
FISC 215	Fixed Systems and Extinguishers	3
FISC 288/289	Cooperative Education (Internship)	3
Total Credits		18

Fire Investigator

FISC 110	Fire Science I	3
FISC 205	Fire Cause Determination	3
FISC 206	Hazardous Materials Operations	3
FISC 210	Building Construction for the Fire Service	3
FISC 288/289	Cooperative Education (Internship)	3
Total Credits		15

Public Education Specialist

FISC 101	Introduction to Fire Protection	3
FISC 105	Fundamentals of Fire Prevention	3
FISC 110	Fire Science I	3
FISC 288/289	Cooperative Education (Internship)	3
SPCH 110	Intro to Public Speaking	5
Total Credits		17

Health Occupations

The Health Occupations program provides training for entry-level healthcare employees, with certificates for those who are already working or not yet working in healthcare.

The National Healthcare Foundation Skills Standards for the Core Curriculum will be met. Once you have satisfactorily completed both levels of the program with experience and produced a portfolio per requirements, you may take the National Health Science Assessment and be certified by national Consortium on Health Science and Technology Education and the National Occupational Competency Testing Institute.

COC — Certificate of Completion:

- Health Occupations Core for the Employed Healthcare Worker – Total Credits 6
- Health Occupations Core for the Unemployed Healthcare Worker – Total Credits 12

Program Requirements:

Employed Healthcare Worker

AH 101	Health Care Foundations I	1
AH 102	Health Care Foundations II	1
AH 112	Body Structure, Function and Terminology I	1
AH 131	Health Care Communication Skills I	1
AH 132	Health Care Communication Skills II	1
BTEC 181	Medical Terminology I	1
Total Credits		6*

*Students who are not currently certified in BLS, First Aid and HIV must also take AH 100 and HLTH 100.

Program Requirements:

Unemployed Healthcare Worker

AH 100	Bloodborne Pathogens & Infection Control	1
AH 101	Healthcare Foundations I	1
AH 102	Healthcare Foundations II	1
AH 112*	Body Structure, Function and Terminology I	1
AH 131	Health Care Communication Skills I	1
AH 132	Health Care Communication Skills II	1
BTEC 181	Medical Terminology I	1
HLTH 100	Occupational Safety and Health	3
COOP 288/289		2
Total Credits		12

*BIOL& 170 (was BIOL 120), BIOL 221, or BIOL 222 with a grade of C or better may be substituted for AH 112.



Individualized Certificate Program

The Individualized Certificate Program (ICP) offers you an opportunity to pursue a custom-designed worksite-based learning program that is not available through current apprenticeship or college programs. Work closely with the ICP advisor, (360) 442-2332, to ensure courses meet program requirements.

Certificates:

- COC — Certificate of Completion — up to 44 credits
- COP — Certificate of Proficiency — 45 or more credits

Program Requirements

Math Requirement

MATH 091 **Pre-Algebra** or higher, as recommended 5

Human Relations Requirement

See advisor for courses 5

Communications Requirement

- BUS 119 Business Communications
(was BSAD 190) **or**
- ENGL 100 English Fundamentals **or**
- ENGL 101 English Composition I **or**
- ENGL 110 Industrial Communications 5
- HLTH 100 Occupational Safety and Health 3
- ICP 288* ICP Cooperative Work Experience 3 – 17
- ICP 289 ICP Seminar 3
- Electives: See ICP advisor for approved electives Varies

Total Credits Varies by Program

*Work experience varies to match the program requirements, and will range from 3 to 17 credits, only 15 of which are transferable.

Industrial Maintenance Technology

The Industrial Maintenance Technology programs serve people with previous work experience or background in manufacturing industries. You will enhance your on-the-job experience with technical and theoretical background. Although some hands-on training is provided, you should contact the program advisor if you have little or no previous experience.

AAS — Associate in Applied Science

General Education Requirements

Communications Requirement

ENGL 100 English Fundamentals or higher 5

Computation Requirement

MATH 092 Elementary Algebra or higher 5

Human Relations/Social Sciences/Diversity Requirement

BUS 144 Mgmt of Human Relations 5
(was BSAD 126)

Natural Sciences Requirement

(MFG 130 Materials Science recommended) 5

Health Requirement

HLTH 100 Occupational Safety and Health 3

Program Requirements

Complete the General Education requirements, IMT 100 – Maintenance Fundamentals, and both the electrical and mechanical core lists.

IMT 100 Maintenance Fundamentals 3

Electrical & Instrumentation Core Requirements

- IMT 130 Electrical Safety 1
- IMT 131 Electrical Fundamentals – DC Circuits 5
- IMT 132 Electrical Fundamentals – AC Circuits 5
- IMT 134 Electrical/Electronic Test Instruments 2
- IMT 135 Electrical Print Reading 1
- IMT 136 Conduit Bending and Installation 1
- IMT 139 National Electric Code 3
- IMT 140 Fundamentals of Industrial Measurement 2
- IMT 144 Industrial Process Control 1
- IMT 231 Electrical Control Equipment 3
- IMT 232 Electric Motors 2
- IMT 233 Electrical Switchgear 2
- IMT 234 Digital Electronic Theory 2
- IMT 239 Programmable Controllers 2
- IMT 244 Instrument Calibration 3
- IMT 245 Digital Instrumentation 1
- IMT 249 Troubleshooting Control Systems 3
- IMT 265 Applied Elec Maintenance Techniques 3

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Mechanical Core Requirements

- BLPT 150 Machinists Blueprint Reading 5
- IMT 104 Rigging, Lifting, and Rigging Gear Inspection 3
- IMT 106 Industrial Lubrication 1
- IMT 107 Mechanical Seals 1
- IMT 108 Bearings – Reducing Failure Rate 1
- IMT 110 Rotating Equipment Predictive Maintenance & Alignment 4
- IMT 200 Centrifugal Pump Repair 1
- IMT 204 Air Compressor Repair 1
- IMT 205 Valve Repair 1
- IMT 209 Pipefitting 2
- IMT 264 Applied Mechanical Maintenance Techniques 3
- MASP 107 Machining for Related Occupations **or**
- MASP 111 Machine Shop I 6
- MFG 140 Applied Hydraulics 4
- WELD Any WELD courses 6

Total Credits 39

Total AAS Degree Credits 107



COP – Certificate of Proficiency

Complete the General Education Requirements listed above, and IMT 100, plus the electrical, mechanical, or power utility core list for the three COP's listed.

- Electrical Maintenance – Total credits 68
- Mechanical Maintenance – Total credits 65
- Power Utility – Total credits 71

Power Utility Core

IMT 104	Rigging, Lifting, and Rigging Gear Inspection	5
IMT 106	Industrial Lubrications	1
IMT 130	Electrical Safety	1
IMT 131	Electrical Fundamentals – DC Circuits	5
IMT 132	Electrical Fundamentals – AC Circuits	5
IMT 134	Electrical/Electronic Test Instruments	2
IMT 135	Electrical Print Reading	1
IMT 136	Conduit Bending and Installation	1
IMT 140	Fundamentals of Industrial Maintenance	2
IMT 231	Electrical Control Equipment	3
IMT 239	Programmable Controllers	2
IMT 249	Troubleshooting Control Systems	3
IMT 288/289	Cooperative Education	10
MFG 140	Applied Hydraulics	4
	Total Credits	45

COC — Certificate of Completion

Complete Health 100 and the mechanical core courses listed.

- Mechanical Maintenance – Total credits 42

Instrumentation & Control Technology

Prepare for entry-level employment or, if you are already working in Instrumentation Technology, take all or part of the program to upgrade your technical knowledge and skill. If you already have training and experience in the electrical or electronics field, you may meet some program requirements through course waivers or substitutions. For more information, contact the program advisor.

AAS — Associate in Applied Science**General Education Requirements****Communications Requirement**

ENGL 110 Industrial Communications recommended 5

Computation Requirement

MATH 099 Intermediate Algebra or higher 5

Natural Sciences Requirement

TECH 100 Adv Prin of Tech recommended 5

Human Relations/Social Sciences/Diversity Requirement

BUS 144 Mgmt of Human Relations recommended 5

(was BSAD 126)

Health Requirement

HLTH 100 Occupational Safety and Health 3

Program Requirements

BLPT 120 Basic Blueprint Reading **or**

DRFT 107 Technical Graphics 3

CS 111 Intro to Windows 4

(was CIS 150)

CS 170 Programming Fundamentals 5

(was CIS 180)

IMT 130 Electrical Safety 1

IMT 131 Electrical Fundamentals – DC Circuits 5

IMT 132 Electrical Fundamentals – AC Circuits 5

IMT 133 Intro to Solid State Electronics 6

IMT 135 Electrical Print Reading 1

IMT 205 Valve Repair 1

IMT 236 Applied Digital Electronics 5

INTC 101 Process Control I 6

INTC 102 Process Control II 6

INTC 201 Electronic Measuring Principles 6

INTC 202 **Electronic Instrumentation & Control** 6

INTC 225 Programmable Logic Controllers, Sensors and Communications 6

MFG 140 Applied Hydraulics 4

Total Credits 93

COP — Certificate of Proficiency

Prepare for an entry-level job or, if you are already working, take all or part of the Instrumentation Technology program to up-grade your technical skills and knowledge.

General Education Requirements**Communications Requirement**

ENGL 110 Industrial Communications recommended 5

Computation Requirement

MATH 099 Intermediate Algebra or higher 5

Human Relations/Social Sciences Requirement

BUS 144 Mgmt of Human Relations recommended 5

(was BSAD 126)

HLTH 100 Occupational Safety and Health 3

Program Requirements

BLPT 120 Basic Blueprint Reading or 3

DRFT 107 Technical Graphics 3

IMT 130 Electrical Safety 1

IMT 131 Electrical Fundamentals – DC Circuits 5

IMT 132 Electrical Fundamentals – AC Circuits 5

IMT 133 Intro to Solid State Electronics 6

IMT 135 Electrical Print Reading 1

IMT 205 Valve Repair 1

IMT 236 Applied Digital Electronics 5

INTC 101 Process Control I 6

INTC 102 Process Control II 6



INTC 225	Programmable Logic Controllers, Sensors and Communications	6
MFG 140	Applied Hydraulics	4
Total Credits		67

Machine Trades

Prepare for a job as a machinist, millwright, tool and die maker, or another occupation related to manufacturing through LCC's Machine Trades program. Graduates may work as advanced apprentice machinists, machine operators, or programmers.

Degree: AAS — Associate in Applied Science

General Education Requirements

Communications Requirement

ENGL 110	Industrial Communication recommended	5
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Computation Requirement

MATH 092	Elementary Algebra or higher	
(MATH 106	Industrial Mathematics recommended)	5

Human Relations/Social Sciences/Diversity Requirement*

BUS 144	Mgmt of Human Resources recommended <i>(was BSAD 126)</i>	5
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Natural Sciences Requirement

MFG 130	Materials Science recommended	5
HLTH 100	Occupational Safety and Health	3

Program Requirements

BLPT 150	Machinists Blueprint Reading	5
MASP 107	Machining for Related Occupations <i>and/or</i>	
MASP 111	Machine Shop I	10
MASP 112	Machine Shop II	10
MASP 113	Machine Shop III	10
MASP 114	Machine Shop IV	10
MASP 204	CNC Machining Center Fundamentals	3
MASP 205	CNC Turning Center Fundamentals	3
MASP 221	Basic CNC Machine Shop	10
MASP 222	Advanced CNC Machine Shop	10
MFG 115	Manufacturing Processes	4
MFG 230	Computer Integrated Manufacturing	4
Total Credits		102

COP — Certificate of Proficiency

- Computer Numerical Control (CNC) – 68 credits
- Machinist – 73 credits

The Machine Trades certificate program is another route to employment as a machinist, millwright, tool and die maker, or other occupation related to manufacturing. Graduates may work as advanced apprentice machinists, machine operators, or programmers.

General Education Requirements

Communications Requirement

ENGL 110	Industrial Communications recommended	5
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Computation Requirement

MATH 092	Elementary Algebra or higher	
(MATH 106	Industrial Mathematics recommended)	5

Human Relations/Social Sciences Requirement

BUS 144	Mgmt of Human Relations recommended <i>(was BSAD 126)</i>	5
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Health Requirement

HLTH 100	Occupational Safety and Health	3
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Computer Numerical Control (CNC)

BLPT 150	Machinists Blueprint Reading	5
MASP 107	Machining for Related Occupations <i>and/or</i>	
MASP 111	Machine Shop I	10
MASP 204	CNC Machining Center Fundamentals	3
MASP 205	CNC Turning Center Fundamentals	3
MASP 221	CNC Machine Shop I	10
MASP 222	CNC Machine Shop II	10
MFG 115	Manufacturing Processes	5
MFG 230	Computer Integrated Manufacturing	4

Total Credits 68

Machinist

BLPT 150	Machinists Blueprint Reading	5
MASP 107	Machining for Related Occupations <i>and/or</i>	
MASP 111	Machine Shop I	10
MASP 112	Machine Shop II	10
MASP 113	Machine Shop III	10
MASP 114	Machine Shop IV	10
MFG 115	Manufacturing Processes	4
WELD 152	Introduction to Arc Welding	6

Total Credits 73



Manufacturing

Manufacturing has evolved into a high-tech, competitive field. Manufacturing firms need people who have strong technical knowledge and hands-on skills. LCC's Manufacturing Occupations Core program can prepare you for an entry level position in a production firm, or allow you to transition in to a more specialized program like Welding or Machine Technology. Students develop fundamental skills that apply to many trades and industries, and many of the courses are common to more advanced degree programs.

Program of Study: Manufacturing Occupations Core

COP — Certificate of Proficiency

General Education Requirements

Communications Requirement

ENGL 110 Industrial Communications recommended 5

Computation Requirement

MATH 092 Elementary Algebra or higher 5
(MATH 106 Industrial Mathematics recommended)

Human Relations/Social Sciences Requirement

BUS 144 Mgmt of Human Relations recommended 5
(was BSAD 126)

Health Requirement

HLTH 100 Occupational Safety and Health 3

BLPT 150 Machinists Blueprint Reading *or*

BLPT 160 Blueprint Reading for Welders 5

HDEV 110 Job Finding Skills 3

MASP 107 Machining for Related Occupations *and/or*

MASP 111 Machine Shop I 10

MFG 115 Manufacturing Processes 5

DRFT 107 Technical Graphics *or*

MFG 130 Materials Science *or*

MFG 230 Computer Integrated Manufacturing *or*

TECH 100 Adv Prin of Technology *or*

WELD 158 Welding Theory and Fabrication 3, 4 or 5

WELD 105 Related Welding 6

Total Credits **50-52**

Math

Program of Study: Undergraduate Studies for Future Secondary Math Teachers

AM-DTA/MRP — Associate in Math Education — Direct Transfer Agreement

Program Requirements

Communications Requirements

ENGL 101 English Composition I 5

ENGL 102 English Composition 5

Quantitative Skills Requirements

MATH 151 Calculus I 5

(was MATH 151)

Humanities/Diversity Requirements

SPCH 110 Intro to Public Speaking *and* 5

10 credits selected from the Humanities distribution list.

No more than 10 credits from any one discipline.

No more than 5 credits in foreign language at the 100 level.

No more than 5 credits in performance/skills courses are allowed. 10

Natural Science Requirements

MATH 152 Calculus II 5

(was MATH 152)

5 credits of science (phys, chem., geol, or biol.) 5

5 credits of lab science (phys, chem., geol, or biol.) 5

Social Science/Diversity Requirements

PSYC 100 General Psychology 5

(was PSYC 111)

10 credits selected from the Social Science distribution list.

No more than 10 credits allowed from any one discipline. 10

Other Requirements

EDUC 205 Intro to Education w/Field Exp 5

(was EDUC 110)

MATH 153 Calculus III 5

(was MATH 153)

MATH 154 Calculus IV 3

MATH 220 Linear Algebra 5

Plus 12 additional credits selected from the distribution list defined by the receiving institution as fully transferable. 12

Total Minimum Credits **90**



Medical Assisting

Medical assistants work with physicians and other health care providers, contributing support services in the office or laboratory. Prerequisites include MATH 070 or higher and ENGL 100 or higher, both with a grade of C or better. You must also pass a BTEC keyboarding exam or complete BTEC 101 with a grade of C or better.

Work closely with your program advisor to plan your quarterly schedule, as MEDA classes are offered just once yearly and must be taken in sequence. You may take other required courses out of sequence as long as prerequisites are met. No person found guilty of a felony is eligible to take the certification examination without a waiver from the AAMA certifying board.

AAS — Associate in Applied Science

General Education Requirements

Communications Requirement

ENGL 101 English Composition I **or**

BUS 119 Business Communications
(was BSAD 190) **and**

ENGL 102 English Composition 10

Computation Requirement

MATH 105 Mathematics for Health Sciences 5

Human Relations Requirement*

PSYC 100 General Psychology 5
(was PSYC 111)

Natural Sciences/Humanities Requirement

From distribution list 5

Diversity Requirement

From distribution list 5

Program Requirements

BTEC 171 Medical Reception Procedures 3

BTEC 172 Medical Office Procedures 4

BTEC 173 Computers in the Medical Office 3

MEDA 101 Medical Vocabulary **or**

BTEC 181 Medical Terminology I 3

MEDA 102 Medical Vocabulary II **or**

BTEC 182 Medical Terminology II 3

MEDA 120 Survey of Human Anatomy & Physiology **or**

BIOL 221/222 Human Anatomy and Physiology 5-12

MEDA 121 Health Care Law 1

MEDA 122 Health Care Ethics and AIDS Education 2

MEDA 145 Medical Laboratory Techniques 4

MEDA 146 Invasive Procedures 2

MEDA 161/162 Examining Room Procedures I/II 6

MEDA 164 Medication Administration & Injection 1

MEDA 165 Medications in Medical Assisting & Diseases 3

MEDA 190 Medical Assisting Externship 6

MEDA 195 Medical Assisting Seminar 1

Electives* 14

Total Credits 91-98

*To complete your degree, the electives must be courses numbered 50 and above. Of those, 5 credits must be from the social science or natural science transfer degree distribution list. For this degree, CHEM& 100 can be added to this list. The balance of your electives may come from any distribution or elective list. Math courses may not be used.

COP — Certificate of Proficiency

Prerequisites:

MATH 070 (or higher) with a grade of C or better

ENGL 100 (or higher) with a grade of C or better

Pass BTEC keyboarding exam or complete BTEC 101 with a grade of C or better.

General Education Requirements

Communications Requirement

ENGL 101 English Composition I **or**

BUS 119 Business Communications 5
(was BSAD 190)

Computation Requirement

MATH 105 Mathematics for Health Sciences 5

Human Relations/Social Sciences Requirement

PSYC 100 (was PSYC 111) General Psychology 5

Program Requirements

MEDA 101 Medical Vocabulary **or**

BTEC 181 Medical Terminology I 3

MEDA 102 Medical Vocabulary II **or**

BTEC 182 Medical Terminology II 3

BTEC 171 Medical Reception Procedures 3

BTEC 172 Medical Office Procedures 4

BTEC 173 Computers in the Medical Office 3

MEDA 120 Survey Human Anatomy & Physiology **or**

BIOL 221/222 Human Anatomy and Physiology 5-12

MEDA 121 Health Care Law 1

MEDA 122 Health Care Ethics and AIDS Education 2

MEDA 145 Medical Laboratory Techniques 4

MEDA 146 Invasive Procedures 2

MEDA 161/162 Examining Room Procedures I/II 6

MEDA 164 Medication Administration and Injections 1

MEDA 165 Medication in Medical Assisting/Diseases 3

MEDA 190 Medical Assisting Externship 6

MEDA 195 Medical Assisting Seminar 1

Total Credits 62-69



Music

Program of Study: Contemporary Musicianship & Audio Production

Degree: AAS — Associate in Applied Science

This two-year program is designed to provide students without prior formal training in music an understanding of modern digital and analogue recording techniques, music production and marketing, and modern pop/rock music theory. Students will also be required to study privately on their instrument(s)/and/or voice and participate in weekly performances of popular music ensembles.

In their audio production courses students will learn to use hardware and software to record, store and digitally edit musical examples culminating in the production of a professional quality demo CD. As their final project in the program students will pre-sent in a public forum their finished CD recording of a musical ensemble. The CD will be of professional, commercial quality, complete with appropriate artwork and liner notes.

General Education Requirements

Communications Requirement

BUS 119	Business Communications (recommended)	
ENGL 101	English Composition I	5

Computation Requirement

BUS 104	Business Math Applications (recommended)	
MATH 092	Elementary Algebra	5

Social Science/Human Relations Requirement

PSYC 100	General Psychology (recommended)	5
<i>(was PSYC 111)</i>		

Health Requirement

HLTH 106	Health Today <i>or</i>	2-3
HLTH 100	Occupational Safety & Health	

Humanities/Natural Science/Diversity Requirement

MUSC 119	American Music (recommended)	5
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Program Requirements

MUSC 100	Fundamentals of Music	5
MUSC 106	Group Piano Instruction	2
MUSC 131, 132, 133, 231, 232, 233	(was 116 and 216)	
	Musicum Practicum I thru VI	6
MUSC 127, 128, 226, 227, 228	Applied Music	5
MUSC 161	Digital Audio I	5
MUSC 162	Digital Audio II	5
MUSC 163	Digital Audio III	5
MUSC 181	Contemporary Musicianship and Applications I	3
MUSC 182	Contemporary Musicianship and Applications II	3
MUSC 183	Contemporary Musicianship and Applications III	3
<i>(was 281)</i>		
MUSC 261	Advanced Audio Production I	5
MUSC 262	Advanced Audio Production II	5

MUSC 263	Advanced Audio Production III	5
MUSC 281	Contemporary Musicianship and Applications III	3
MUSC 282	Contemporary Musicianship and Applications IV	3
MUSC 284	AAS Degree Project	3

Recommended Electives

BUS 101	Intro to Business and	
<i>(was BSAD 110)</i>		
CS 110	Intro to Microcomputer Applications	8
<i>(was CIS 110)</i>		

Total Credits **96-97**

COP — Certificate of Proficiency

General Education Requirements

Communications Requirement

BUS 119	Business Communications (recommended)	5
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Computation Requirement

BUS 104	Business Math Applications (recommended)	5
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Social Science/Human Relations Requirement

PSYC 100	General Psychology (recommended)	5
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Program Requirements

CS 110	Intro to Microcomputer Applications	3
<i>(was CIS 110)</i>		
MUSC 100	Fundamentals of Music	5
MUSC 106	Group Piano Instruction	2
MUSC 131, 132, 133	(was 116)	
	Musicum Practicum I thru III	3
MUSC 127, 128	Applied Music	2
MUSC 161	Digital Audio I	5
MUSC 162	Digital Audio II	5
MUSC 163	Digital Audio III	5
MUSC 181	Contemporary Musicianship and Applications I	3
MUSC 182	Contemporary Musicianship and Applications II	3

Total Credits **51**

Nursing

The LCC Nursing Program is committed to providing excellence in nursing education, which encompasses holistic caring, respect for individuality and diversity, accountability and responsibility, critical thinking, and clinical expertise. The nursing program is approved by the Washington State Nursing Care Quality Assurance Commission and accredited by the National League for Nursing Accrediting Commission.

The Associate Degree may be completed in eight quarters; however, most students take longer. You must complete college-required assessment in math, English, and reading. Placement on these assessments may require you to take additional courses to prepare you to enroll in college-level courses.

Entrance requirements include High School Diploma or GED, High School Chemistry and Human Biology, First Aid and CPR, and Nursing Assistant Certification issued by the Washington or Oregon Department



of Health. If you are interested in a nursing career, work closely with your advisor to set realistic goals for entry into LCC's nursing program. Detailed requirements for admission and progression are described in the Nursing Program Admission Handbook, which is available through campus advisors or at our website, <http://www.lowercolumbia.edu/nursing> or by calling 360-442-2860.

Students may exit the program after four quarters at the licensed practical nurse level. LPNs wishing to return to school may apply for acceptance into the registered nursing level in our traditional program or the web-based LPN to RN bridge program. You may also transfer for RN-BSN program completion after meeting additional requirements. LCC has close articulation with Washington State University Vancouver.

Optional courses, the Retention Achievement Project (RAP), the Learning Center, Writing Lab, Peer Tutoring, and other supportive opportunities are available throughout the program to help you master course objectives and to meet your educational goals.

For clinical courses, you must work with agencies that will require you to successfully pass a criminal background clearance (state and federal) and drug testing. You will also need selected immunizations and current CPR for health care professionals. You will need to pay for these yourself. You may be denied program admission and progress if you are not in compliance with clinical agencies' requirements.

Earning a nursing degree or certificate at LCC does not assure you of licensure. You must also pass the national licensing exam and meet other requirements.

Program of Study: Practical Nurse Level

COP — Certificate of Proficiency

General Education Requirements

Communications Requirement

ENGL 101 English Composition I 5

Computational Requirement

MATH 099 Intermediate Algebra 5

Social Science Requirements

PSYC 100 General Psychology 5
(was PSYC 111)

Natural Science Requirement

BIOL 221 Human Anatomy and Physiology 5-6

Health Requirement

NURS 101 Nursing Foundations 5

Program Requirements (co-requisites, four quarters)

AH 101 Health Care Foundations I 1

AH 102 Health Care Foundations II 1

AH 131 Health Care Communication Skills I 1

AH 132 Health Care Communication Skills II 1

BIOL 222 Human Anatomy and Physiology 5-6

BIOL 260 Microbiology 5
(was BIOL 257)

NURS 102 Basic Nursing I 5

NURS 103	Basic Nursing II	5
NURS 104	Family Nursing	5
NURS 111	Nursing Foundations—Clinical	5
NURS 112	Basic Nursing I—Clinical	5
NURS 113	Basic Nursing II – Clinical	5
NURS 114	Family Nursing – Clinical	5
PSYC 200	Lifespan Psychology	5
<i>(was PSYC 205)</i>		

Total Credits 81

Program of Study: Registered Nurse Level

AAS — Associate in Applied Science

Practical Nurse Requirements 81

Program Requirements (co-requisites, three quarters)

ANTH 206 Cultural Anthropology
(was ANTH 207) **or**

SOC 101 Intro to Sociology 5
(was SOCY 110)

CHEM 121 Intro to Chemistry 5
(was CHEM 111)

NURS 201 Advanced Comprehensive Nursing I 5

NURS 202 Advanced Comprehensive Nursing II 5

NURS 203 Advanced Comprehensive Nursing III 5

NURS 221 Advanced Comprehensive Nursing Clinical I 5

NURS 222 Advanced Comprehensive Nursing Clinical II 5

NURS 223 Advanced Comprehensive Nursing Clinical III 5

Total Credits 121

LPN to RN Distance Education Program

Lower Columbia College's LPN to RN (LPN2RN) online option of the nursing program has been developed to provide an accessible means for working LPNs to return to college. The program can be completed on a full-time or part-time basis.

More information on the courses is on [page 114](#). A full description of the program, admission requirements, and courses can be found at lowercolumbia.edu/LPN2RN.

Program of Study: Nursing Assistant—Certified

COC — Certificate of Completion

You may also take the state-approved 8-credit Nursing Assistant course (Nursing 090), which has no pre-requisite and does not require formal admission to the Nursing Program.

Program Requirement

NURS 090 Nursing Assistant 8



Physics Education

Program of Study: Undergraduate Studies for Future Secondary Physics Teachers

AS-T APE/MRP (Opt. 1) — Associate in Physics Education — Transfer

General Education Requirements

Communications Requirements

ENGL 101 English Composition I 5

ENGL 102 English Composition II 5

Mathematics Requirements

MATH 151 Calculus I 5

MATH 152 Calculus II 5

Humanities/Social Science/Diversity Requirements

PSYC 100 General Psychology 5

(was PSYC 111)

SPCH 110 Intro to Public Speaking 5

5 additional credits from distribution list. 5

Three different subject areas required. No more than 5 credits of performance classes allowed.

Pre-Major Requirements

CHEM 161 General Chem w/Lab I 5

(was CHEM 151)

CHEM 162 General Chem w/Lab II 5

(was CHEM 152)

CS 170 Fundamentals of Computer Programming 5

(was CIS 180)

MATH 153 Calculus III 5

(was MATH 153)

MATH 154 Calculus IV 3

MATH 220 Linear Algebra 5

MATH 240 Differential Equations 5

PHYS 251 General Physics 5

PHYS 252 General Physics 5

PHYS 253 General Physics 5

Electives

EDUC 205 Intro to Ed w/ Field Exp 5

(was EDUC 110)

5 additional credits from the distribution list. 5

Total Credits 93 minimum

Pulp & Paper Manufacturing Technology

Technicians working in the pulp and paper industry or in related support industries receive supplemental training through this program. The flexible curriculum allows students to select courses that best fit their career goals. See the program advisor for more information.

Degree: AAS — Associate in Applied Science

General Education Requirements

Communications Requirement

ENGL 100 English Fundamentals *or*

ENGL 101 English Composition I 5

Computation Requirement

MATH 099 Intermediate Algebra 5

Human Relations Requirement/Social Science/Diversity

BUS 144 Mgmt of Human Relations 5

(was BSAD 126)

Health Requirement

HLTH 100 Occupational Safety and Health 3

Natural Sciences Requirement

CHEM 100 Preparatory Chemistry or higher 5

(was CHEM 100)

Program Requirements

BLPT 120 Basic Blueprint Reading 3

SPCH 110 Intro to Public Speaking 5

CS 110 Intro to Microcomputer Applications 3

(was CIS 110)

IMT 131 Industrial Electricity – DC 5

IMT 132 Industrial Electricity –AC 5

IMT 231 Electrical Control Equip 3

IMT 232 Electrical Motors 2

INTC 101 Process Control I 6

INTC 102 Process Control II 6

MFG 105 Industrial Safety 3

MFG 120 Quality Assurance 4

MFG 140 Applied Hydraulics 4

MFG 205 Work Teams in Industrial Settings 5

PULP 101 Intro to Pulp & Paper Manufacturing 5

PULP 102 Paper Processes 5

PULP 104 Survey of Paper Conversion Techniques 3

PULP 214 Intro to Process Technology 5

PULP 224 Maintenance in Pulp & Paper 5

PULP 225 Paper Chemistry and Environment 5

Total Credits 105



Certificate: COC — Certificate of Completion

Natural Sciences requirement

CHEM 100 Preparatory Chemistry or higher 5

Program Requirements

PULP 101 Intro to Pulp & Paper Technology 5

PULP 102 Paper Processing 5

PULP 104 Survey of Paper Conversion Techniques 3

Technical electives* 5

Total Credits 23

*Technical electives may be any combination of courses numbered 050 and above from the following related areas: Chemistry, Computer Information Systems, Electronics, Industrial Maintenance, Instrumentation, Mathematics, Manufacturing, Mechanical Engineering Technology, Pulp, or Technology.

Science Education

Program of Study: Undergraduate Studies for Future Secondary General Science Teachers

AS-T AGSE/MRP (Opt. 1) — Associate in General Science Education — Transfer

General Education Requirements

Communications Requirements

ENGL 101 English Composition I 5

ENGL 102 English Composition 5

Mathematics Requirements

MATH 151 Calculus I 5

MATH 152 Calculus II 5

Humanities/Social Science/Diversity Requirements

PSYC 100 General Psychology 5

(was PSYC 111)

SPCH 110 Intro to Public Speaking 5

Pre-Major Requirements

CHEM 161 General Chemistry w/Lab I

(was CHEM 151) **and**

CHEM 162 General Chemistry w/Lab II

(was CHEM 152) **and**

CHEM 163 General Chemistry w/Lab III

(was CHEM 153) **and/or**

BIOL 201 General Biological Science **and**

BIOL 202 General Biological Science **and**

BIOL 203 General Biological Science **and/or**

PHYS 101 Introductory Physics **and**

PHYS 102 Introductory Physics **and**

PHYS 103 Introductory Physics **and/or**

PHYS 251 General Physics **and**

PHYS 252 General Physics **and**

PHYS 253 General Physics **and/or**

GEOL 117 Geology of Earth's Surface **and**

GEOL 118 Historical Geology **and**

MATH 210 Elements of Statistics 45-50

Electives

EDUC 205 Intro to Ed w/Field Exp 5

(was EDUC 110)

5 additional credits from distribution list. 5

Total Minimum Credits 90

Technology

AT-DTA/MRP — Associate in Technology — Direct Transfer Agreement

Program Requirements

Communications Requirements

ENGL 101 English Composition I 5

ENGL 235 Technical Writing 5

(was ENGL 220)

Quantitative Skills Requirements

MATH 150 Precalculus 5

MATH 215 Discrete Structures 5

Humanities/Diversity Requirements

SPCH 110 Introduction to Public Speaking **and** 5

10 credits from Humanities distribution list, with no more than 5 credits from world language and no more than 5 credits in a performance skills class (marked with an * on the distribution list). 10

Social Science Requirements

Select from at least two disciplines, no more than 10 credits in a single discipline. 15

Natural Science Requirements

CHEM 161 General Chem w/Lab I 5

(was CHEM 151)

CS 170 Fundamentals of Computer Programming 5

(was CIS 180)

PHYS 101 Introductory Physics 5

Technology Requirement

ENGR 121 Engineering Graphics I 3

(was ENGR 111)

ENGR 122 Engineering Graphics II 3

(was ENGR 112)

Electives

20 credits of electives – courses selected appropriate for intended major and intended bachelor's

Institutions such as:

IMT 131, IMT 132, IMT 133, PHYS 102, PHYS 103 20

Total Minimum Credits 91

Notes: This degree is only applicable for students who are planning to attend Central Washington University, Eastern Washington University or Western Washington University.

A maximum of 10 elective credits may be in college level courses as defined by the community college and the remainder shall be fully transferable as defined by the receiving institution.



Welding

AAS — Associate in Applied Science

Prepare for the state commercial welding examination or qualify for welding jobs in manufacturing, maintenance, or instruction through LCC's Welding program. You must successfully complete the Washington Association of Building Officials (WABO) Qualification Test before an AAS degree in welding can be awarded.

General Education Requirements

Communications Requirement

ENGL 110 Industrial Communications recommended 5

Computation Requirement

MATH 106 Industrial Mathematics recommended 5

Human Relations/Social Sciences/Diversity Requirement

BUS 144 Mgmt of Human Relations recommended 5
(was BSAD 126)

Natural Sciences/Humanities Requirement

MFG 130 Materials Science *or* 5
TECH 100 Advanced Principles of Technology 5

Health Requirement

HLTH 100 Occupational Safety & Health recommended 3

Program Requirements

BLPT 160 Blueprint Reading for Welders 5
CS 110 Intro to Microcomputer Applications 3
(was CIS 110)
WELD 151 Introduction to Oxy-Acetylene 6
WELD 152 Introduction to Arc Welding 10
WELD 158 Welding Theory & Fabrications 5
WELD 221 Wire Machine 10
WELD 222 Advanced Wire Machine 6
WELD 254 Arc Welding 10
WELD 255 Advanced Welding Processes 6
WELD 256 Advanced Welding Application 10
WELD 070 or 075 Welding Certification 0

Total Credits 94

HLTH 100 Occupational Safety and Health 3

Program Requirements

BLPT 160 Blueprint Reading for Welders 5
CS 110 Intro to Microcomputer Applications 3
(was CIS 110)
WELD 151 Introduction to Oxy-Acetylene 6
WELD 152 Introduction to Arc Welding 10
WELD 158 Welding Theory and Fabrication 5
WELD 221 Wire Machine 10

Total Credits 57

GOC — Certificate of Completion

BLPT 160 Blueprint Reading for Welders 5
HLTH 100 Occupational Safety and Health 3
MATH 106 Industrial Math 5
WELD 151 Introduction to Oxy-Acetylene 6
WELD 152 Introduction to Arc Welding 10
WELD 158 Welding Theory and Fabrication 5
WELD 221 Wire Machine 10
Total Credits 44

The following certificate programs help you prepare for employment in manufacturing or maintenance:

COP — Certificate of Proficiency

General Education Requirements

Communications Requirement

ENGL 110 Industrial Communications 5

Computation Requirement

MATH 106 Industrial Math 5

Human Relations/Social Sciences Requirement

BUS 144 Management of Human Relations 5
(was BSAD 126)

Health Requirement

Adult Basic Education (ABE)

ABE 011 ABE Level I 1-15

Provides instruction for adults in math, reading, and writing at grade equivalent 0.0-1.9, including whole number addition and subtraction, very basic computer skills, communication skills, decision-making skills, and lifelong learning skills for basic survival needs.

Prerequisite: Appropriate CASAS score

ABE 012 ABE Level II 1-15

Provides instruction for adults in math, reading and writing at grade equivalent 2.0-3.9, including reading real-life materials with understanding, computations with fractions, conveying ideas in writing using a variety of sentences of in creasing complexity, goal-setting, and using word processing.

Prerequisite: Appropriate CASAS score

ABE 013 ABE Level III 1-15

Provides instruction for adults in math, reading and writing at grade equivalent 4.0-5.9, including reading real-life materials with understanding, computing with fractions, conveying ideas in writing using a variety of sentences of in creasing complexity, goal-setting, and using word processing.

Prerequisite: Appropriate CASAS score

ABE 014 ABE Level IV 1-15

Provides instruction for adults in math, reading and writing at grade equivalent 6.0-8.9, including use of percent, ratio and proportion, simple formulas, and tables and graphs, reading expository writing, writing using several connected paragraphs with correct mechanics, and using most computer applications.

Prerequisite: Appropriate CASAS score

ABE 015 Basic GED Preparation 1-15

Provides instruction to prepare students to pass the General Educational Development (GED) test. Students complete this level when they can pass at least three official GED practice tests.

Prerequisite: Appropriate CASAS score

ABE 016 Advanced GED Preparation 1-15

Provides continued instruction to prepare students to pass the General Educational Development (GED) test. Students complete this level when they have successfully completed all parts of the official GED Test.

Prerequisite: Appropriate CASAS score.

Accounting (ACCT)

ACCT 101 Introduction to Accounting Concepts 5

Provides students with an introduction to the field of accounting. Topics include the accounting cycle, accounting for and presentation of assets, liabilities, and owner's equity.

Prerequisite: MATH 070 or higher with a grade of C or better.

ACCT 150 Payroll Accounting and Business Tax Reporting 5

Gives students experience in payroll accounting and business tax reporting. Topics include payroll processing, payroll tax return preparation, and preparation of excise tax returns.

Prerequisite: MATH 092 and ACCT 101 or instructor permission.

ACCT 201 Principles of Accounting I 5 (was ACCT 231) (was titled Financial Accounting I)

Includes an introductory study of financial accounting and accounting theory. Includes an in-depth study of the accounting cycle for service organizations, provides an introduction to merchandising transactions, cash, marketable securities, receivables, and inventory.

Prerequisite: MATH 092. No previous accounting courses are required.

ACCT 202 Principles of Accounting II 5 (was ACCT 232) (was titled Financial Accounting II)

Studies the components of a simple corporate balance sheet including application to transactions in areas such as current liabilities, long-term assets, bonds, and stocks. Also introduces the statement of cash flows and financial statement analysis. Financial accounting theory is discussed and applied throughout the course.

Prerequisite: ACCT 201 (was ACCT 231) with a grade of C or better.

ACCT 203 Principles of Accounting III 5 (was ACCT 233) (was titled Financial Accounting III)

Includes internal reports, cost accounting, master budget, relevant costs, capital budgeting, direct and absorption costing, cost behavior and cost volume profit analysis, and performance measurement. Microcomputer spreadsheet applications are utilized in problem solving.

Prerequisite: ACCT 202 (was ACCT 232) with a grade of C or better and basic spreadsheet skills.

ACCT 241 Computerized Accounting Concepts 4

Provides students experience with a multi-function electronic accounting system. Students will learn to enter business transactions in the general ledger and subsidiary accounts such as payroll, accounts receivable, accounts payable, inventory, and fixed assets. Students will solve common accounting problems associated with the electronic accounting process.

Prerequisite: ACCT 101, ACCT 201 (was ACCT 231) or instructor permission.



ACCT 294 Career Success

2

Provides preparation for pursuing a career in accounting, with a focus on self-assessment, job search, application process documents, and interviewing techniques.

Prerequisite: Program Advisor permission.

Allied Health (AH)**AH 094 Fundamentals of Caregiving**

2

Focuses on the role of the caregiver in providing care to individuals residing in the home, adult family home, assisted living facility and in licensed boarding homes. Utilizes DSHS curriculum on client and caregiver rights, community resources, personal care, prevention of injury and infection, nutrition, assisting with medications, mobility needs, requirements for nurse delegation and observation and recording, and medical and physical conditions.

AH 095 Modified Fundamentals of Caregiving

1

Focuses on the role of the caregiver in providing care to individuals residing in the home, adult family home, assisted living facility and in licensed boarding homes. Utilizes DSHS curriculum on client and caregiver rights, resources for the caregiver, prevention of infection, nutrition, assisting with medications, requirements for nurse delegation and observation and recording.

AH 096 Nurse Delegation Training for Caregivers

1

Focuses on the role of the caregiver in providing care to individuals residing in the home, adult family home, assisted living facility and in licensed boarding homes. Utilizes DSHS curriculum providing an in-depth understanding of the nurse delegation law, basic medical knowledge of body systems and selected nursing tasks that may be delegated by a Registered Nurse.

AH 100 Blood Borne Pathogens and Infection Control

1

Examines blood borne illnesses: etiology, epidemiology, clinical manifestations, treatment, transmission, testing, infection control, legal, ethical, psychosocial and counseling issues. Fulfills Washington State Department of Licensing requirement for license renewal for persons governed by Chapter 18.130.RCW.(GE)

AH 101 Healthcare Foundations I

1

Provides introductory content on health care career opportunities, the history of health care, the structure and function of health care systems and foundational skills for health care including professional employability skills, problem solving and change strategies.

Prerequisite: High School Diploma or GED Certificate or instructor permission.

AH 102 Healthcare Foundations II

1

Introduction to legal, ethical, regulatory and safety issues in health care. *Prerequisite:* High School Diploma or GED Certificate or instructor permission. Must have received a grade of C or better in AH 101.

AH 112 Body Structure, Function and Terminology I

1

Basic anatomy and function are discussed with an introduction to using the correct basic medical terminology. Common medical terms for body systems, structure and function will be discussed. *Prerequisite:* High School Diploma or GED Certificate. Appropriate scores in the entry test. Meet the requirements for LCC students assigned to health care agencies, which include: Request the forms from Nursing/Allied Health, background check, drug screen, and current immunizations and TB records. Any exceptions to the admission requirements must be approved by the program director and the dean.

AH 131 Health Care Communication Skills I

1

(was titled Therapeutic Communications I)

Provides introductory content on the communication process in health care settings. Principles of communication, therapeutic communication skills, barriers to effective communication, principles of verbal and written reporting in health care and techniques for acquiring employment are introduced.

Prerequisite: High School Diploma or GED Certificate. Appropriate scores in the entry test. Any exceptions to the admission requirements must be approved by the program director and the dean. Must have received a grade of C or better in AH 101, or equivalent.

AH 132 Health Care Communication Skills II

1

(was titled Therapeutic Communications II)

Provides an Introduction to complex communication in health care settings. Topics Include communication with clients who have complex needs, conflict resolution, team work, health care Informatics, and cultural competency.

Prerequisite: High School Diploma or GED Certificate. Appropriate scores in the entry test. Any exceptions to the admission requirements must be approved by the program director and the dean. Must have received a grade of C or better in AH 101, or equivalent.

Anthropology (ANTH)**ANTH 205 Biological Anthropology**

5

(was ANTH 206)

Examines the essential facts of human biological evolution by providing a thorough understanding of the concept of evolution and applying it to the particular details of the evolution of human populations and the fossil record. Attention will also be given to the methodology of contemporary research and its application to the study of primate and human evolution.



ANTH 206 Cultural Anthropology 5
 (was ANTH 205)
 Examines the impact that the concept of culture has upon the anthropological understanding of humanity. Attention will be given to a thorough understanding of the concept of culture as a source of human diversity and its relationship to historical, economic, political, social, linguistic and religious development. This may be offered as a Capstone course. See page 31 for Capstone prerequisites. Meets the associate's degree cultural diversity requirement.

ART 111 Beginning Painting 3
 Introduces the use of oil and acrylic painting media and the study of traditional painting concepts and techniques.

ART 112 Intermediate Painting 3
 Presents more in-depth exploration of painting materials, techniques, and subject matter.
Prerequisite: ART 111 or instructor's permission.

ART 113 Advanced Painting 3
 Offers advanced painting theory and practice and the development of individual expression in subject matter and composition.
Prerequisite: ART 112 or instructor's permission.

ART 114 Introduction to Art Appreciation: Study Abroad 3-5
 Introduces basic art vocabulary and concepts, and provides a basis for understanding and appreciating art from a variety of cultures and time periods through slide lectures, demonstrations, discussion, and field trips. Students cannot earn credit for both this course and ART 100 (was ART 110).

ART 101 Beginning Drawing 3
 Introduces basic drawing techniques with a variety of media. Hands-on experience in the effective use of composition, line, shape, surface quality, and perspective. Intended for the beginning student.

ART 119 Watercolor Painting 3
 Introduces students to the transparent and opaque techniques of watercolor painting. Color, composition, and technical control are emphasized.

ART 102 Intermediate Drawing 3
 Continues the skills and concepts from ART 101 and applies them to a broader range of media and subject matter. Part of the term is devoted to introductory figure drawing, working from a model.
Prerequisite: ART 101 or the instructor's permission.

ART 151 Beginning Black & White Photography 3
 Covers the fundamentals of 35mm camera operation, exposure and focusing controls, film processing, and making black & white photographic prints for presentation. Includes composition, group critiques, and exposure to great works of photography. Requires 35mm camera with adjustable focusing, aperture, and shutter.

ART 103 Advanced Drawing 3
 Expands on the experiences from ART 101 and 102 and adds more in-depth understanding of the materials and concepts in visual communication. Includes some independent projects.
Prerequisite: 102 or instructor's permission.

ART 152A Intermediate Black & White Photography - Studio 3
 Further explores camera vision and pushes the limit of camera controls to create black & white photographic images. Students explore film speeds, advanced exposure control, and film testing, and will gain more understanding and control over lighting. Focused on studio photography. Students will also refine camera and darkroom skills and participate in photo critiques.
Prerequisite: ART 151 or instructor's permission.

ART 106 Basic Design 5
 Introduces the theory and fundamentals of visual organization through the explanation of black and white media.

ART 107 Basic Design 5
 Introduces the theory and application of color to specific two-dimensional and three-dimensional design problems.

ART 108 Basic Design 3
 Introduces three-dimensional form and space with emphasis on materials, spatial composition, and fabrication.

Art (ART)

ART 100 Art Appreciation 3-5
 (was ART 110) (was titled Intro to Art Appreciation)

Introduces basic art vocabulary and concepts, and provides a basis for understanding and appreciating art from a variety of cultures and time periods through slide lectures, demonstrations, discussion, and field trips. Students cannot earn credit for both this course and ART 114. Meets the associate's degree cultural diversity requirement.



**ART 152B Intermediate Black & White
Photography - Photojournalism 3**

Provides students who have completed ART 151 the opportunity to gain experience and skills needed for photojournalism/documentary photography. Learn how to utilize film speeds and exposure control, related to different applications on location in order to create photo essays.

Prerequisite: ART 151 or Instructor permission.

ART 153 Advanced Photographic Techniques 3

Provides students with a continuation of photography experiences in studio, documentary, and fine-art applications.

Prerequisite: ART 152A or ART 152B or instructor permission.

ART 162 Beginning Photoshop Design 3

Introduces Adobe Photoshop and principles of graphic design. Includes menus, palettes, tools, layers, masks, channels, image correction, manipulation techniques and vector graphics. Presents digital imagery concepts, legal aspects, ethics and development of photo design awareness. Emphasizes skill building applicable to photography, web site design, illustration, design portfolios and design aesthetics.

Prerequisite: Basic computer skills required.

ART 164 Beginning Video Production Design 5

This course consists of lecture/demonstration and hands-on operation of digital video equipment. It introduces Adobe Premiere, InScriber and principles of video production and presents basic design principles as applied to video.

Prerequisite: Basic computer skills are recommended.

**ART 165 Intermediate Video Production
Design 3 or 5**

This course consists of lecture/demonstration and hands-on operation of digital video equipment. It continues work with Adobe Premiere, InScriber, principles of video production and intermediate design principles as applied to video. It adds instruction in Aftereffects and the use of a full production suite (VT4) for live video production design.

Prerequisite: Satisfactory completion of ART 164 or instructor permission.

ART 166 Advanced Video Production Design 3 or 5

This course consists of lecture/demonstration and hands-on operation of digital video equipment in studio and field projects. It continues work with Adobe Premiere, InScriber, principles of video production, introducing advanced skills and techniques. It develops advanced design principles applied to video production and introduces Light Wave 3D Animation and the creation of special effects.

Prerequisite: ART 165 or Instructor permission.

ART 171 Printmaking—Etching 3

Introduces basic techniques of etching, relief printing, and monotypes. For beginning students.

ART 206 Arts of the Americas 5

Provides an introduction to the diversity of American art, past and present. Studies the development of artistic themes and styles in the Americas and analyzes works in a variety of media. Includes work by Native American, Euro-American and Latin American artists. Course includes field trips, slide lectures and seminars. This may be offered as a Capstone course. See Capstone prerequisites on page 31. Meets the associate's degree cultural diversity requirement.

ART 207 Arts of the World 5

Introduces non-western arts. Focuses on selected art forms and types from Africa, Asia, Oceania, and the Middle East. Studies and analyzes ideas and issues, past and present, expressed in the arts of diverse cultures, and contrasts and compares work in a variety of media. Course includes field trips, slide lectures, and seminars. This may be offered as a Capstone course. See Capstone prerequisites on page 31. Meets the associate's degree cultural diversity requirement.

ART 208 Arts of the Northwest 5

Introduces the arts of the Northwest, past and present. Studies and analyzes works in a variety of styles and media and notes the diverse sources used by contemporary Northwest artists. Course includes field trips, slide lectures and seminars. This may be offered as a Capstone course. See Capstone prerequisites on page 31. Meets the associate's degree cultural diversity requirement.

ART 226 History of Art 5

Establishes a basis for judgment for sculpture, painting, and architecture through a survey of the purposes and development of art from 35,000 B.C. to 500 A.D. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

ART 227 History of Art 5

Studies shifting forms and purposes in the visual arts, establishing a basis for critical judgment in sculpture, painting, and architecture through a survey of art from 500 A.D. to A.D. 1600. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

ART 228 History of Art 5

Studies the history of Western art from 1500 A.D. through the mid-20th Century, including evaluation of contemporary sculpture, painting, and architecture as a product of its time and place. This may be offered as a Capstone course. See Capstone prerequisites on page 31.



ART 241 Beginning Ceramic Art, Pottery 3

Begins with study of ceramic materials, including techniques of hand construction and wheel throwing.

ART 242 Intermediate Ceramic Art, Pottery 3

Involves more advanced techniques of hand construction and wheel throwing. Beginning glaze formation and kiln-firing processes are included.

Prerequisite: ART 241 with a grade of C or better.

ART 243 Advanced Ceramic Art, Pottery 3

Continues wheel and hand forming techniques with emphasis on aesthetics, including decoration and glazing.

Prerequisite: ART 242 with a grade of C or better.

ART 290 Art Studio Lab—Ceramics 1-3

Provides lab opportunity in ceramics for students who have completed ART 241, 242, 243.

Prerequisite: Instructor permission.

ART 295 Art Studio Lab—Photography 1-3

Provides lab opportunity in photography for students who have completed ART 151 or higher.

Prerequisite: ART 153 or Instructor permission.

Astronomy (ASTR)

ASTR 110 Descriptive Astronomy 3 or 5

Provides for student investigation of information gathered on distant objects by telescope, spectrometer, radio, satellites, and other instruments. Students pursue both the knowledge and processes for acquiring knowledge of the moon, sun, planets, comets, and meteors of the solar system, distant stars, nebulae, clusters, and galaxies, and their theoretical evolution. Course can be taken for 3 credits (lecture only) or for 5 credits (lecture and lab).

Automotive Technology (AMTC) (was ADT)

AMTC 100 Essentials of Mechanics 5

Develops beginning mechanical skills and knowledge essential to successful completion of the automotive and/or diesel technology program. Includes shop safety, fasteners, measurements, cutting tools, lifting, tool usage, shop orientation, manuals (including computer retrieval systems), bearings and seals, and special emphasis on preventative/predictive maintenance. This is an introductory course for beginning students of Automotive or Diesel Technology. Course can be waived if student has completed principles of technology and auto program in high school.

AMTC 101 Electrical Systems I 5

Covers the theory of electricity from fundamentals through solid state. Includes Ohm's Law, series, parallel, and series-parallel circuits. Automotive wiring and circuits will be included, as well as how to read wiring diagrams, and circuit tracing and repair. Course can be waived if student has completed principles of technology and auto program in high school.

AMTC 102 Electrical Systems 2 10

Presents brief review of the theory of electricity. Covers theory, diagnosis and repair of low voltage systems (12V), including batteries, starting systems, charging systems, instrumentation and warning devices, lighting systems, power accessories, (e.g. power windows, power seats), and computer operation and circuit analysis. Also covered are high voltage energy, distributorless, and breaker point ignition systems.

Prerequisite: AMTC 101 (was ADT 101) or instructor permission.

AMTC 104 Vehicle Climate Control 6

Studies the theory of operation, design, diagnosis and repair of both manual and automatic heating/air conditioning systems used in automobiles and truck/heavy equipment applications. This is a second year course.

AMTC 111 Hydraulic Brakes 5

Covers the theory of hydraulics, fundamentals of manual, power, drum, and disc brake systems. This is a first-year course and may be waived with instructor permission.

AMTC 112 Antilock Brakes and Traction Control 3

Presents brief review of hydraulic brakes giving complete coverage of theory, diagnosis, and how to repair antilock brakes and traction control systems. This will include scan tool diagnosis as well as functional and visual tests.

Prerequisite: AMTC 111 (was ADT 111) or instructor permission.

AMTC 121 Gas Engines I 5

Provides an introductory course for the student with little or no experience with gasoline engines. Covers theory of operation, performance factors, and routine diagnosis and maintenance of spark ignition engines. This is a core course in the AMTC program and the first part of a two-part sequence in gasoline engine repair. Course can be waived with Instructor permission based on experience or successful completion of high school automotive program.

AMTC 122 Gas Engines II 5-10

Covers all facets of the internal gasoline engine. Includes theory of operation, removing, inspecting, cleaning, measuring, machining, reassembling, reinstalling, and testing. The student will completely rebuild a gasoline engine.

Prerequisite: AMTC 121 (was ADT 121) or instructor permission.



AMTC 200 Internship 5

Provides paid or unpaid work experience in the discipline (Automotive or Diesel) that the student is majoring in. The class will give the students hands-on experience to familiarize them with work in an industrial setting.

Prerequisite: 36 credits or more of AMTC (was ADT) courses or instructor permission.

AMTC 201 Fuels and Emissions 10

Provides a study in the theory of operation, diagnosis and repair of carburetors, gasoline fuel injection, fuel storage systems and fuel delivery systems. Air pollution from the automobile will be studied as well as the systems used to control the pollutants. Third in a series of four courses.

Prerequisite: AMTC 101 (was ADT 101) and AMTC 102 (was ADT 102) or instructor permission.

AMTC 202 Computer Engine and Controls 10

Presents theory of operation, diagnosis and repair techniques of computer controlled electronic engine systems.

Prerequisite: AMTC (was ADT) 101, 102, and 201 or instructor permission.

AMTC 215 Suspension and Alignment 8

Prepares the student to perform all aspects of automotive type suspension and alignment work, including powered and non-powered steering systems, inspection, diagnosis, adjustment, and repair of front and rear suspension systems, and related components such as tires and wheels. Use of four-wheel alignment equipment is an integral part of this course.

AMTC 216 Automatic Transmission 8

Studies hydraulic principle of pressure and force multiplication, operation, diagnosis and repair of automotive automatic transmissions and transaxles.

AMTC 217 Powertrains 6

Studies the theory of operation, diagnosis and repair of clutches, manual transmission/transaxles, drivelines, drive axles and transfer cases. Covers all of the mechanical components used to transfer power from the engine to the drive wheels—both 2 and 4 wheel drive. Automatic transmissions are not covered in this course.

Biology (BIOL)**BIOL 100 Survey of Biology 5**

Examines major concepts in biology—the science of life—and the nature of science itself and includes survey of fundamental life processes by which organisms live, grow, reproduce, and interact with their environment. This course is recommended for students interested in a brief overview of biology. Laboratory is included.

BIOL 130 Plants of the Pacific Northwest 5

This course surveys natural groups of vascular plants and emphasizes native and exotic species and families represented in the Pacific Northwest flora. Plant morphology, taxonomy, principles of systematics and biogeography will be introduced. Evolutionary, genetic and reproductive patterns in plants will also be studied. Laboratory is included, with field trips. Students will gain practical experience in plant identification, recognition of plant communities, and collection, preservation, and labeling of voucher specimens.

BIOL 150 Human Genetics and Society 5

This course is designed to introduce the student to the discipline of Human Genetics by interweaving classical genetics concepts with major genetic “issues” including genetic diversity, the human genome, biotechnology, and genetic disorders. Following completion of the course, students will have the tools to make informed decisions regarding the impact of genetic advances on society as well as their own personal lives. Meets the associate's degree cultural diversity requirement. Laboratory is included.

BIOL 120 Human Biology 5

(was BIOL 120)

Introduces students to such fundamental biological principles as the cell and metabolism, then progresses through tissues to human organ systems including respiratory, circulatory, digestive, reproductive, immune and others. Also surveyed are heredity and human ecology.

BIOL 201 General Biological Science 5

Introduces the first course in a three-quarter sequence for science majors. Topics of study explore the form and function of plants and animals at the cellular and sub-cellular levels of organization, including the chemical basis of life, metabolism, cell biology, genetics, and molecular biology. Laboratory is included.

Prerequisite: CHEM 161 (was CHEM 151) or CHEM 121 (was CHEM 111) or instructor permission.

BIOL 202 General Biological Science 5

Continues principles of biology, with emphasis upon the organismal level of organization, including a comprehensive coverage of basic anatomy and physiology of plants and animals. Laboratory is included.

Prerequisite: BIOL 201 or instructor's permission.



BIOL 203 General Biological Science 5
 Explores higher levels of, organization, including the diversity of life, origins, and classification of living organisms; evolutionary theory, principles and consequences, ecology; behavior and population dynamics. Laboratory is included.
Prerequisite: BIOL 202 or instructor's permission.

BIOL 221 Human Anatomy and Physiology 6
 Provides a study of structure and function of the human body. Units of study include the cell, tissues, skeletal system, articulations, muscular system, and nervous system. This is the first of a two-course sequence.
Prerequisite: BIOL 170 (was BIOL 120) or equivalent, or instructor permission.

BIOL 222 Human Anatomy and Physiology 6
 Continues the study of the structure and function of the human body. Units of study include endocrine, circulatory, lymphatic, respiratory, digestive, urinary, and reproductive systems, and fluid and electrolyte balance. Laboratory is included.
Prerequisite: BIOL 221 with a C- or better, or instructor permission.

BIOL 260 Microbiology 6
 (was BIOL 257)
 Studies the biology of microorganisms, including history, taxonomy, morphology, physiology and relationships to the physical and economic well being of humanity. Laboratory includes techniques for isolation, cultivation and identification of microbes.
Prerequisite: BIOL 170 (was BIOL 120), or BIOL 221, or instructor permission.

Blueprint (BLPT)

BLPT 120 Basic Blueprint Reading 3
 Provides basic general information in reading and understanding plans and drawings that will be useful to vocational students with any major. Focusing on line and symbol conventions used in industrial blueprints and visualization of solid objects from orthographic and isometric projections, the course leads to development of required skills for industrial design and problem solving.

BLPT 150 Machinists Blueprint Reading 5
 Provides basic general information in reading and understanding plans and drawings that will be useful to vocational students. Focusing on line and symbol conventions used in industrial blueprints and visualization of solid objects from orthographic and isometric projections, the course leads to development of required skills for industrial design and problem solving. It also provides comprehensive information needed by persons in the

machine trades for reading industrial blueprints and emphasizes specifications of materials, geometrical tolerancing, surface finishes, AWS welding symbols, and related foundry processes.

BLPT 160 Blueprint Reading for Welders 5
 Provides basic general information in reading and understanding plans and drawings that will be useful to students in the welding field, focusing on identifying basic lines, dimensions, structural shapes, welding symbols, and basic joints for welding fabrication and practical layout design.
Prerequisite: Math 106 or instructor permission.

Business Administration (BUS) (was BSAD)

BUS 101 Introduction to Business 5
 (was BSAD 110)
 Surveys the business environment and many important elements of business including marketing, finance, accounting, computers, labor unions, small business management, economics, and the functions of management.

BUS 104 Business Math Applications 5
 (was BSAD 104)
 Teaches the use of basic mathematical processes to solve business applications. Topics include percentages, simple interest, compound interest, annuities, markups, markdowns, payroll, trade and cash discounts, banking, and solving problems with equations and formulas.
Prerequisite: MATH 091 with a grade of C or better or instructor permission.

BUS 118 Ethics in Management 5
 (was BSAD 135)
 Surveys current business ethical issues and concerns and is presented using the case study method. Through interactions, students will gain an understanding of how ethical considerations become a part of business decisions. Emphasis will be placed on advertising, affirmative action, product liability, employee rights, management/supervisory interactions, and corporate morality.

BUS 119 Business Communications 5
 (was BSAD 190)
 Emphasizes planning, organizing, and writing clear, concise business letters. Includes a review of grammar, punctuation, and word usage as applied to written business communication; experience in writing favorable messages. Students will present information orally and prepare a job resume and letter of application.
Prerequisite: ENGL 100 with a C or better or placement test into ENGL 101.



BUS 144 Management of Human Relations 5

(was BSAD 126)

Introduces and emphasizes the many aspects of human behavior as they affect individuals and groups in the workplace. Teaches human relations skills in the context of understanding human needs, perceptions and motivations, workforce diversity, teamwork, stress management, and interpersonal communications. Focus is on management of human relations factors within an organization and understanding the effects of discrimination, prejudice, and intolerance. Meets the associate's degree cultural diversity requirement.

BUS 150 Customer Service/Management 5

(was BSAD 164)

Introduces the philosophy of "service excellence" as it pertains to organizations in today's business environment. Emphasis on the effects of globalization, cultural diversity, and workforce diversity in organizations. Topics include developing interpersonal skills, interacting effectively with employees and customers, and establishing positive relationships with employees and customers with regard to their gender and culture. Students will learn to identify the challenges and advantages of a diverse workforce. Meets the associate's degree cultural diversity requirement.

BUS 159 Principles of Retailing 5

(was BSAD 160)

Surveys retailing principles and concepts and studies store management, merchandise management, pricing, customer services, advertising, and display.

BUS 165 Salesmanship 5

(was BSAD 115)

Surveys multiple aspects of selling, including the importance of selling and salespeople in business and the rewards of a sales career. Topics include: buying behaviors, the ethical and legal issues in sales, the buying process, the approach, the presentation, demonstration of merchandise, handling of objectives, closing the sale, follow-up and effective sales management.

BUS 201 Business Law 5

(was BSAD 251)

Introduces sources of law, where to find the law, court structure, and the initiation of a civil law suit. Concentrates on the area of contracts with particular emphasis on the Uniform Commercial Code. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

BUS 206 Statistical Methods 5

(was BSAD 206)

Introduces the student to descriptive statistics, probability

and inferential statistical methods. Topics include probability distributions, sampling techniques, measures of central tendency and dispersion, correlation, regression, hypothesis testing and statistical inference. Credit cannot be earned for both BUS 206 and MATH 210.

Prerequisite: MATH 099 with a grade of C or better.

BUS 207 Statistical Projects 3

(was BSAD 207)

Provides an opportunity for students to apply the statistical processes learned in MATH 210/BUS 206 by designing their own statistical project. Topics may include nonparametric statistics, sampling techniques, design of experiments and data analysis. This course, in conjunction with MATH 211 may be offered as a Capstone course.

Prerequisite: MATH 210 or BUS 206 (was BSAD 206) with a grade of C or better or concurrent enrollment in MATH 210 or BUS 206.

BUS 240 Principles of Supervision 5

(was BSAD 240)

Analyzes basic functions of the supervisory-level management along with emphasis on skills needed to be an effective leader/manager of a diverse workforce. Emphasis will be on the differences between supervisors and upper management.

BUS 244 Human Resource Management 5

(was BSAD 260)

Introduces the fundamental concepts of Human Resource Management, including hiring skills, long-term planning, employee laws, recruitment, staffing, training, compensation programs (both direct and indirect), collective bargaining, employee relations, safety training, health and EAPs (employee assistance programs).

Prerequisite: Concurrent enrollment in ENGL 101 or equivalent test score.

BUS 245 Principles of Management 5

(was BSAD 275)

Offers the student a history of management and its various theories. Covers the principles and application of planning, organizing, leading and controlling. Students also view management from the roles of supervisory, middle and top management.

BUS 259 Starting/Managing a Small Business 5

(was BSAD 111)

Surveys the characteristics of small businesses, and includes the study of planning and organizing a new business, starting up a new business, producing products or services, marketing, planning, and control. Students are required to develop and present a feasibility plan and business plan for a proposed business.

Prerequisite: ACCT 101, BUS 101 (was BSAD 110), and CS 121 (was CIS 120) with a grade of C- or better, or instructor permission.



BUS 264 Principles of Marketing 5
(was BSAD 263)
Presents marketing functions and their roles in the economic process, emphasizing marketing systems, product planning, promotion, and sales.
Prerequisite: BUS 101 (was BSAD 110) or instructor permission.

BUS 265 Advertising 5
(was BSAD 270)
Provides an overview of the related fields of sales and advertising. The course encompasses economics of selling and selling processes, and studies field of advertising with emphasis on planning, implementing and controlling the advertising process.

BUS 294 Career Success 2
Provides preparation for pursuing a career in business, with a focus on self-assessment, job search, application process documents, and interviewing techniques.
Prerequisite: Program advisor permission.

Business Technology (BTEC)

BTEC 100 Computer Keyboarding 1-3
Introduces keyboarding using the microcomputer and individualized instruction media. Provides instruction and practice on the alphabet, number, and symbol keys, and the 10-key numeric keypad. Graded on a pass/fail basis.

BTEC 101 Basic Word Processing/Formatting 1-5
Emphasizes skill building, proofreading, basic word processing concepts including letters, memos, tables and basic reports.
Prerequisite: BTEC 100 with a grade of C or better or instructor permission

BTEC 104 Introduction to Business Technology 5
Introduces current business software and technology. Students receive hands-on practice in electronic communication and information retrieval, word processing, spreadsheet analysis, graphic presentation, and database management. Integrates career planning, effective teamwork and workplace ethics.

BTEC 105 Keyboarding Speed/Accuracy Building 1-4
Provides an individualized skill-building program for students who need or want to increase their keyboarding accuracy. Graded on a pass/fail basis.
Prerequisite: BTEC 100 with grade of C or better or instructor permission.

BTEC 106 Proofreading Skills 1-2
Builds student skills in finding, marking, and correcting errors

in business communications. Provides special techniques for locating errors.
Prerequisite: ENGL 100 or ENGL 101 or BUS 119 (was BSAD 190), each with a grade of C or better or instructor permission.

BTEC 109 MS Office 2007 Upgrade 1
Introduces new concepts of the MS Office 2007 Suite. Students will learn through hands-on application in word processing, spreadsheet design, graphic presentation, and database management.
Prerequisite: Experience in MS Office 2003.

BTEC 111 Intermediate Word Processing 5
Increases students' knowledge of Microsoft Word through classroom instruction and guided practice including tables, columns, reports, mail merge, fliers, graphics, styles, templates, macros, and file management. Students will utilize software features to properly format business documents.
Prerequisite: BTEC 101 with a grade of C or better or instructor permission, and a minimum keyboarding speed of 35 wpm or concurrent enrollment in BTEC 105.

BTEC 112 Advanced Word Processing 5
Presents advanced word processing features using Microsoft Word. Students design and format tri-fold brochures and magazine articles; create fill-in form templates, outlines, table of contents, master documents and advanced tables; use advanced editing techniques and advanced merging.
Prerequisite: BTEC 111 with a grade of C or better or instructor permission, and a minimum keyboarding speed of 40 wpm or concurrent enrollment in BTEC 105.

BTEC 113 Applied Word Processing & Desktop Publishing 5
Provides project-based applications that integrate word processing, spreadsheets, databases, accounting, desktop publishing and business communications to build and reinforce document-processing skills. Communication, problem-solving, and organizational skills are emphasized to prepare students for the workplace.
Prerequisite: BTEC 112 with a grade of C or better or instructor permission, and a minimum keyboarding speed of 40 wpm or concurrent enrollment in BTEC 105.

BTEC 125 Filing 1-3
Introduces four major types of filing according to the ARMA rules: alphabetic, geographic, numeric, and subject. Rules for alphabetic indexing are emphasized. Practice is given in coding, indexing, and filing. Computerized filing using MS Access is also included.



BTEC 130 Electronic Calculators 1–2

Develops speed and accuracy by touch on the ten-key electronic calculator and the computer numeric keypad. Includes using special features of a calculator and applying learned skills to business problems.

BTEC 145 Introduction to MS Word 1–5

Introduces students to Microsoft Word features that may be used in both personal and business environments. Topics include basic and intermediate-level document formatting. This class is offered in a lab environment.

Prerequisite: BTEC 100 or instructor permission.

BTEC 147 Introduction to Desktop Publishing 1–3

Provides hands-on instruction using Microsoft Publisher. Emphasizes formatting and enhancing text, developing styles, using columns and tables with special effects, and working with art, Design Gallery, Page Wizard, and drawing tools to create professional-looking publications. This class is offered in a lab environment.

Prerequisite: BTEC 145 with a grade of C or better or instructor permission.

BTEC 148 Introduction to Outlook 1–2

Offers an introduction to using Outlook communication and scheduling as a business tool. This course is designed to prepare students with a full understanding of features available in Outlook. Topics covered include email, contacts, schedule management, and instant messaging.

BTEC 161 Intro to ICD-9 Coding in the Medical Office (Part I) 4

Teaches the rules and guidelines utilized in the assignment of ICD-9 codes. Students will select and assign the appropriate codes to diagnoses and procedures performed in both inpatient and outpatient settings, and learn to extract diagnoses from a patient's record.

Prerequisite: BTEC 181 with a grade of C or better or instructor permission.

BTEC 162 Intro to ICD-9 Coding in the Medical Office (Part II) 4

Continues to develop and reinforce the rules and guidelines utilized in the assignment of ICD-9 codes. Students will select and assign the appropriate codes to diagnoses and procedures performed in both inpatient and outpatient settings.

Prerequisite: BTEC 161 with a grade of C or better or instructor permission.

BTEC 164 Legal Aspects of the Medical Office 1–2

Presents the legal, ethical, and bioethical issues relevant to medical office settings. Course features legal cases and

legislation. Topics include patient confidentiality, advance directives, consents, professional liability, medical malpractice, release of information, and the professional code of ethics.

BTEC 169 Introduction to Basic CPT Coding 3

Introduces the rules and guidelines of Current Procedural Terminology (CPT) coding, which is utilized in the reimbursement of outpatient procedures and surgeries. Students will learn how to use the CPT coding book. Course also introduces the evaluation and management processes used for physician reimbursement and the government regulations regarding CPT coding.

Prerequisite: BTEC 162 with a grade of C or better or instructor permission.

BTEC 171 Medical Reception Procedures 3

Provides a foundation of basic knowledge and skills for employment in a doctor's office or clinic. Topics include reception techniques, medical records and related laws, appointment scheduling, telephone use and message taking, and office maintenance.

BTEC 172 Medical Office Procedures 4

Provides instruction and practice for advanced administrative support skills employed in the medical office. Topics include payroll procedures, banking; fees, credit and collections; patient and insurance billing; bookkeeping, including practice in single-entry methods; and diagnostic and procedural coding.

Prerequisite: ENGL 100 or instructor permission, MATH 070 or instructor permission, and BTEC 171, each with a grade of C or better.

BTEC 173 Computers in the Medical Office 3

Prepares students for administrative tasks in health care practices. Using computer software students learn to input patient information, schedule appointments and handle billing and insurance claims.

Prerequisite: BTEC 172 with a grade of C or better.

BTEC 181 Medical Terminology I 1–3

Provides a foundation for building a medical vocabulary including the study of prefixes, roots, suffixes, combining forms, and pronunciation. Emphasis is on using medical terms accurately in documenting and reporting patient care procedures.

BTEC 182 Medical Terminology II 1–3

Continues the focus of BTEC 181 incorporating actual medical records and demonstrating how medical terminology is used in the clinical setting. Electronic media are used.

Prerequisite: BTEC 181 or MEDA 101 each with a grade of C or better.



BTEC 185 Medical Machine Transcription 1-3

Provides intensive transcription practice from actual hospital medical records or prerecorded tapes of medical case histories, admissions, operative reports, and other materials used by the medical profession.
Prerequisite: BTEC 101 and either BTEC 182 or MEDA 102, each with a grade of C or better.

BTEC 186 Advanced Medical Machine Transcription 1-3

Continues to develop students' medical transcription skills. Students transcribe from actual hospital medical records.
Prerequisite: BTEC 185 with a grade of C or better.

BTEC 211 Machine Transcription 1-3

Develops correct techniques for operating a transcribing machine while emphasizing spelling, punctuation, grammar, document formatting, and related word processing techniques.
Prerequisite: BTEC 101 and either BUS 119 (was BSAD 190) or ENGL 101 each with a grade of C or better or instructor permission.

BTEC 231 Legal Terminology/Transcription 1-3

Provides instruction in legal terminology including definitions of terms and correct pronunciation. Further practice is provided through required transcription of dictated legal material.
Prerequisite: BTEC 101 with a grade of C or better or instructor permission.

BTEC 232 Legal Transcription 1-3

Develops skills in preparing various specialized legal documents. Machine transcription skills are essential.
Prerequisite: BTEC 231 with a grade of C or better.

BTEC 260 Office Procedures 5

Serves the needs of Business Technology students completing their BTEC program. Students will practice and enhance essential skills for today's modern office including teamwork, time management, employment preparedness, basic bookkeeping, critical thinking, office technology, communication, and cultural diversity awareness to prepare them for transition from school to work.
Prerequisite: BTEC 112, BUS 119 (was BSAD 190), and BUS 104 (was BSAD 104) each with a grade of C or better or instructor permission.

BTEC 294 Career Success 2

Provides preparation for pursuing a career in business technology, with a focus on self-assessment, job search, application process documents, and interviewing techniques.
Prerequisite: Program advisor permission.

Chemical Dependency Studies (CDS)

CDS 101 Introduction to Chemical Dependency Counseling 3

Introduces the student to the basic theories of drug/alcohol use and abuse. Explores the scope of chemical substance dependency. Topics include socio-cultural aspects of drug usage, patterns and progression, definitions of substance abuse and dependency recovery and prevention. This is the primary course for students interested in a career counseling the chemically dependent.

CDS 102 Introduction to Theories and Counseling of Chemically Dependent Clients 3

Introduces the student to the need for a theoretical base for CD counseling. Students will learn the fundamental concepts of at least three contemporary theories of counseling, and will gain a working knowledge of brief therapy.
Prerequisite: CDS 101 with a C or better.

CDS 105 Chemical Dependency/ Domestic Violence 3

Provides students with a basic understanding of social problems and legal issues relative to domestic violence and its impact on children and families. Cross-listed with HOFL 105.

CDS 106 Prevention/Intervention Specialist 3
(was CDS 206)

Provides a general overview of prevention, philosophies and school-based substance abuse prevention/intervention models. This course will also cover information about the role and function of the prevention/intervention specialist, school infrastructure, and systemic dynamics that may sabotage prevention efforts. This course is designed for CD counselors, nurses, social workers, counselors and teachers; instructor permission required for others to enroll.

CDS 107 Adolescent Developmental Issues and Chemical Dependency 3
(was CDS 207)

Examines the special issues and challenges of working with adolescent chemical abuse and dependency. This class will cover the following: adolescent development tasks; assessment process and tools; diagnostic challenges; treatment and recovery considerations; co-occurring disorders and relapse prevention. It will also cover information about family assessment, treatment, and recovery issues.



CDS 108 Running School-Based Support Groups 3

(was CDS 108)

This is an experiential course during which students will practice running several types of substance abuse groups that are commonly found in a school setting. We will discuss how these groups differ in a school setting versus a treatment setting. The course will discuss three types of groups: Alcohol/Drug Information groups, Concerns Persons group, and Recovery groups. We will discuss each group's structure and content. Also we will go over the basics of group development.

CDS 110 Alcohol/Drug Pathophysiology and Pharmacology 3

(was CDS 211)

Reviews the human body with emphasis on the action of alcohol and other frequently abused drugs on each of the systems. Drug classification, prescription and non-prescription, drug interactions, poly-drug abuse, detoxification process, acute and post-acute withdrawal signs and systems will be studied. Fetal effects from substance abuse will be examined.

Prerequisite: CDS 101, 102, and 113 (was CDS 213) with a C or better.

CDS 111 Record Keeping and Case Management 3

Introduces the student to case management and record keeping techniques. Assessment, diagnosis, individual treatment planning, charting, and continuing care planning will be explored. Confidentiality utilization review and staffing techniques will be discussed.

Prerequisite: CDS 101 with a C or better.

CDS 113 Treatment Principles of Chemical Dependency 3

(was CDS 213)

Provides a working knowledge of treatment principles and models. It will explore the anatomy of addiction and the principles and process of treatment. This includes principles of relapse, relapse prevention and stages of recovery.

CDS 121 Legal and Ethical Issues in Chemical Dependency Studies 3

Studies ethical and legal issues in chemical dependency counseling. Counselor/client professional relationship will be reinforced.

CDS 201 Dynamics of the Family and Chemical Dependency 3

Introduces students to the dynamics of the chemically dependent family. Studies the effects of addiction on the family. ACOA (adult children of alcoholics) issues will be addressed. Education and treatment strategies will be explored. Students must enroll concurrently in CDS 111, and either enroll concurrently in CDS 110 (was CDS 211) or obtain instructor permission.

Prerequisite: CDS 101, 102, 113 (was 213), and 215 with a C or better.

CDS 202 Chemical Dependency Counseling with Diverse Populations 3

This course is designed to prepare the chemical dependency counselor for working with individuals and families from diverse populations. The goal of the course is to raise the level of awareness and cultural sensitivity of the chemical dependency counselor. It will challenge the student to examine culturally learned assumptions that shape their interactions with clients. It helps the chemical dependency counselor become more knowledgeable about social structures that cause inequality and its effect on treatment.

Prerequisite: CDS 101, 102, 113(was 213), and 121 or instructor permission.

CDS 203 Relapse Prevention and Intervention 3

This course is designed to educate the chemical dependency counselor on all aspects of the relapse process. This includes assessment, education, and intervention, relapse treatment plans, family involvement, and stress management.

Prerequisite: CDS 101, 102, and 113 (was 213) or instructor permission.

CDS 215 Group Counseling: Theories and Application 3

Provides the student with the theory and the practice of group counseling with chemical dependent clients and the families being studied. Students will gain a working knowledge of group counseling theories. Styles of group decision-making will also be applied. Role playing and modeling techniques will enhance the students' skills.

Prerequisite: CDS 101 and 113 (was 213) with a C or better.

CDS 220 Co-Occurring Disorders: Mental Health Disorders In CDS 3

Examines the mental/emotional alterations and their impact on the client with chemical dependency. Use of current edition of the Diagnostic and Statistical Manual as it relates to diagnosis.

Prerequisite: Instructor permission.

CDS 235 Advanced Family Counseling 3

Provides the student with the major theories of families and family therapy. Application of selected theories will be adapted to the chemically dependent family therapy.

Prerequisite: Must be a practicing counselor in the State of Washington or have instructor permission.

CDS 240 Compulsive Sexual Behavior 3

Focuses on the assessment, clinical and theoretical clarification and treatment of a number of forms of compulsive sexual behaviors. A distinction between addictive, compulsive, and impulsive sexual behavior will be presented as well as various theories of the condition's development. A variety of treatment modalities will be reviewed.



Chemistry (CHEM)

CHEM 100 Preparatory Chemistry 5 (was titled **Introductory Chemistry**)

Introduces the world of chemistry through the exploration of matter and the basic properties related to what our surroundings are composed of. Students will examine laws, formulas, reactions, and structure governing all substances and their interactions. Prepares students for further study in chemistry. No credit is given to those with one year of recent high school chemistry credit

CHEM 105 Survey of Chemistry 5

Provides an exploration of our universe through the study of atomic structure, interactions between matter and energy, and everyday encounters with chemistry (technology, environment, energy, materials, foods, etc.). This course is primarily for non-science majors planning to transfer. Laboratory is included.

Prerequisite: Completion of or concurrent enrollment in Math 091.

CHEM 120 Nutrition 5

Offers a scientific approach to the study of nutrition, which includes anatomy, chemical breakdown and metabolism, weight management, disease processes, and relation to lifestyle.

CHEM 121 Intro to Chemistry 5

(was CHEM 111) (was titled **Basic General Chemistry**)

Provides an exploration of the matter that makes up our universe through the study of atomic structure, gases, solutions, acids and bases, stoichiometry, and reactions. This course is primarily for non-science majors preparing for careers in the health sciences and related fields. Laboratory is included.

Prerequisite: CHEM 100 or one year of high school chemistry, completion of, or concurrent enrollment in MATH 091.

CHEM 131 Intro to Organic/Biochem 5

(was CHEM 112) (was titled **Organic Chemistry**)

Explores the chemistry of carbon compounds including structures, nomenclature, and properties of basic organic compounds with an emphasis on biochemical substances and applications. Includes families of alkanes, alkenes, alcohols, ethers, aldehydes, ketones, acids, proteins, carbohydrates, and other biochemical materials. This course is primarily for non-science majors preparing for careers in the health sciences and related fields. Laboratory is included.

Prerequisite: CHEM 121 (was CHEM 111) or CHEM 161 (was CHEM 151).

CHEM 161 General Chem w/Lab I 5

(was CHEM 151) (was titled **General Chemistry**)

Provides an in-depth study of chemistry formulas and equations, mathematics, gas laws, atomic theory, solution chemistry, periodic law, electron configurations, the mole concept, and stoichiometry. This

is the first of a three-quarter sequence designed for science majors. Laboratory is included.

Prerequisite: CHEM 100 or high school chemistry. Competence in algebra is necessary.

CHEM 162 General Chem w/Lab II 5 (was CHEM 152) (was titled **General Chemistry**)

Provides the applications portion of the year-long study of chemistry. This course examines bonding and molecular theory, intermolecular forces, solids, liquids, and gases, solutions, acids, bases, salts, pH, kinetics, equilibrium, electrochemistry, and an introduction to thermodynamics. This is the second in a three-quarter sequence designed for science majors. Laboratory is included.

Prerequisite: CHEM 161 (was CHEM 151).

CHEM 163 General Chem w/Lab III 5 (was CHEM 153) (was titled **General Chemistry**)

Examines, in more detail, equilibrium, thermodynamics, and descriptive chemistry of elements and their compounds. Topics in kinetics and equilibrium are revisited to enhance students' comprehension and understanding. The course ends with a survey of several areas of chemistry including coordination chemistry, nuclear and radiochemistry, nanochemistry, organic chemistry, and biochemistry with special emphasis on relevant and inspiring aspects of these topics. Laboratory is included.

Prerequisite: CHEM 162 (was CHEM 152).

CHEM 231 Quantitative Analysis 5

Provides a study of the qualitative and quantitative analytical applications of chemistry including the mathematical treatment of data collected. It will examine gravimetric and volumetric wet chemical analysis. Instrumental analysis of both organic and inorganic substances will be done. This is a one-quarter course required for students who are chemistry and chemical engineering majors.

Prerequisite: Completion of, or concurrent enrollment in CHEM& 163 (was CHEM 153).

CHEM 261 Organic Chem w/Lab I 5 (was CHEM 251) (was titled **Organic Chemistry**)

Explores the chemistry of organic compounds including structures, nomenclature, bonding, and properties of basic organic compounds. The course covers the families of alkanes, alkenes, and alkynes, and discusses functional groups and stereochemistry and their roles in chemical properties. This is the first in a three-quarter sequence designed for science majors in chemistry-related fields. Laboratory is included.

Prerequisite: CHEM 163 (was CHEM 153) or instructor permission.



CHEM 262 Organic Chem w/Lab II 5
(was CHEM 251) (was titled Organic Chemistry)

Continues the exploration of the chemistry of organic compounds including structures, nomenclature, and synthesis of basic organic compounds. The course covers the families of alkyl halides, alcohols, aldehydes, ketones, and other groups of compounds. Reactions and synthesis of various compounds of these families will be studied and performed. Products of the processes will be examined using physical and spectroscopic means. This is the second in a three-quarter sequence designed for science majors in chemistry-related fields. Laboratory is included.

Prerequisite: CHEM 261 (was CHEM 251).

CHEM 263 Organic Chem w/Lab III 5
(was CHEM 253) (was titled Organic Chemistry)

Continues the exploration of the chemistry of organic compounds including structures, nomenclature, and synthesis of basic organic compounds. The course covers the families of amines, carbonyls, aromatics, biochemical compounds and other groups of compounds. Reactions and synthesis of various compounds will be studied and performed. Products of these processes will be examined using physical and spectroscopic means. The course includes a qualitative analysis of organic compounds. This is the third of a three-quarter sequence designed for science majors in chemistry-related fields. Laboratory is included.

Prerequisite: CHEM 262 (was CHEM 252).

College Success (COLL)

COLL 100 College Success 5

Emphasizes development of necessary skills for successful completion of college courses. Provides techniques and strategies to improve time management, memory, lecture note taking, textbook reading, outlining, learning styles, use of library, test preparation, and test taking. Focuses on how individuals become independent learners and critical thinkers. Empowers students to apply learning strategies in all other content classes.

Computer Science (CS)

(was Computer Information Systems - CISD)

CS 100 Introduction to Information Systems 5
(was CIS 100)

Presents a general overview of information technology. Introduces the student to the complex array of components that make up an information system. The technology and human issues involved in developing a successful information system as well as career paths and ethical issues facing these professionals will be covered.

CS 101 Introduction to Internet Theory and Application 3
(was CIS 101)

Introduces Internet history and concepts: development, controlling organizations, standards, usage, and other issues. Application topics include email, FTP, browsers, search methods, and web sites. The course project is the development of a web site.

Prerequisite: Proficiency with keyboard and mouse.

CS 102 Intermediate Internet Theory, Application, and Web Page Design 5
(was CIS 102)

Offers concepts, fundamentals, and techniques of web page design, and introduction to Internet networking principles. Topics include web page usability, design principles and development, site planning, and implementation, (X)HTML scripting language and basic Cascading Style Sheets are used to create structural and presentational web pages. Students will use concepts presented in the course for development of personal and commercial web pages.

Prerequisite: CS 108 (was CIS 108) and CS 110 (was CIS 110) or equivalent or instructor permission.

CS 104 Intermediate Web Page Design 5
(was CIS 104)

Continuation of Web Page Design using client and server side scripted/programming languages and dynamic page coding to extend design capabilities and Web Site effectiveness. Methods introduced include browser control, security related issues, and Web Page structural/presentational control using these languages.

Prerequisites: CS 102 (was CIS 102), CS 170 (was CIS 180) or equivalent, or instructor permission.

CS 105 Windows Fundamentals 1
(was CIS 105)

Offers an introduction to Microsoft's Windows operating system. Students learn to use the mouse; find, move, copy, rename, and delete user files; find "lost" files; and use basic Windows programs. (See CS 110)

CS 106 Word Processing Fundamentals 1
(was CIS 106)

Offers an introduction to word processing, using Microsoft Word to type text and create documents, correct and delete text, work with margins, format, print, retrieve, save, and use other basic word processing functions. (See CS 110)

CS 107 Spreadsheet Fundamentals 1
(was CIS 107)

Offers an introduction to electronic spreadsheets, using Microsoft Excel to create, retrieve, and work with basic spreadsheets, enter and edit data, create formulas to calculate values, print, format, and use other basic spreadsheet function.



- CS 108 Internet Fundamentals** 1
(was CIS 108)
Offers an introduction to the Internet. A Web browser is used to access the World Wide Web, to send and receive email messages, to search for information, and to perform other basic Internet functions.
- CS 109 Fundamentals of PowerPoint** 1
(was CIS 109)
Introduces presentation graphics, using Microsoft PowerPoint to create electronic slide shows. Students create and edit slide shows, apply templates, format slides, enter text, print presentations, create charts, and employ other graphical functions and features.
- CS 110 Introduction to Microcomputer Applications** 3
(was CIS 110)
Introduces the student to microcomputers and software applications. Windows, word processing, and electronic spreadsheets basics are presented.
Prerequisite: Ability to use a keyboard.
- CS 111 Intro to Windows** 4
(was CIS 150)
Offers an introduction to the study of the Microsoft Windows operating systems. Presents fundamental concepts of a Microsoft Windows client operating systems, such as file management and customizing a graphical user interface (GUI).
- CS 121 Introduction to Spreadsheets** 5
(was CIS 120)
Provides an introduction to the use of spreadsheet programs in business applications. Students are provided with practical experience in using a spreadsheet to solve common business problems.
Prerequisite: BTEC 104 or CS 110 (was CIS 110), MATH 092 or BUS 104 (was BSAD 104), or instructor permission.
- CS 122 Advanced Spreadsheet Applications** 5
(was CIS 220)
Offers an introduction to more advanced spreadsheet topics. The student will use complex features such as macros, data management, and advanced formulas and functions to solve business problems. This course is intended for CS majors and business students who are ready for a challenging spreadsheet class.
Prerequisite: CS 121 (was CIS 120) with a grade of C or better, or instructor permission.
- CS 130 Introductory Database Applications** 5
(was CIS 130)
Offers an introduction to the study and use of computerized database management systems. This course provides basic database theory and application in a disciplined approach to
- problem solving in a business environment.
Prerequisite: CS 121 (was CIS 120) with a grade of C or better, or instructor permission
- CS 144 Principles of PC Operating Systems** 3
Offers an introduction to the study of microcomputer operating systems using both graphical environment and command line. This course is designed to prepare students with IT profession entry-level skills in operating systems. Topics covered include OS fundamentals, installation, diagnosis, configuration, and troubleshooting for the Windows and Linux operating systems.
- CS 170 Fundamentals of Computer Programming** 5
(was CIS 180)
Offers an introduction to computer programming concepts and the development of applications. Program development, style, testing, and documentation are presented, discussed and applied using the C++ programming language. This course is a beginning course for CS majors and others, such as engineering transfer students, wishing an introduction to structured computer programming.
Prerequisite: MATH 092 and knowledge of Windows is required
- CS 175 Event-Driven Programming** 5
(was CIS 185)
Offers an introduction to designing and implementing Windows applications using Visual Basic. Concepts involving event-driven programming, graphical user interface design, and algorithm implementation are covered.
Prerequisite: CS 170 (was CIS 180).
- CS 208 Introduction to Management Information Systems** 5
(was CIS 260)
Introduction to the principles, roles, and application of Management Information Systems (MIS) in business. Investigations into MIS include hands-on lab experiences and case studies.
Prerequisite: BUS 101 (was BSAD 110), ENGL 101, or instructor permission. CS 110 (was CIS 110) recommended.
- CS 211 Networking Basics** 5
(was CIS 211)
Offers an introduction to the study and use of microcomputer networks. Includes topics covered in the COMPTIA Network+ exam: network topologies, standards, hardware, software, media and protocols.
Prerequisite: CS 144 with a grade of C or better or instructor permission.



- CS 212 Local Area Networks: Theory and Application** 4
(was CIS 212)
Offers study of Local Area Networks. This course provides theory and practice in a disciplined approach to installing and maintaining a microcomputer network utilizing a network operating system. Students will apply their learning by developing and maintaining a Local Area Network in the laboratory.
Prerequisite: CS 211 (was CIS 211) or instructor permission.
- CS 213 Local Area Networks: Theory and Application** 4
(was CIS 213)
Offers further study of data communications and Local Area Networks. This course provides theory and practice in a disciplined approach to maintaining a data communication system utilizing LAN software. Students will apply their learning by developing, monitoring and optimizing a Local Area Network in the laboratory.
Prerequisite: CS 212 (was CIS 212) or instructor permission.
- CS 216 Network Scripting** 2
(was CIS 216)
Introductory course in shell scripting for the Windows and Linux operating systems. This course introduces both the Windows Script Host (WSH) using VBScript and the BASH shell used as an interface to the Linux operating system kernel. Students will learn to write, test, and execute scripts to manipulate client and network resources.
Prerequisite: CS 170 (was CIS 180) and CS 249 (was CIS 252) or instructor permission.
- CS 230 Database Development** 5
(was CIS 230)
Offers further study and use of computerized database management systems. Provides intermediate theory and practice in a disciplined approach to problem solving using a database management system in a business environment.
Prerequisite: CS 130 (was CIS 130) with a grade of C or better, and CS 170 (was CIS 180) or instructor permission.
- CS 245 Computer Configuration and Maintenance** 6
(was CIS 251)
Offers the computer student an introduction to the configuration of hardware in computer systems. In the laboratory, students will build computers, install operating systems and application software, troubleshoot computers and install computers and peripherals in a network environment. This course will provide a foundation in hardware for those working toward A+ Certification.
Prerequisite: CS 144 with a grade of C or better.
- CS 249 Advanced Operating Systems** 5
(was CIS 252)
Offers further study of microcomputer operating systems. This course addresses advanced concepts that are applicable to a variety of operating systems with an emphasis on Linux.
Prerequisite: CS 111 (was CIS 150) and CS 170 (was CIS 180) with a grade of C or better.
- CS 260 Introduction to Network Security** 5
(was CIS 240)
Offers an introduction to the study of network security. This course gives the student an opportunity to learn and apply basic security concepts to a local area network. Students will apply their learning by designing a network security plan and using a variety of network security tools.
Prerequisite: CS 211 (was CIS 211) or instructor permission.
- CS 264 Computer Forensics** 5
Offers a study of computer forensics. This course gives the student an opportunity to learn and apply basic concepts of computer forensics in a laboratory setting. Students will apply their learning by using investigative tools to solve simulated computer crimes.
Prerequisite: CS 245 (was CIS 251) and CS 249 (was CIS 252).
- CS 270 Data Structures I** 5
(was CIS 280) (was titled Introduction to Data Structures)
Offers a detailed study of structured and object-oriented programming, including algorithms, searching and sorting, and data structures using the programming language C++.
Prerequisite: MATH 099 and CS 170 (was CIS 180).
- CS 275 Object-Oriented Programming in Java** 5
(was CIS 285)
Offers an introduction to the object-oriented programming paradigm using Java. Various object-oriented programming concepts will be discussed. Object-oriented programs will be developed and implemented.
Prerequisite: CS 170 (was CIS 180) or instructor permission.
- CS 280 Advanced Data Structures** 5
(was CIS 284)
Offers a detailed study of advanced data structures, including the analysis of algorithms and object-oriented programming using the programming language C++.
Prerequisite: CS 270 (was CIS 280) and MATH 112 or instructor permission.



CS 281 Digital Design 5
(was CIS 282)

Provides an introduction to the design and implementation of combinational and sequential digital circuits and systems.
Prerequisite: MATH 112 and CS 270 (was CIS 280).

CS 282 Microprocessors 5
(was CIS 283)

An introduction to the architecture of microprocessors, microcontrollers, microcomputers and assembly language programming.
Prerequisite: MATH 112, CS 270 (was CIS 280), CS 280 (was CIS 284), and CS 281 (was CIS 282).

CS 285 Programming Tools 5
(was CIS 235)

Covers tools and techniques which facilitate programming and debugging, including debuggers, profilers, scripting, and C and C++ programming under the Linux operating systems.
Prerequisite: CS 270 (was CIS 280).

Cooperative Education

288 Cooperative Work Experience 1-4

In partnership with you, your instructor, and your employer, you will develop learning objectives to apply theories, concepts, and methods studied in the classroom to a practical work environment for your field of study.
Prerequisite: Complete 9 credits of your program required courses, with at least a 2.0 GPA.

289 Cooperative Classroom Seminar 1

The classroom seminar option complements your Cooperative Work Experience (288) and helps you to prepare for future employment. You will prepare for job interviews, write an effective resume, learn job search skills and build your employment portfolio.

289 Cooperative Independent Seminar 1

The Independent seminar focuses on work-related topics and you will write a research paper to complement your work experience. This seminar option is more flexible for students with a full class schedule.

Criminal Justice (CJ) (was Administration of Justice - ADMJ)

CJ 100 Basic Law Enforcement 15
(was ADMJ 100)

Addresses criminal law, evidence, administration of justice, investigation, patrol, traffic, and juvenile procedures. This 16-week course, containing 450 hours of instruction, is designed to meet the standards of the Washington Law Enforcement Officers Training Commission basic school for newly employed officers. This course is open only to active law enforcement officers.

CJ 101 Introduction to Criminal Justice 5
(was ADMJ 186)

Introduces and provides an overview of the various agencies involved in the administration of criminal justice, including local, state, and federal agencies as well as a history of police and corrections. Students will study how our criminal justice system evolved and how it functions, examined from the perspective of the Constitution through the criminalization process of investigation, arrest, trial, and post-trial procedures.

CJ 110 Criminal Law 5
(was ADMJ 182)

Focuses on an explanation of criminal law principles including a discussion of crimes against person and property.

CJ 154 The American Legal System 5
(was ADMJ 154)

Introduces students to the philosophy of our legal system as well as how the various actors within the system interrelate.

CJ 181 Report Writing for Law Enforcement 3
(was ADMJ 181)

Prepares students interested in law enforcement to write effective and concise police reports. Strong emphasis is placed on observation, note taking, and narrative skills.

CJ 183 The Administration of Justice 5
(was ADMJ 183)

Studies criminal justice in the State of Washington, including analysis of the laws of arrest, search and seizure, grand jury proceedings, extraditing, pretrial procedures, conduct of criminal trials, rights of the accused, motions, appeals, probation, and parole. The course includes organization and jurisdiction of the Federal Court System and a study of U.S. Supreme Court decisions affecting law enforcement.



CJ 260 Physical Evidence and Criminalistics 5*(was ADMJ 260)*

Studies collection and preservation of physical evidence, scientific aids, modus operandi and crime scene search, and includes examination of physical evidence and evaluation of findings in terms of legal questions involved. The course also surveys problems relating to homicide, drugs, arson, and burglary.

CJ 286 Criminal Law Administration 5*(was ADMJ 286)*

Provides a study of legal limitations on law enforcement practices and procedures, including analysis of eye-witness identification procedures, criminal interrogations and confessions, the law of arrest, the exclusionary rule, search and seizure, and the constitutional limitations on legislative power to create and define criminal offenses.

Diesel/Heavy Equipment Technology (DHET) (was ADT)

DHET 100 Essentials of Mechanics 5

Develops beginning mechanical skills and knowledge essential to successful completion of the automotive and/or diesel technology program. Includes shop safety, fasteners, measurements, cutting tools, lifting, tool usage, shop orientation, manuals (including computer retrieval systems), bearings and seals, and special emphasis on preventive/predictive maintenance. This is an introductory course for beginning students of Automotive or Diesel Technology. Course can be waived if student has completed principles of technology and auto program in high school.

DHET 101 Electrical Systems I 5

Covers the theory of electricity from fundamentals through solid state. Includes Ohm's Law, series, parallel, and series-parallel circuits. Automotive wiring and circuits will be included as well as how to read wiring diagrams and circuit tracing and repair. Course can be waived if student has completed principles of technology and auto program in high school.

DHET 102 Electrical Systems II 10

Presents brief review of the theory of electricity. Covers theory, diagnosis and repair of low voltage systems (12V), including batteries, starting systems, charging systems, instrumentation and warning devices, lighting systems, power accessories, (e.g. power windows, power seats), and computer operation and circuit analysis. Also covered are high voltage energy, distributorless and breaker point ignition systems.

Prerequisite: DHET (was ADT) 101 or instructor permission.

DHET 104 Vehicle Climate Control 6

Studies the theory of operation, design, diagnosis and repair of both manual and automatic heating/air conditioning systems used in automobiles and truck/heavy equipment applications. This is a second year course.

DHET 111 Hydraulic Brakes 5

Covers the theory of hydraulics, fundamentals of manual, power, drum, and disc brake systems.

DHET 115 Air Brake Systems 5

Offers training on vehicle air brake systems with coverage of compressors, valves and brake foundation. Emphasis will be placed on maintaining Federal Motor Vehicle Safety Standards.

DHET 200 Internship 5

Provides paid or unpaid work experience in the discipline (Automotive or Diesel) that the student is majoring in. The class will give the students hands-on experience to familiarize them with work in an industrial setting.

Prerequisite: 36 credits or more of DHET (was ADT) courses or instructor permission.

DHET 141 Hydraulics I 4*(was ADT 205)*

Studies the basic principles, operation, and maintenance of mobile hydraulic systems.

DHET 220 Heavy Duty Power Trains 10*(was ADT 206)*

Provides study of the principles of operation, maintenance, problem diagnosis, and repair of clutch systems, manual transmission, automatic transmission, power take-off, transfer cases, drivelines, differential assemblies and final drives used in trucks and heavy equipment.

DHET 125 Heavy Duty Chassis Maintenance 10*(was ADT 207)*

Offers training in the repair, maintenance, and diagnosis of heavy equipment and truck frames, steering, suspension, wheels, tires and undercarriage.

DHET 142 Hydraulics II 6*(was ADT 210)*

Provides a more in-depth look at hydraulic pumps, valves, and actuators in mobile hydraulic systems. Emphasizes testing, diagnosis and the repair of hydraulic systems.

Prerequisite: DHET 141 (was ADT 205) or MFG 140 (was MFG 240) or concurrent enrollment.



DHET 210 Diesel Engine Rebuild 16

(was ADT 223)

Studies the operation, maintenance, repair, and overhaul of diesel engines used in heavy equipment. Required course for all Diesel/Heavy Equipment Technology majors. Not designed to be an elective, developmental, or meet the needs of the distribution list.

Prerequisite: DHET 100 (was ADT 100).

DHET 215 Heavy Duty Engine Performance 15

(was ADT 226)

Studies factors and components that affect diesel engine performance, fuel economy, and exhaust emissions. Includes fuel system and valve train problem diagnosis, maintenance, repair, and adjustment.

Prerequisite: DHET 102 (was ADT 102) or instructor permission.

DHET 216 Auto/Diesel Tune Up and Performance 5

Provides a study of the diesel fuel systems and electronic engine controls found in modern high speed diesel engines. This course will introduce students to the theory of fuel system operation, troubleshooting and the servicing of modern high speed diesel engines found in light and medium duty vehicles, cars and boats.

Prerequisite: DHET 102 (was ADT 102) or instructor permission.

DHET 228 Truck Driving for Technicians 2

Prepares second-year Diesel students to pass Washington State CDL tests (written and driving) using a combination of classroom and driving time. This class is not intended to prepare students for a career in truck driving. Rather, it prepares diesel technology students to test drive and relocate commercial vehicles.

Prerequisite: DHET 102 (was ADT 102), DHET 141 (was ADT 205), and DHET 142 (was ADT 210), or instructor permission.

DHET 230 Advanced Shop Practices 5

Provides a review of key skills learned in previous diesel program courses and reinforces industry shop practices. Emphasis will be placed on time management and documentation. Designed as a course for Diesel AAS students.

Prerequisite: Completion of 60 DHET credits.

Drafting (DRFT)

DRFT 107 Technical Graphics 1-3

Involves students in the use of techniques and standard practices of technical graphics so that design ideas can be adequately communicated and produced. Includes free-hand sketching, use of drafting instruments, line work, lettering, orthogonal projections, pictorials, basic dimensioning, and an introduction to computer-aided design drafting.

DRFT 151 Introduction to Computer-Aided Drafting (CAD) 1-3

Introduces drafting operations as applied to computer aided drafting (CAD) and the commands and procedures used to create, edit, and plot two-dimensional CAD drawings. Drawing productivity, accuracy, and organizational techniques are emphasized in this course. Assignments will be chosen from various drafting disciplines.

Prerequisite: CS 110 (was CIS 110) or instructor permission.

DRFT 210 Advanced Technical Graphics 1-3

Involves students in the use of techniques and standard practices of technical graphics towards the solution of technical design problems, and to communicate and produce design ideas. Includes dimensioning and tolerancing, production of working drawings, and advanced computer-aided design drawing. This course also introduces students to electronic, piping, and welding drawings.

Prerequisite: DRFT 107 either/or ENGR& 121 (was ENGR 111).

DRFT 252 3-D Computer Aided Drafting 1-3

Involves students in the use of parametric solid modeling towards design on three-dimensional part and assembly models. Includes creating part and assembly drawings from 3D models, modifications throughout the design process, and comparing the many parametric solid modeling software packages available.

Prerequisite: DRFT 210.

DRFT 260 Survey of Civil and Architectural Graphics 3

A survey course that introduces the student to the use of the drafting standards used by Civil and Architectural disciplines. The concepts of these standards will include: structural graphics, map drafting, architectural drafting, and welding and piping drafting.

Prerequisite: DRFT 107 either/or ENGR& 121 (was ENGR 111) or instructor permission.

Drama (DRMA)

(was DRAM)

DRMA 100 Introduction to Theatre 5

Focuses on how drama reflects and shapes community attitudes. The course looks at the historical developments of theatre in both western and non-western cultures. Particular attention is given to how the theatre through the written play and the visual presentation of a play shapes our perceptions, reflects biases or challenges our American perception of the world. Students read plays from representative world cultures, write papers and discuss them in seminar. The Center Stage production for the quarter focuses on a single play and uses the acting, directing, producing, designing, historical and social context to illustrate



the complex nature of taking a play from the printed page to the stage. The student writes a critical paper on the production, discusses it in seminar and writes a review on the production values and the contextual content of the play.

DRMA 106, 107, 108 Introduction to Acting 5

Provides practical participatory approach involving movement for the stage, voice production, improvisations, and scene work. Group work is stressed to free each person to be comfortable in interactions with other people. Students are not required to be in the current Center Stage production. No prior acting is required.

DRMA 116, 117, 118 Stage Crafts 5

Explores the technical areas involved in producing a play from design to construction to finished production by lecture and practical application of skills in selected technical fields. Practical experience is gained in sets, costumes, lights, and by serving on stage crew for the current Center Stage production.

DRMA 121 Introduction to Costume Design 5

Covers beginning design concepts from a historical perspective. Includes costume history, design, and sewing techniques. Experience is gained through construction, fitting, and final alteration of costumes for the current Center Stage production. No prior experience is necessary.

DRMA 196, 197, 198, 296, 297, 298
Rehearsal and Performance 1-5

Offers credit and experience to students who participate in the Center Stage production for the quarter. This includes actors, directors, designers, technicians, and support personnel. Students must successfully complete the rehearsal process through the final performance.

DRMA 206, 207, 208 Acting 5

Emphasizes development and application of basic acting concepts used in creating a role. Includes voice, physical movement, audition techniques, styles and periods of acting. Designed for the advanced acting student. Students are not required to be in the current Center Stage production.

Prerequisite: DRMA 106, 107, or 108, or instructor permission.

DRMA 210 Masks 5

Introduces masks as a tool for use on the stage and for understanding various cultures throughout the world. The mask helps develop the ability to concentrate, diminish self-consciousness, center the body, expand body awareness, and develop outward expressions through physicalization, improvisation and scene work.

DRMA 215C Masks of the World 5

Studies how masks are used in various societies. The application of the neutral mask leads to character masks and cultural masks. Explores the duality of mask and actor and the relationship that exists between them. The mask creates forms that reflect our culture. Seminar discusses art, theatre and cultural aspects of mask and the interrelationships that exist in individual societies. Student actors must have had at least three major roles in Center Stage productions, audition for and get a role in, and complete the current production. This is a Capstone course. See Capstone prerequisites on page 31.

DRMA 255C Theatre Project 5

Studies production style, history, playwrights, character analysis, motivation, relationships and external influences upon playwrights and the plays they write. Students participate in the current Center Stage production, either as an actor or in a technical capacity, applying an understanding of the interrelationships of art, drama, history, and psychology to the play. The current production determines course emphasis. Student actors who take the course must have had major roles in at least three Center Stage productions, and must audition for and be cast in the current production. Students in artistic and technical areas must have the instructor's permission. All students must participate in and complete the current Center Stage production. This is a Capstone course. See Capstone prerequisites on page 31.

Early Childhood Education (ECED)

APPED 090 Introduction to Apprenticeship 1

Introduces beginning apprentices to apprenticeship training, state requirements, apprentice responsibilities, and various training and educational options.

ECED 070 Math Methodology for Educators I 1

This methodology course strengthens student understanding of arithmetic on whole numbers and fractions to prepare the student to teach math standards to children age birth through age 8. This is the first class in a four part series designed to assist students in their ability to apply math in meaningful ways into their teaching strategies. *Prerequisite:* Concurrent enrollment in MATH 070 required.

ECED 091 Math Methodology for Educators II 1

This methodology course strengthens student understanding of arithmetic of pre-algebra concepts including operations on signed numbers, algebraic expressions, solving and using simple equations, ratio and proportions, exponents, measurements, geometry, statistics, and graphing using the Cartesian coordinate system to prepare the student to teach math standards to children age birth through age 8. This is the second class in a four part



series designed to assist students in their ability to apply math in meaningful ways into their teaching strategies.

Prerequisite: MATH 070 with a grade of C or better. Concurrent enrollment in MATH 091 required.

ECED 092 Math Methodology for Educators III 1

This methodology course strengthens student understanding of arithmetic of basic algebra skills including properties of real numbers, inequalities, graphing, and factoring to prepare students to teach math standards to children age birth through age 8. This is the third class in a four part series designed to assist students in their ability to apply math in meaningful ways into their teaching strategies.

Prerequisite: MATH 091 with a grade of C or better. Concurrent enrollment in MATH 092 required.

ECED 099 Math Methodology for Educators IV 1

This methodology course strengthens student understanding of arithmetic of concepts covered in Elementary Algebra in greater depth to prepare students to teach math standards to children age birth through age 8. This is the fourth class in a four part series designed to assist students in their teaching strategies.

Prerequisite: MATH 092 with a grade of C or better. Concurrent enrollment in MATH 099 required.

ECED 102 Building Bridges Early Childhood Guidance 1

Provides information and training regarding child guidance techniques. Course includes two 5-hour seminars and weekly site assistance from trained mentors in the field of early childhood education.

Prerequisite: Instructor permission required.

ECED 105 Caring for Infants and Toddlers 2

Provides an opportunity to analyze and apply developmentally appropriate practices for infants/toddlers. Introduces basic infant/toddler practices in the following competency areas: infant/toddler growth, development and learning, social emotional development, safety and health, learning environments, guidance techniques, and language/communication.

ECED 109 Literature and Language Development for Young Children 3

Provides an understanding and working knowledge of methods to foster language development in young children. Examines the development of language and communication skills, selection and presentation of appropriate young children's literature and language art activities, and intervention and evaluation of children's communication skills.

ECED 110 Basics of Childcare 2

Provides a 20-hour guidebook that meets the Washington State Training and Registry System (STARS) essential foundations for childcare. Designed to meet basic training outcomes for personnel in early childhood and school-age childcare centers as mandated by the Washington State Legislature and outlined by Washington State Training and Registry System.

ECED 115 Health, Safety and Nutrition for Young Children 3

Prepares the student in identifying basic nutritional, safety, and health needs of the young child, and explores developmentally appropriate methods to teach and encourage nutrition, health, and safety in the early childhood setting.

ECED 119 Guidance Techniques for Young Children 3

Provides practical application and knowledge of positive discipline techniques. This course will put theory into action through role-play and lecture.

Prerequisite: EDUC 114 (ECED 114) or instructor permission.

ECED 126 Practicum 1 3

Introduces basic classroom skills for preschool teachers and integrates current early childhood developmental theory/practice with the practicum experience. Students will complete an initial assessment of present teaching skills and establish objectives for increasing the basic competencies required of persons with primary responsibility for groups of young children ages 2 to 6. Development of teaching skills will be accomplished in an early childhood classroom setting. Students will be observed by the instructor and meet with the instructor in weekly seminar sessions.

ECED 127 Practicum II 3

Integrates the practicum experience with developmentally appropriate early childhood observation techniques. Designed to increase objectivity and skill in recording the behavior of young children. Students are required to work in an early childhood setting and to plan and implement appropriate activities to facilitate observation and recording of behavior. Students will be observed by the instructor and meet with the instructor in weekly seminar sessions.

Prerequisite: ECED 126 with a grade of C or better or instructor permission.

ECED 128 Practicum III 3

Refines and extends skills acquired in Practicum I and II and continues to develop competencies required of persons with primary responsibility for groups of young children. Skills are practiced in an early childhood setting. Students also meet with the instructor in weekly seminar sessions.

Prerequisite: ECED 126 and 127 with a grade of C or better or instructor permission.



- ECED 130 Introduction to Early Childhood Education** 3
Provides a general overview of early childhood education; explores various styles and child development theories; and presents an interpersonal, experiential approach to understanding how people's values, life experiences and perceptions influence interactions with children. Emphasis is directed toward developmentally appropriate practices, communication skills, discipline techniques, and building self-esteem.
- ECED 204 Music and Movement for Young Children** 3
Provides ideas for creating movement and music programs appropriate for young children. The course emphasizes singing, movement, appropriate records, rhythm instruments, and other related media for creative activities throughout the day. Provides instruction on perceptual motor skills designed for young children.
- ECED 205 Management and Operations of Early Childhood Centers** 3
Studies principles and management of day-care centers. Emphasis is on laws and regulations for childcare centers and programs, including facilities, equipment, and materials, program planning, scheduling, staffing, and record keeping.
Prerequisite: ENGL 101 and all ECED 100 level courses and EDUC 114 (was ECED 114) with a grade of C or better, or instructor permission.
- ECED 209 Early Childhood Mentor Development** 1
Provides an overview of the phases of the mentor coach process. Includes instruction in the techniques of reflective practice, the benefits for the mentor partners, and the setting of goals and objectives which align with personal and organization values.
Prerequisite: Instructor permission required.
- ECED 215 Early Childhood Curriculum Development** 3
Offers students the opportunity to secure a basic knowledge of curriculum development, examining various curriculum models. Emphasis is on selection of appropriate curriculum and implementation of that curriculum.
Prerequisite: ECED 130.
- ECED 216 Family Systems** 3
Provides skills and knowledge that family support personnel need to build on family strengths, help families deal with the increasing stress of family life, understand and respect cultural diversity and family lifestyles.
- ECED 219 Math, Science and Computers in Early Childhood** 3
Designed to provide a working knowledge and understanding of math, science and computer concepts, developmentally appropriate activities and sequencing for the individual child as well as group experiences.
- ECED 220 Arts and crafts for Young Children** 3
Prepares students to present a developmentally appropriate creative art program to young children. Class will cover child developmental growth and the exploration of art process through media and materials.
- ECED 260 Practicum IV** 1-9
Offers the opportunity for students to gradually assume the role of head teacher with a group of young children. Students plan the curriculum, attend parent meetings, coordinate staff responsibilities, and attend agency staff meetings. Students meet individually with the instructor to assess their program.
Prerequisite: ENGL 101 and all ECED 100-level courses and EDUC 114 (was ECED 114) completed with a grade of C or better.

Earth Science (ERSI)

- ERSI 104 Introduction to Earth Sciences** 5
Provides a comprehensive picture of Earth and its unique place in the universe by examining major concepts from geology, oceanography, meteorology, and astronomy. Topics include Earth-Sun relationships, plate tectonics, rock cycle, evolution of stars, composition and structure of atmosphere, hydrosphere, and lithosphere, characteristics of oceans, solar systems, and stars.
- ERSI 105 Earth Systems** 5
Presents a holistic view of Earth (our environment) as a system with emphasis on understanding the relationships of humans, atmosphere, hydrosphere, solid Earth, and biosphere. Major concepts are drawn from astronomy, meteorology, oceanography, geography, geology, biology, and ecology. Man's part in the global ecosystem is analyzed, as is our dependence on natural resources.
- ERSI 165 Wilderness Experience** 3
Presents concepts and techniques of basic hiking and camping in back country environment. Includes a multi-day back country experience.



Economics (ECON)

ECON 105 Introduction to Economics 5

Introduction to basic principles of macro and micro economics for the non-major. This course introduces the market and pricing system, the economics of the firm, the distribution of wealth and income, the institutional aspects of distribution, and international trade and monetary transaction, as well as the concepts of national wealth, operation of the United States economy, factors of production, and distribution of wealth. Additionally, this course discusses critical economic thought and its history.

ECON 201 Micro Economics 5
(was ECON 205 & 207) (was titled Principles of Microeconomics)

Studies the market and pricing system, the economics of the firm, the distribution of wealth and income, the institutional aspects of distribution, and international trade and monetary transaction.
Prerequisite: MATH 092 or BUS 104 (was BSAD 104) and ENGL 101 or BUS 119 (was BSAD 190).

ECON 202 Macro Economics 5
(was ECON 206) (was titled Principles of Macroeconomics)

Introduces concepts of national wealth, operation of the United States economy, factors of production, and distribution of wealth. Emphasis is on measurement and composition of national income and factors that affect its fluctuation.
Prerequisite: ECON 201 (was ECON 205/207) with a grade of C or better.

ECON 208C International Economics 5

Surveys the theoretical approach to the study of international trade, its effects upon national economies, motivations to trade, and gains to be made from national and regional specialization and trade. International financial institutions and their role in influencing the values of national currencies, national policies encouraging or discouraging free trade, and the role of the Pacific Northwest in international trade are considered. This is a Capstone course. See Capstone prerequisites on page 31.

Education (EDUC)

APPED 090 Introduction to Apprenticeship 1

Introduces beginning apprentices to apprenticeship training, state requirements, apprentice responsibilities, and various training and educational options.

EDUC 109 Learning Styles and Multiple Intelligences 1

Provides an introductory study of learning styles and Howard Gardner's theory of multiple intelligences.

EDUC 114 Child Development 3
(was ECED 114)

Provides an in-depth study of the physical, emotional, social and mental development of children from conception through eight years of age. Emphasis will be placed on the application of information to childcare practices.

EDUC 115 Education and the Law 3

Surveys the legal, health, and safety issues as they pertain to the rights and responsibilities of teachers and students within the school setting, including safety in the workplace. Other topics include child abuse and neglect laws, reporting procedures, the Code of Ethics, ADA, contracts, tenure, dismissal procedures, and academic freedom.
Prerequisite: ENGL 101 with a grade of C or better.

EDUC 119 Curriculum and Instruction 2
(was EDUC 114)

Investigates learning theories and their relationship to the curriculum design process, course development, implementation, and evaluation. Focus is placed on gaining a working understanding of the State Learning Goals and Essential Academic Learning Requirements.

EDUC 145 ANGEL for Instructors 2

ANGEL for Instructors is a fully online introductory course designed to enable instructors to begin using the ANGEL Course Management System with distance education and/or partially online courses. Students will gain a basic understanding of the ANGEL toolset.

EDUC 203 Exceptional Child 3
(was ECED 210)

Provides an overview of programs for young children with special needs, including current issues and trends, the identification and assessment process, the IEP/IFSP process, and a look at some intervention and instructional strategies for working with young children with special needs.
Prerequisite: ECED 130 or EDUC 205 (was EDUC 110) or instructor permission.

EDUC 204 Community College Teaching 3

Provides a comprehensive overview of professional/technical teaching in the community college. Specific topics include common teaching strategies, syllabus development, selection of course materials, assessment and grading, and the use of technology in the classroom. Lectures, discussions, class simulations, goal setting and self-assessment are included.

EDUC 205 Intro to Education w/Field Experience 5
(was EDUC 110)

Introduces the field of education, and is designed to serve the needs of those considering a career or those interested in a better understanding of the educational system. This course will



integrate readings, lectures, discussions, written assignments, student presentations, guest speakers, and observation and participation in actual elementary classrooms to provide students with a broad survey of teaching in today's schools. Meets the associate's degree cultural diversity requirement.

EDUC 206 Course Organization and Curriculum Development 3
(was EDUC 205)

Provides a comprehensive training for professional/technical teaching in the community college in designing college courses appropriate for specific certificate or degree programs. Includes an overview of learning styles, program and unit outcomes, competencies, vision and mission, and assessment techniques. Also covers the processes of proposing new or revised curricula.

EDUC 209 Occupational Analysis 3

Provides occupation-oriented research techniques, strategies, and training to assist professional/technical faculty at the community college in the process of helping their students to meet specific occupational requirements. Includes an overview of job availability, current job openings, present and future labor demands, and salary ranges by geographic area.

EDUC 214 Instructional Strategies 3

Provides an overview of the role of the teacher as facilitator. Includes instruction in knowledge and application of various classroom teaching techniques, lesson planning, and questioning skills. Provides a framework for understanding and applying fundamental elements and essential principles of instruction.

EDUC 215 Classroom Management 3

Provides pre-service teachers the necessary skills to observe and manage all aspects of the classroom. Topics include discipline, student evaluations, record keeping, grouping strategies, classroom environments, safety in the classroom, and application of "best practices" curriculum.

EDUC 275 Distance Education Certification 3

This course prepares students to design and teach an online course using a course management system and appropriate methods of pedagogy/andragogy.

Prerequisite: Instructor permission.

Engineering (ENGR)

ENGR 106 Engineering Problems 5
(was ENGR 121)

Introduces engineering, emphasizing analysis of actual engineering problems at the mathematical and reasoning levels of introductory students. Within this analytical framework, tools and concepts such as measurement theory, error analysis, dimensional analysis, metric units, systems of modeling, engineering design, and principles of elementary physics are incorporated.

Prerequisite: High school or 100-level physics or chemistry, or instructor permission.

ENGR 121 Engineering Graphics I 1-3
(was ENGR 111)

Involves students in communicating design ideas, developing visualization abilities, and analyzing engineering data through the use of graphical techniques and practices. Includes free-hand sketching, use of drafting instruments, line work, lettering, orthogonal projection, pictorials, basic dimensioning, and an introduction to computer-aided design modeling.

ENGR 122 Engineering Graphics II 1-3
(was ENGR 112)

Involves students in the use of graphical techniques and practices applied towards engineering design and analysis. Includes dimensioning and tolerancing, descriptive geometry, production of working drawings, advanced computer-aided design modeling, and an introduction to parametric solid modeling.

Prerequisite: ENGR 121 (was ENGR 111) or instructor permission.

ENGR 123 Engineering Graphics III 1-3
(was ENGR 113)

Involves students in the use of parametric solid modeling towards design on three-dimensional part and assembly models. Includes creating part and assembly drawings from 3D models, modifications throughout the design process, and comparing the many parametric solid modeling software packages available.

Prerequisite: ENGR 121 (was ENGR 111) and ENGR 122 (was ENGR 112) or instructor permission.

ENGR 204 Electrical Circuits 5
(was ENGR 215)

Provides for student application of fundamental electrical principles in designing engineering solutions associated with linear circuit analysis, mathematical models of electrical components and circuits; sources, resistors, capacitors, inductors, operational amplifiers, and simple differential equations associated with basic circuit forms.

Prerequisite: PHYS 252, MATH 153, and computer literacy.



ENGR 210 The Environmental Physics of Energy 5

Solicits student descriptions of energy production, patterns of use, and the challenges posed by dwindling energy resources using the language of physics: work, power, energy, heat, and the Conservation of Energy Principle. Students explore the physical/ technological bases of current/proposed technologies, along with current scientific discussions of environmental effects such as global warming and radiation. This course is cross-listed with ENVS 210. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: Algebraic, writing, and presentation skills; a previous distribution science course (e.g., PHYS 100) would be helpful.

ENGR 214 Statics 5

(was ENGR 122)

Engages student use of vector algebra and the sweeping power of a few fundamental principles to design real engineering solutions to problems involving discrete and distributed forces, resultants, equations of equilibrium, moments about points and lines, centroids, moments of inertia, and the principle of virtual work.

Prerequisite: ENGR 106 (was ENGR 121), MATH 151, or instructor permission.

ENGR 215 Dynamics 5

(was ENGR 261)

Engages student application of vector algebra and the sweeping power of a few fundamental principles to design real engineering solutions to problems involving translational and rotational motion associated with kinematics, kinetics, the impulse-momentum and work-energy principles, and related topics.

Prerequisite: ENGR 214 (was ENGR 122), MATH 152, and PHYS 251, or instructor permission.

ENGR 224 Thermodynamics 5

(was ENGR 260) (was titled Engineering Thermodynamics)

Encourages student application of basic principles of macroscopic thermodynamics to design solutions to engineering problems involving energy transformations and state changes, the first and second principles of thermodynamics, macroscopic properties of substances, flow analysis, entropy, equations of state, power and refrigeration cycles, and thermodynamic relations.

Prerequisite: ENGR 214 (was ENGR 122), PHYS 251, and MATH 152 or instructor permission.

ENGR 225 Mechanics of Materials 5

(was ENGR 254)

Engages students in application of fundamental principles and concepts of stress, strain and their relationships to design engineering solutions associated with axial loads, torsion and bending, combined stresses, properties of materials, columns, and repeated loadings.

Prerequisite: ENGR 214 (was ENGR 122), concurrent enrollment in MATH 152 and PHYS 252, or instructor permission.

English (ENGL)

ENGL 100 English Fundamentals 5

Introduces college-level writing skills, such as selecting a topic, generating and organizing ideas, revising, editing, and proofreading. Students needing additional preparation in writing skills may enroll in this class before ENGL 101.

ENGL 101 English Composition 5

Part One of the composition sequence. Introduces first-year college reading and writing skills to include thesis discovery, development, support and documentation, organization, sentence correctness, diction, style, and final editing. Assignments might include and integrate exposition, narration, argumentation and response. Emphasizes analytical reading and introduces formal academic documentation.

Prerequisite: College-level reading and writing skills or completion of ENGL 100 with a grade of C or better.

ENGL 102 English Composition 5

Part Two of the composition sequence. Practices and develops first-year college writing skills by emphasizing theme, argumentation, analysis, integration and documentation of evidence as part of a formal research paper, sentence correctness, diction, and style.

Prerequisite: ENGL 101 with a grade of C or better.

ENGL 110 Industrial Communication 5

Offers practical, job-related study of written and interpersonal communications. Writing includes resumes, memos, work orders, and short reports. Interpersonal communications involve active listening, as well as paraphrasing, perception checking, and group problem solving.

ENGL 124, 125, 126, 224, 225, 226 2

Arts Magazine Publication

Provides instruction and guidance for students editing the Lower Columbia College arts magazine, and examines the role of the literary small press in print and electronic publication.

Prerequisite: ENGL 101 required; ENGL 231 or 234 recommended

ENGL 161 Speed Reading 3

Helps develop flexibility, versatility, speed of comprehension, and vocabulary acquisition skills. The emphasis is on developing good reading habits and adaptability to different types of materials.

ENGL 204 The Novel 5

Provides extensive reading, discussing, and writing about the works by classic novelists. Through these novels, students will gain an understanding of how the novel works, how it has developed over a period of 200 years, and how its universal truths and insights are still applicable to the modern world. This may be offered as a Capstone course. See Capstone prerequisites on page 31. Meets the associate's degree cultural diversity requirement.



- ENGL 205 Film and Drama Appreciation** 5
Focuses on how film and drama reflect and shape community attitudes. The course looks historically at the development of narrative and style; however, particular attention is paid to how visual images shape our perceptions, reflect biases, or challenge stereotypes imbedded in popular culture. Students watch and discuss plays and films to develop critical analysis skills for interpretation and evaluation. They read representative works from Asian, African, and Native American authors and filmmakers. This may be offered as a Capstone course. See Capstone prerequisites on page 31. Meets the associate's degree cultural diversity requirement. *Prerequisite:* ENGL 101 or instructor's permission.
- ENGL 231 Creative Writing** 5
Provides an introduction to the writing of short fiction and poetry. Assignments explore techniques of writing and revising, examining the elements of stories and poems. Students critique each other's work and study the published work of other writers. *Prerequisite:* ENGL 101 or instructor's permission.
- ENGL 232 Creative Writing** 5
Engages students in writing and revising short fiction and poetry. Assignments explore the elements of stories and poems but allow students to concentrate on one form or the other. Students critique each other's work and study the published work of other writers. *Prerequisite:* ENGL 101 and 231 or consent of instructor
- ENGL 233 Creative Writing** 5
Engages students in writing and revising short fiction and poetry. Students may choose to concentrate on stories or poems in individual projects. In class sessions, students critique each other's work and study the published work of other writers. *Prerequisite:* ENGL 101, 231, and 232 or instructor's permission.
- ENGL 234 Creative Writing: Nonfiction** 5
Emphasizes the writing, constructive analysis, and revision of creative nonfiction, focusing on the personal essay and "New Journalism." Briefly examines the history of the forms and studies exemplary published works. Students use journaling and respond to other exercises to develop ideas from personal experience, write and revise essays, and critique one another's work. *Prerequisite:* ENGL 101 or instructor's permission.
- ENGL 235 Technical Writing** 5
(was ENGL 220/ENGR 220) (was titled *Technical and Workplace Writing*)
Emphasizes written workplace communications, designed especially for the CIS, engineering, and science professions. Topics covered include document format, visual design, multi-tiered audience, formal and informal reports, instructions, letters and memos. *Prerequisite:* ENGL 101 with a grade of C or better.
- ENGL 239C Creative Writing** 5
(was ENGL 235C)
Provides guidance in the writing and revising of individual projects in poetry, fiction, or personal nonfiction. Explores connections with the work of published writers in the same form or genre. Students critique each other's work and complement their creative projects with a research paper. This is a Capstone course. See Capstone prerequisites on page 31. *Prerequisite:* ENGL 231 or instructor permission.
- ENGL 240 American Literature** 5
Presents the context for works of American literature and studies major works by authors such as Melville, Dickinson, and Hemingway. Explores the major forms and movements in American literature. This may be offered as a Capstone course. See Capstone prerequisites on page 31. *Prerequisite:* ENGL 101 or instructor's permission.
- ENGL 245 Contemporary Literature** 5
Explores contemporary films, drama, poetry, and fiction using analysis, interpretation, and evaluation. Field trips to view a movie or a play, or attendance at a poetry reading may be included. Essays and other written work are required. This may be offered as a Capstone course. See Capstone prerequisites on page 31. Students will participate in seminars building to a researched term paper. Meets the associate's degree cultural diversity requirement. *Prerequisite:* ENGL 101
- ENGL 251 English Literature** 5
Surveys major authors from Beowulf, Chaucer, Shakespeare, Donne, Johnson, and Milton through 18th Century authors including Swift, Pope, and Fielding. Seminar-discussion format. *Prerequisite:* ENGL 101 or instructor's permission.
- ENGL 252 English Literature** 5
Surveys major authors from Blake and Wordsworth among other Romantic writers, Tennyson and Browning among other Victorian writers, and poets and prose writers of the 20th century, including Conrad, Yeats, Joyce, Lawrence, Eliot, Becket, and Auden. The course is operated in a seminar-discussion format. This may be offered as a Capstone course. See Capstone prerequisites on page 31. *Prerequisite:* ENGL 101 or instructor's permission.
- ENGL 254 Understanding Fiction and Poetry** 5
Examines traditional and experimental fiction and poetry, presenting the short story and the poem as related literary forms. Students will gain an understanding of the elements of fiction and poetry, as well as the ways in which writers reflect or challenge prevalent societal values through literature. This experience provides an opportunity for students to demonstrate their progress in developing the knowledge, skills, attitudes and values contained in the course plan outcomes. This may be offered as a



Capstone course. See Capstone prerequisites on page 31.

Prerequisite: ENGL 101 or instructor's permission.

ENGL 256 Special Topics in Literature 5

Focuses on special topics or genres of literature, identified each quarter. Students learn the literary depth of a specific genre or thematic topic while gaining an understanding of the different forms of literature. This experience provides transfer students an opportunity to demonstrate their progress in developing the knowledge, skills, attitudes and values. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: ENGL 101 or instructor's permission.

ENGL 260 World Literature 5

Examines literature from a thematic approach, tracing the human struggle for intellectual identity and personal autonomy in such foundational works as Gilgamesh, the Bible, the Greek classics, and in more recent writings. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: ENGL 102 or instructor's permission.

ENGL 270 Literature for Children 5

Offers a critical survey of literary materials appropriate for children from nursery through elementary school age with practice in using literature with groups. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

English as a Non-Native Language (ENL)

ENL 051, 052, 053, 054 1-5
Listening (Levels I-IV)

Provides practice in listening to everyday conversation and dialogs, authentic sources of media, and expository passages and lectures. Builds ability to aurally understand pre-taught vocabulary in context, reduced speech and idiomatic expressions. Moves from listening to simple statements and questions to longer passages. Introduces culture of the American classroom.

Prerequisite: Instructor permission or successful completion of the previous level.

ENL 061, 062, 063, 064 Speaking (Levels I-IV) 1-5

Provides practice in speaking American Standard English, including practice in discrimination and production of vowel and consonant sounds, word stress, and sentence intonation and rhythm. Stresses production of comprehensive English in both informal and formal settings. Introduces culture of the American classroom.

Prerequisite: Instructor permission or successful completion of the previous level.

ENL 071, 072, 073, 074 Reading (Levels I-IV) 1-5

Provides practice in reading improvement for both everyday use and academic purposes. Focuses on development of vocabulary, comprehension, effective reading strategies, and reading speed. Introduces the culture of the American classroom.

Prerequisite: Instructor permission or successful completion of the previous level.

ENL 081, 082, 083, 084 1-5
Writing & Grammar (Levels I-4)

Provides practice in writing improvement of sentences, paragraphs, and essays. Develops writing skills for everyday uses as well as for academic purposes. Focuses on use of the writing process, correct sentence structure, and grammar rules within the context of writing assignments. Introduces the culture of the American classroom.

Prerequisite: Instructor permission.

ENL 099 Selected Topics in English 1-5
as a Non-native Language

Provides opportunities for the study of a variety of topics in the transitional phase into college-level classes. May serve as an opportunity for individualized study in any area of listening, speaking, reading, writing, or grammar; guided study for TOEFL preparation; or as a bridge support for students entering their first college-level classes.

Prerequisite: Instructor permission.

English as a Second Language (ESL)

ESL 001-006 Guided Workshop for ESL Levels I-IV 1-15

Practices vocabulary introduced in ESL Levels I-IV. Emphasis is on small group and one-on-one work. Concurrent enrollment in ESL 011, 012, 013, 014, 015 or 016 required.

Prerequisite: Appropriate CASAS score.

ESL 011 ESL-Level I (Beginning ESL Literacy) 1-15

Introduces basic vocabulary to enable a limited English-proficient adult to understand frequently used words and very simple, slowly spoken phrases, including awareness of non-verbal communications, and very basic computer skills.

Prerequisite: Appropriate CASAS score.

ESL 012 ESL-Level II (Beginning ESL) 1-15

Introduces additional vocabulary to enable a limited English-proficient adult to listen actively and respond to verbal and non-verbal communication, to express basic survival needs, and participate in some routine social conversations. Provides instruction in using simple computer programs to perform routine tasks.

Prerequisite: Appropriate CASAS score.



ESL 013 ESL-Level III (Low Intermediate ESL) 1-15

Continues work in oral and written English from ESL 012 to enable students to respond appropriately to verbal and non-verbal communication, read and understand material about familiar subjects, write and edit simple paragraphs, set goals, and use basic computer software such as word processing.

Prerequisite: Appropriate CASAS score.

ESL 014 ESL-Level IV (High Intermediate ESL) 1-15

Provides instruction to enable a limited English-proficient adult to understand descriptive and spoken narrative; to request, clarify and confirm basic information; to state and explain own opinions; to write short essays on familiar topics; and to set goals and work with most basic computer software.

Prerequisite: Appropriate CASAS score.

ESL 015 ESL-Level V (Low Advanced ESL) 1-15

Provides instruction to enable a limited English-proficient adult to participate effectively and independently in conversations on everyday survival, work and social situations. Also to read and understand real-life materials on everyday subjects, write multi-paragraph essays, and use common computer software.

Prerequisite: Appropriate CASAS score.

ESL 016 ESL-Level VI (High Advanced ESL) 1-15

Provides instruction to enable a non-native speaker to participate effectively and independently in conversations, with emphasis on grammar, word choice, register, pace, and gesture. Also to read and understand most materials, convey ideas in writing, and confidently use word processing.

Prerequisite: Appropriate CASAS score.

Environmental Studies (ENVS)

ENVS 110 Intertidal Ecology & Wilderness Experience 2

Provides a wilderness backpack camping experience and an ecological study of the rich community of life forms that occupy the rocky coastline between the low and high tide marks.

ENVS 120 Natural History and Environment 3

Draws from the rich spectrum of American nature and environmental literature from colonial times to the present to illustrate the scientific method, principles of ecology, and the human position in the natural world.

Prerequisite: ENGL 101 or instructor permission.

ENVS 130 Study Abroad: Tropical Ecosystems 3

Explores the ecology and diversity in the Costa Rican rainforest or the Belize barrier reef, second largest in the world. Teaches principles of ecology as they reflect upon this still largely unspoiled reef, home of a diverse array of colorful marine organisms.

ENVS 150 Environment and Society 5

An introduction to the interdisciplinary field of environmental science based on major concepts from the biological, physical, and social sciences. Students examine the connection between the natural world and its inhabitants, especially humans. Emphasis is on environmental problems, including their impact on human societies, and possible solutions. Major topics covered are ecosystems, natural resources, pollutants, population, climate change, consumption, conservation and resource management, and environmental ethics. Local to global issues will be discussed. Meets the associate's degree cultural diversity requirement.

ENVS 200 Environmental Conservation 5

Provides an introduction to the interdisciplinary field of environmental science based on major concepts from the physical, biological, and social sciences, including political science and economics. Examines the interrelationships between the environment and its inhabitants, including humans. Major topics covered are ecosystems, natural resources, pollution and other wastes, population, consumption, history of conservation and resource management, and environmental ethics, issues, and information. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: Any college-level natural science course recommended.

ENVS 210 The Environmental Physics of Energy 5

Solicits student descriptions of energy production, patterns of use, and the challenges posed by dwindling energy resources using the language of physics: work, power, energy, heat, and the Conservation of Energy Principle. Students explore the physical/technological bases of current/proposed technologies, along with current scientific discussions of environmental effects such as global warming and radiation. This course is cross-listed with ENVS 210 and ENGR 210. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: Algebraic, writing, and presentation skills; a previous distribution science course (e.g., PHYS 100) would be helpful.

ENVS 215 Environmental Issues & Applications 5

Environmental science is concerned with analyzing and solving problems stemming from many of today's most pressing issues (e.g., climate change, human population growth, toxic chemicals, resource use, and species extinctions). Students will investigate these issues with an emphasis on four overlapping themes: global climate change, environmental toxicology, conservation biology and restoration ecology, and sustainability. Laboratory is included.

Prerequisite: ENGL 101 or consent of instructor, and MATH 099, and one or more of the following: BIOL 100, ENVS 150, ERSI 104, GEOL 105 or GEOL 118, OCNG 140.



Fire Science (FISC)

FISC 101 Introduction to Fire Protection 3

Studies the history and development of fire service as well as safety and security movements. Identifies general fire hazards and their causes and how to apply fire protection principles.

FISC 105 Fundamentals of Fire Prevention 3

Studies fundamentals of fire inspection standards and techniques of evaluation, identification of hazards, and making practical recommendations. Students write reports and conduct on-site building inspections to locate hazards and recommend improvements. Students study fire prevention and education programs and conduct presentations.

FISC 109 Fire Service Safety 3

Studies firefighter health and safety as it relates to Washington State. Emphasizes day-to-day health and safety of department members. Addresses standards and regulations, the safety officer's role, accident prevention and investigation, record keeping. Structural, EMS, hazardous materials, and wild land emergencies will be addressed.

FISC 110 Fire Science I 3

Studies characteristics and behavior of fire, fundamental physical laws and chemical reactions occurring in fire and fire suppression. Analyzes factors contributing to fire—its cause, rate of burning, heat generation and travel, by-products of combustion, fire confinement, control, and extinguishing.

FISC 111 Basic Fire Fighting Skills 10

Studies basic tools, procedures, techniques and safety precautions utilized by the fire fighter during fire ground operations based on nationally recognized professional standards and Washington State "basic fire fighter" training requirements.

FISC 112 Intermediate Fire Fighting Skills 5

Continues to develop basic fire fighting skills learned in FISC 111, in creasing technical knowledge of ground operations. Emphasis is placed on team skills performed as an evolution by an engine company, including ladder and hose evolutions, power tools, rescue practice and procedures.

Prerequisite: FISC 101 and FISC 111.

FISC 125 Emergency Service Rescue 3

Studies a variety of procedures, equipment, and tools utilized by emergency rescue personnel. Student will become familiar with building search, auto extrication, rope rescue, and water rescue.

Prerequisite: FISC 112 or instructor permission.

FISC 129 Emergency Incident Management 3

Studies the emergency incident management (IMS) process as it applies to the fire service at the "fire company" level. Emphasis to include basic command structure and components, incident safety considerations, personnel accountability, and application of the management process to a variety of emergency situations.

FISC 170 Emergency Medical Technician I 8

Provides skill development in recognition of symptoms of illness and injuries, and in proper emergency care problems. Includes proficiency tests and evaluation sessions. Prepares students to take the state certification examination for EMT I.

FISC 175 First Responder 6

Introduces the concept of preliminary emergency medical care and teaches the skills needed to provide such care with a limited amount of equipment. Emphasizes the roles and responsibilities of the first responder, including acting as liaison with other emergency service personnel, recognizing the seriousness of patients' conditions, and administering appropriate emergency medical care for life-threatening injuries.

Prerequisite: Instructor permission.

FISC 204 Report Writing for Fire Fighters 5

This course provides technically specific writing skills for persons enrolled in Fire Science programs. Training will include the effective preparation of field reports, inspection reports, and various narratives. This writing process, research writing and editing for grammar and punctuation are reviewed.

FISC 205 Fire Investigation and Cause Determination 3

Studies burning characteristics of combustibles. Interprets clues and burn patterns leading to point of origin. Identifies incendiary indications, sources of ignition and materials ignited, and how to preserve the fire scene evidence.

FISC 206 Hazardous Materials 3

Reviews basic chemistry as it applies to fire technology. Studies the identity of hazardous material by color, symbol, and marking. Covers recommended practices for storage and handling of solids, liquids, and gases, and studies fire control methods for these materials. Meets federal standards for awareness and operations level.

FISC 207 Fire Apparatus and Pumping Equipment 3

Provides an introduction to various fire pumps and their operation. Reviews operating principles and construction of various equipment, and covers preventive maintenance and troubleshooting. Also introduces ground flow and friction loss considerations, and pump discharge pressure calculations.



FISC 210 Building Construction for Fire Protection 3

Offers knowledge and skills in the various construction features of buildings. Includes structural features affecting fire spread and building collapse, the effect of fire on materials, fire stops and ratings. Use of blueprints and plans to understand building features and pre-fire planning is emphasized.

FISC 215 Fixed Systems and Extinguishers 3

Studies portable extinguisher equipment, fire alarm and detection systems, sprinkler systems and standpipes, protection systems for special hazards, explosion release, ventilated systems, inert atmosphere and static bonding.

FISC 220 Wildland Fire Fighter II 4

Trains persons in the basic skills of wildland fire fighting. Examines wildland fire behavior, fire control tactics, operation of fire pumps, standards for fire fighter safety and survival, and an introduction to the Incident Command System. Students completing this course will be qualified to suppress wildland fire under close supervision.

FISC 224 Fire Service Instructor I 3

Provides a basic understanding of the implementation strategies for specific fire service curricula and instructional methodology used in the workplace. Each student will demonstrate the knowledge of and the ability to deliver instruction from prepared materials, and effectively critique lesson deliveries of their peers.

FISC 230 Wildland Firefighter II Refresher 1

Refreshes basic skills of wildland fire fighting. Examines wildland fire behavior, fire control tactics, operation of fire pumps, standards for firefighter safety and survival, and an introduction to the Incident Command System. Students completing this course will be qualified to suppress wildland fire under close supervision. *Prerequisite:* FISC 220 or equivalent.

FISC 255 Fire Fighting Tactics and Strategy 3

Studies fire ground tactics and strategy, responses and size-ups, protection of exposures, containment, extinguishing, the command post, combined operations, analysis and post-mortem evaluation, pre-fire surveys, and planning.

FRCH 114 Intro to French Language and Culture: Study Abroad 3

Surveys art and culture in France, introduces the French language, and provides a multicultural overview of the French speaking world through study abroad.

FRCH 121 French I 5
(was FREN 101)

Provides a foundation for communicative competency and oral proficiency in simple and correct French. Listening comprehension, speaking, writing, and reading skills will be stressed with a primary emphasis on comprehension and speaking in the present tense.

FRCH 122 French II 5
(was FREN 102)

Continues development of a foundation for communication in French. Introduces past and future tenses. *Prerequisite:* FRCH 121 (was FREN 101) or one year of high school French.

FRCH 123 French III 5
(was FREN 103)

Provides practice in pronunciation and translation of French. Listening and speaking are stressed. *Prerequisite:* FRCH 122 (was FREN 102) or two years of high school French

FRCH 221, 222, 2235 French IV, V, VI 5
(was FREN 201,202,203)

Reviews basic structure; expands conversation and reading skills. Thematic approach to contemporary French culture and literature. *Prerequisites:*
For FRCH 221 (was FREN 201) – FRCH 123 (was FREN 103), 3-4 years of high school French or equivalent.
For FRCH 222 (was FREN 202) – FRCH 221 (was FREN 201), 3-4 years of high school French or equivalent.
For FRCH 223 (was FREN 203) – FRCH 222 (was FREN 202), 3-4 years of high school French or equivalent.

Geography (GEOG)**GEOG 105 Physical Geography 3 or 5**

Uses maps to examine the distribution and interrelationships of such factors of our physical environment as climate, soils, vegetation, and landforms. Topics include Earth–Sun relationships, seasons, time, weather, hydrology, geomorphology, natural vegetation, ecosystems, and their significance within the biosphere. Students may choose to take the course for 3 credits (lecture only) or for 5 credits (lecture and lab). Laboratory includes use of globes, maps, and aerial photographs for analysis and problem solving. Field trip may be required.

French (FRCH)

(was FREN)

FRCH 110 Introduction to French Language and Culture 3

Surveys art and culture in France, introduces the French language, and provides a multicultural overview of the French speaking world. Students cannot earn credit for both FRCH 110 and FRCH 114.



Geology (GEOL)

GEOL 105 **Geology: Earth Revealed** 5

Offers a comprehensive one-term study of the Earth's physical properties and processes. Major topics are rocks and minerals, weathering, erosion, deserts, coasts, ground water, plate tectonics, volcanoes, earthquakes, mountain building, and geologic hazards. Laboratory work, to be completed at home, includes identification of minerals and rocks and map interpretation. This telecourse is recommended only for the strongly self-motivated student. It is not intended for geology majors.

GEOL 116 **Geology of Earth's Interior** 5

Examines Earth's internal composition, structure, and dynamic internal processes. Major topics include minerals, the rock cycle, volcanoes, earthquakes, mountain building, plate tectonics, and geologic resources. Laboratory work includes identification of minerals and rocks, location of earthquake epicenters, and mapping of geologic hazards. A field trip may be required.

GEOL 117 **Geology of Earth's Surface** 5

Examines Earth's surface rocks, structures and processes including weathering, landslides, and erosion. Major topics include minerals, rocks, streams, glaciers, waves, coasts, deserts, ground water, geomorphology, and geologic resources. Laboratory work includes identification of rocks, interpretation of topographic maps, and recognition of geologic hazards. A field trip may be required.

GEOL 118 **Historical Geology** 5

Examines the physical and biological evolution of Earth as determined from evidence preserved in rocks. Major topics include plate tectonics, evolution, biogeography geologic time, and climate change. Laboratory includes identification of rocks and fossils, determination of relative and absolute ages, and interpretation of past environments. A field trip may be required.

GEOL 170 **Geology of the Pacific Northwest** 3 or 5

Explores the rocks, plate tectonics and other geologic features, and evolution of the Pacific Northwest, including the Cascades, Columbia Plateau, Olympic Mountains, and Yellowstone. Students may choose to take the course for 3 credits (lecture only) or for 5 credits (lecture and lab). Laboratory includes rock identification, interpretation of topographic and geologic maps of the Northwest. Field trips may be required.

Health (HLTH)

HLTH 100 **Occupational Safety and Health** 3

Introduces fundamental concepts and practices related to safety and hygiene in the work place, including bloodborne and airborne pathogens, AIDS awareness and risk reducing behaviors. First Aid/CPR-D training is included. Students are issued First Aid/CPR-D Health Care Provider card upon completion.

HLTH 106 **Health Today** 2

Analyzes a vast array of information on the dangers of risky health behavior and the benefits of healthy decisions as they affect one's life. Emphasis will be on personal decision-making and positive behavioral changes toward the goal of wellness as a lifestyle.

High School Completion (HSC)

HSC 001 **Health** 1-5

Covers six topics in the areas of physical, mental, and emotional health.

HSC 010 **Introduction to Literature** 1-5

Covers the types and aspects of the novel. Students study chapters of popular classic novels and one of the novels in depth.

HSC 011 **Literature: The Short Story** 1-5

Provides instruction for students to learn to analyze the development of plot, character, point of view, mood, and theme. Includes writing plot summaries and answers to study questions.
Prerequisite: 9th grade reading level

HSC 012 **Introduction to Writing** 1-5

Provides instruction and practice in proper sentence structure and paragraphing.

HSC 013 **Grammar and Writing** 1-5

Emphasizes development of detail and various forms of, organization in writing. Students use text materials based on diagnostic testing.

HSC 024 **Physical Geography** 1-5

Surveys physical geography that includes a lab component.

HSC 025 **Physical Ecology** 1-5

Surveys ecological concepts, which include using the scientific method for gathering data, exposure to scientific laws and theories, population dynamics, making careful observations, humans and the environment and basic theories of biodiversity.

HSC 030 **U.S. Government** 1-5

Surveys the United States system of government including the United States Constitution, the three branches of government, and the effect citizens have on governmental decisions.

HSC 031 **U.S. History I** 1-5

Surveys pre-colonial history through 1876 with a concentration on major issues, events and people in the developing American nation.



HSC 032 U.S. History II 1-5

Provides a continuation of U.S. History I, covering the period from 1876 to present.

HSC 033 Washington State History 1-5

Surveys early development in the Pacific Northwest, including Native American history, early white explorers, government claims, treaties and wars, resources and industries, and the statehood of Oregon and Washington.

HSC 035 Contemporary World Problems 1-5

Surveys current world problems regarding the environment, health, and politics, and how they may influence future generations.

HSC 042 Consumer Finance 1-5

Presents topics necessary for personal money management, including budgeting, banking, consumer credits, taxes, and the role of the consumer in the economy. This course is intended as an elective or a math course. Basic math skills are recommended.

History (HIST)

HIST 116 Western Civilization I 5

(was HIST 106) (was titled Western Civ to 1500)

Traces the economic, political, social and cultural development of various western civilizations up to c. 1500. We will also endeavor to show that contemporary American culture is the living, breathing manifestation of ideas, beliefs, customs, habits and institutions of Western cultural traditions.

HIST 117 Western Civilization II 5

(was HIST 107) (was titled Western Civ 1500 - 1850)

Examines the material and mental developments in Western religious, political, economic, social and cultural life from the early sixteenth century to the mid-nineteenth century. More specifically, the course explores the profound changes attending the Reformation, the scientific revolution, the rise of the modern nation state, the Enlightenment, and the projection of the Western presence abroad.

HIST 126 World Civilization I 5

(was HIST 116) (was titled World History to 1500)

Focuses on the origins, development, and cultural features of various societies up to 1500 C.E., including the peoples of Asia, Africa, Europe, the Americas, and Oceania. This course examines the political, social, and cultural contours of particular societies and the interactions and relationships among people of different cultures.

HIST 127 World Civilization II 5

(was HIST 117) (was titled World History 1500 - 1800)

Examines the dramatic changes in world history in the early modern period, a time of profound and unprecedented

transformations in many societies around the world. Historical topics include: the development of new economic systems such as mercantile capitalism; large-scale interactions such as the Columbian exchange; scientific, philosophical, and political revolutions; and new global relationships such as colonialism.

HIST 128 World Civilization III 5

(was HIST 118) (was titled World History 1800 - Present)

Examines the ways people in the past two hundred years have shaped and reacted to the issues of the modern world. Special attention may be given to "modern" themes: 1) the emergence of global economic systems and their political, social and cultural effects; 2) the role of warfare, empire, power relations, and revolution in shaping international events; and 3) the interactions and reactions when cultural values, ideas, and technologies of many societies are in sustained contact.

HIST 136 U.S. History I 5

(was HIST 156) (was titled U.S. History to 1865)

Focuses on the causes and effects of social, cultural, political, intellectual and economic change. Attention will also be given to the events outside North America which contributed to the emergence of the United States.

HIST 137 U.S. History II 5

(was HIST 157) (was titled U.S. History 1865 - Present)

Focuses on the causes and effects of social, cultural, political, intellectual and economic change, from the end of the Civil War to the present. Attention will also be given to the events (e.g., immigration) outside North America that contributed to the emergence of the U.S. as well as the effects (e.g., imperialism) of its emergence on the rest of the world.

HIST 205 History of East Asia 5

Surveys East Asian historical development from early in the nineteenth century to the present, focusing on China and Japan. This experience provides an opportunity for students to demonstrate their progress in developing the knowledge, skills, attitudes, and values contained in the course plan outcomes. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

HIST 254 History of Washington and the Pacific Northwest 5

Provides a social, political, economic history of the Pacific Northwest with particular emphasis on the State of Washington, including Native American history and gender/ethnic history. Course meets the Washington State History requirement for teacher certification. This may be offered as a Capstone course. See Capstone prerequisites on page 31.



Home and Family Life (HOFL)

HOFL 131, 132, 133 3

Parent/Child Experience

Provides knowledge of early childhood development and parenting skills. Educational experiences may take place in early learning environments such as the LCC Home and Family Life Early Learning Center and/or Head Start/ECEAP classrooms. Other options provided for students include parent seminars and independent parent/child projects.

HOFL 156 Foster Parent/Day Care Home Operations 1-5

Improves understanding of child behavior, develops self-awareness and self-esteem, and enhances communication skills and image among licensed day-care home operators and foster parents.
Prerequisite: Instructor permission.

HOFL 160 Divorce Recovery 2

Offers support and encouragement for the challenges and adjustments involved in the end of a relationship. Emphasis will be placed on understanding the process of loss, improving self-esteem, gaining effective communication skills, and developing positive adult relationships. Participants will be encouraged to establish goals for future growth.

HOFL 190 Independent Living 3

Trains foster parents and Division of Children and Family Services social workers to advance the independent living skills of adolescents in the foster care system.

Human Development (HDEV)

HDEV 075 Journeys—A Workshop for Women 2

Targets women in life transitions – divorce, empty nest, job loss, etc. – and provides them with tools to understand the challenges involved in change and new beginnings. Explores the process of transition, models of adapting to change, self-awareness, and self-assessment. Participants will explore educational and career options, with a focus on non-traditional careers that offer high-wage, high-demand opportunities, and develop a personal Success Plan. Meets for seven weeks and is graded on a pass/fail basis.

HDEV 080 Transitions 2-7

Explores and develops the coping skills, attitudes, and behaviors needed to deal with job loss or underemployment and move forward with career and life planning. Main topics include dealing with job loss, assessing interests and skills, career exploration, goal setting, and job finding skills. Additional topics may include specialized skill assessment, financial management, utilizing community resources, advanced interview preparation,

computerized job search. Skill building in reading, writing, math, and computers may also be integrated with these studies.

HDEV 089 International Student Cultural Experience 1

Provides a real-life orientation for international students to become acquainted with cultural resources in the community.

HDEV 099 International Student Orientation 1

Orients international students to American culture, including differences and expectations within the areas of academia, family life, and the community. Acquaints students with American values; American college expectations, practices, and services; accessing banking, laundry, shopping, and transportation in the community; and safety and emergency issues.

HDEV 100 New Student Orientation 1

Helps students gain in-depth knowledge of the enrollment process, student rights and responsibilities, and college policies and procedures. Emphasizes activities and services available in Career and Employment Services, Computer Labs, the Learning Center, Financial Aid, and the LCC Library. Students will be required to attend two student success series workshops.

HDEV 101 Career Planning 2, 3, or 5

Launches students into an investigation of interests, values, and careers, followed by decision-making and goal setting. The class may be offered for 2, 3 or 5 credits and emphasis in the content varies accordingly.

HDEV 106, 107, 108, 206, 207, 208 Activities/Events Programming 1-2

Involves students in development and implementation of variety of co-curricular activities. Students learn to organize educational, cultural, social, and recreational programs for campus community, as well as budget development, committee participation, and cooperative programming with campus and community organizations. Students enrolled for one credit either serve on the ASLCC Programming Board as a program director or some combination of programming committee(s) and or special projects assignment(s). Additional credit is available for additional committee or project responsibilities.

HDEV 110 Job Finding Skills 1-3

Provides effective job search techniques, including identification of transferable skills, job applications, job readiness, and creative job search. Students should be ready to conduct an active job search.

HDEV 115 Stress Management 2

Focuses on developing effective life coping skills as related to interpersonal, work, family, and academic stressors. Students examine their beliefs, emotions, and self-defeating behaviors.



HDEV 116, 117, 118, 216, 217, 218 1–3**Leadership and Student Government**

Offers experience in elections, meeting procedure, college and ASLCC committees, planning and conducting governance activities, planning and managing budgets, deliberating issues and setting goals for student welfare, and effective leadership responsibilities. Students enrolled in this class are voting members of the Executive Council of the ASLCC.

HDEV 120 Individual and Group Relations 1

Extends to students opportunities in transfer information, goal setting, and other areas related to behavior change. Course may be repeated up to six times for a total of 6 credits.

HDEV 125 Assertiveness Training 2

Examines interpersonal dynamics of relationships and personality. Students explore fears and anxieties connected to their interpersonal conflicts, as well as the impact of their personality on communication and behavior.

HDEV 127 Student Support Services 1–3

This variable 1–3 credit course is designed to increase the retention, graduation, and transfer rate of first generation, low-income, and students with disabilities who are enrolled as Student Support Services participants. This course will expose students to strategies and activities designed to enhance a student's ability to learn, develop educational perspective, and improve academic performance. Emphasis on each student's Individualized Academic Plan and personal needs will determine the class content.

HDEV 145 Anger Management 2

Encourages students to examine irrational beliefs and self-defeating behaviors. Focus is on covert and overt behaviors contributing to the power held by our "intimate enemies."

HDEV 150 Psychology of Humor 2 or 3

Engages students in laughter and play. Focuses on biological and psychological effects of humor. Designed to help students develop health-conscious environment, manage pain, cope with emotional issues, and reduce stress. Pass/Fail grade.

Humanities (HUMN)**HUMN 110 Introduction to Cultures** 5

Focuses on United States immigrant groups and introduces students to a specific culture each quarter. The course will explore language, history, and social structures of the country of origin to provide insight into values and customs. The class schedule will specify the group to be featured during a given quarter and may change from quarter to quarter. For example, one quarter may feature Vietnamese while another may focus on Russian, Mexican, or other immigrants. Meets the associate's degree cultural diversity requirement.

HUMN 116 Community Conversations 5

A weekly lecture series addressing contemporary issues in American life. The areas and issues contemplated include politics, the family, religion, the environment, health care, the economy and other important issues.

HUMN 164, 165, 166 Lifestyles 5

Examines personal lifestyles affecting daily life, exploring them through a variety of topics in the humanities. Drama, film, music, art, architecture, etc.

HUMN 210 Myths and Rites 5

Explores representative creation, flood, and death-resurrection myths and rituals from Egyptian, Mesopotamian, Hindu, Greek, Judeo-Christian, and North American sources. Addresses the symbol, myth, and ritual in general along with cultural similarities and differences. This may be offered as a Capstone course. See Capstone prerequisites on page 31. Meets the associate's degree cultural diversity requirement.

HUMN 220 Arts Alive 1-10

Introduces the basics of appreciation and criticism for the arts through study and attendance at college and regional events. Explores and compares ideas and themes expressed in art, literature, music, dance, and theatre around the world. Studies different cultures and styles each term, and may be taken out of sequence. Requires attendance at a minimum of three regional events.

HUMN 230 Thinking About Thinking 5

Examines and explores the role of critical thinking and analysis in evaluating written material to include literature, non-fiction prose, and media sources. Applies various models from formal logic and literary criticism to discover both the explicit and implicit meaning of fiction, non-fiction prose and media sources.

Prerequisite: ENGL 101 or instructor permission.

Individual Development (INDV)**INDV 050 Review Math—Whole Numbers** 1

Provides a review of basic concepts of addition, subtraction, multiplication, and division of whole numbers.

INDV 051 Review Math—Fractions 1

Provides a review of basic concepts of mathematics. This course teaches addition, subtraction, multiplication, and division of fractions.

INDV 052 Review Math—Decimals 1

Provides a review of basic concepts of mathematics. This course teaches addition, subtraction, multiplication, and division of decimal numbers.



INDV 100 Basic Grammar 3

Offers basic grammar skills including simple and compound sentences, appropriate use of subject, verbs, and pronoun agreement referent, prepositional and infinitive phrases, capitalization, recognition of the eight elements of English and correct punctuation to include the period, comma, apostrophe and semi-colon use.

INDV 101 Advanced Grammar 2

Offers advanced grammar skills including the use of phrases and clauses, simple, compound, complex, and compound-complex sentence structure, correct idiomatic language, quotation marks and colons, academic diction, and style.

INDV 104 Accelerated Review of Grammar/Punctuation 1-2

Offers an individualized opportunity for advanced skill work with verbs, subjects, modifiers, sentence construction, capitalization, and the following punctuation marks: comma, apostrophe, quotation marks, and semicolon.

INDV 105 Content Reading and Learning Skills 1-2

This course is to be linked to any college course which requires academic rigor. The course provides strategies and practices in reading and studying in an actual content class. Study skills topics include lecture note-taking, textbook comprehension, marking and note-taking from textbooks, and how to prepare for and take exams. In addition to developing effective study skills, the course will provide professional learning assistance in a linked course.

INDV 109 Content Learning Skills 1-3

Learning skills class for average to above average students who are concurrently enrolled in a college level or a college preparation course. Students are provided strategies and practice in reading and studying in an actual content class textbook. Other study skills topics include time management, lecture note-taking, marking and note-taking from textbooks, and how to prepare for and take exams.

INDV 191 Introduction to Tutoring 1-3

Trains tutors in the basic techniques involved in helping others learn how to learn. These techniques include effective communication, human relations training, teaching strategies and study skills. Practice in utilizing tutoring skills will be incorporated. Actual tutoring experience will be evaluated during the quarter.

Individualized Certificate Program (ICP)

288 Cooperative Work Experience 1-4

You, your employer, and the ICP manager decide what you will learn during your on-site training. You will keep a journal of your experience and attend a weekly seminar to track your progress.

289 Classroom Seminar 1

A weekly seminar to assist you in preparing for your cooperative work experience and for future employment. You will conduct informational interviews, prepare for job interviews, write an effective resume, learn job search skills, and create your employment portfolio.

Industrial Maintenance Technology (IMT)

IMT 100 Maintenance Fundamentals 3

(was IMT 101/IMT 102/IMT 104 and MAMT 101)

Introduces essential elements of industrial maintenance. Provides an overview of the jobs and tasks generally performed in maintenance-related trades, including millwright, electrical maintenance, and instrumentation. Fundamental topics covered include the proper use of a variety of hand tools and measuring instruments, an exploration of fasteners and bearings, and safety procedures including lockout/tag out of electrical/mechanical equipment. Sketching using ANSI standards, layout and machinery installation, and basic troubleshooting techniques are also covered.

IMT 104 Rigging, Lifting, and Rigging Inspection 3

(was IMT 111/IMT 112/IMT 113 and MAMT 105/MAMT 109/MAMT 209)

Introduces essential elements of rigging gear inspection and lifting calculations using safe rigging and lifting procedures. Provides an overview of safety characteristics and capacities of lifting gear, as well as equipment removal criteria using OSHA and ASME standards. Rigging and lifting fundamentals include load weight estimation, selection of sling and rigging hardware, calculation of sling tension, locating the center of gravity of a load, and proper load moving procedures.

Prerequisite: Math 091 or placement test.

IMT 106 Industrial Lubrication 1

(was IMT 116)

Introduces various types of lubrication systems and their maintenance requirements, including ring, bath, splash, and constant level forced feed lubrication systems. Participants learn the importance of following lubrication schedules, how to change common types of oil filters, and how to properly handle and store lubricants to prevent lubricant contamination.

IMT 107 Mechanical Seals 1

(was IMT 117 and MAMT 115)

Covers the function, operation and repair of common mechanical seals. Failure analysis and identification seal removal and disassembly/re-assembly are included.



- IMT 108 Bearings-Reducing Failure Rate** 1
(was IMT 118 and MAMT 120)
Covers removal, inspection, selection, handling, installation, and troubleshooting of bearings according to manufacturer's instructions and best practices. Participants learn to identify replacement bearings and install and maintain the bearings properly using the right tools.
- IMT 110 Rotating Equipment Predictive Maintenance & Alignment** 4
(was IMT 120 and MAMT 125)
Explores the use of predictive maintenance techniques as a tool for prolonging equipment life and preventing major problems. Studies vibration analysis, lubricant and trend analysis, and techniques for extending bearing life. Principles of and procedures for reverse double dial alignment are also included.
- IMT 130 Electrical Safety** 1
(was IMEL 100)
Covers the principles of basic electrical safety as well as how to perform lockout and tag out procedures in accordance with OSHA requirements.
- IMT 131 Electrical Fundamentals D.C. Circuits** 5
An introduction to the nature and principles of electricity, interpretation of electrical and schematic diagrams, Ohm's Law, basic electrical circuit analysis, applied mathematical concepts used in solving for values in series and parallel circuits, electrical safety and basic magnetic concepts. Hands-on laboratory experiments constructing circuits, using electrical measuring equipment, and troubleshooting. The course is designed for individuals entering the electrical trades, maintenance personnel or process operators.
Prerequisite: Math 092 and IMT 130 or higher or concurrent enrollment in IMT 130 or instructor permission.
- IMT 132 Electrical Fundamentals A.C. Circuits** 5
The study of Alternating Current circuits, the use of AC measuring instruments, the use of vectors in AC circuit analysis, calculation of power factor and its correction, single phase and three phase AC distribution systems, transformers, and awareness and compliance with safe work practices. Hands-on laboratory experiments constructing AC circuits, using AC measuring equipment, and circuit troubleshooting. The course is designed for individuals entering the electrical trades, maintenance personnel or process operators.
Prerequisite: IMT 131 or instructor permission.
- IMT 133 Introduction to Solid State Electronics** 6
Includes introductory diode and transistor theory, basic amplifier circuits, operational amplifiers, power supplies, oscillators, and pulse circuits. Theory is supplemented with many laboratory exercises.
Prerequisite: IMT 132.
- IMT 134 Electrical/Electronic Test Instruments** 2
(was IMT 139 and IMEL 110)
Covers the proper use of clamp-on ammeters, Wheatstone bridges, and oscilloscopes. Analog and digital meters are covered, as well as how to interpret oscilloscope waveforms.
Prerequisite: IMT 131 or concurrent enrollment.
- IMT 135 Electrical Print Reading** 1
(was IMT 136 and IMEL 102)
Teaches participants to read and interpret wiring diagrams, single line diagrams, building electrical diagrams, and ladder diagrams. Relevant schematic symbols and the application of various diagrams are also covered.
- IMT 136 Conduit Bending and Installation** 1
(was IMT 135 and IMEL 120)
Provides instructions and interaction concerning general conduit bending and installation in accordance with the National Electric Code (NEC).
- IMT 139 National Electric Code** 3
(was IMT 137 and IMEL 103)
Introduces the various requirements of the latest edition of the national electric code. Major sections and regulations are explored, with particular emphasis on interpretation and application.
Prerequisite: IMT 132 or instructor permission.
- IMT 140 Fundamentals of Industrial Measurement** 2
(was IMIN 100)
Introduces process control principles of measuring temperature, pressure, level, and flow. A wide variety of measuring instruments, including manometers, mechanical pressure sensors, transducers, thermometers, pyrometers, and thermistors, are described and demonstrated.
- IMT 144 Industrial Process Control** 1
(was IMIN 105)
Introduces students to the principles of single-loop, multi-loop, and digital process control systems. Control modes, advanced control strategies, and feedback and feed forward control are among the topics explored.
Prerequisite: MATH 106 or higher is highly recommended.
- IMT 200 Centrifugal Pump Repair** 1
(was MAMT 204)
Explains the basic operation of a "typical" centrifugal pump. This course covers troubleshooting as well as disassembly, inspection, and reassembly, and include general guidelines for mechanical seal installation.
Prerequisite: Completion of all 100 level IMT courses or instructor permission.



- IMT 204 Air Compressor Repair** 1
(was MAMT 205)
Explains the basic operation, disassembly, inspection, repair, reassembly and troubleshooting of reciprocating air compressors. Problems such as knocking, failure to unload, and excessive discharge temperature are included. Prevention of injury/damage is also covered.
Prerequisite: Completion of all 100 level IMT courses recommended.
- IMT 205 Valve Repair** 1
(was MAMT 210)
Covers the disassembly, inspection, and repair of gate, globe, and control valves. Emphasis is placed on the proper functioning and maximization of performance through proper inspection and maintenance.
Prerequisite: Completion of all 100 level IMT courses or instructor permission.
- IMT 209 Pipefitting** 2
(was MAMT 215)
Introduces the characteristics of piping systems and explains how to read associated blueprints, methods of selecting, measuring, cutting, threading, installing and insulating pipe are covered.
Prerequisite: Completion of all 100 level IMT courses or instructor permission.
- IMT 231 Electrical Control Equipment** 3
(was IMEL 201)
Introduces the operation, troubleshooting, and adjustment of various types of control equipment. Fuses, molded case circuit breakers, and control switches are covered. Includes basic principles of motor starters and troubleshooting of control circuits.
Prerequisite: IMT 132 or concurrent enrollment or instructor permission.
- IMT 232 Electric Motors** 2
(was IMEL 202)
Covers the concepts, maintenance, and testing of AC and DC motors. Includes a study of components and operation of a variety of AC motors and DC motors. Single-phase and three-phase motors are covered.
Prerequisite: IMT 231 or instructor permission.
- IMT 233 Electrical Switchgear** 2
(was IMEL 203)
Explores common components located in switchboards. Circuit breakers, bus work, disconnect, and protective relays are covered. Particular attention is given to the role played in protecting distribution systems, preventing arcing, and testing control systems.
Prerequisite: IMT 232 or instructor permission.
- IMT 234 Digital Electronic Theory** 2
(was IMEL 215)
Covers the operation and troubleshooting of various types of digital circuits. Binary logic and the use of logic gates, codes, encoders, decoders, counters, registers and data transmission are explored.
Prerequisite: IMT 132, 134 and 135 or instructor permission.
- IMT 236 Applied Digital Electronics** 5
Includes bread boarding techniques, component identification, logic and schematic diagrams, number systems, codes, basic gates, combinational logic, sequential logic, counters, shift registers, encoders, multiplexers, de-multiplexers and logic family characteristics. Circuit exploration and troubleshooting techniques are explored in the laboratory.
Prerequisite: IMT 131.
- IMT 239 Programmable Controllers** 2
Trains participants to understand programmable controller system operations, interpret power flow through ladder logic, and troubleshoot common system failures. Troubleshooting simulations are included.
Prerequisite: IMT 134 or instructor permission.
- IMT 244 Instrument Calibration** 3
(was IMIN 205)
Covers the calibration of pressure, differential pressure, temperature, flow, and level measurement instruments. Calibration basics, proper instrument performance, and common instrument errors are explained. Specific instruments covered include pressure transmitters, thermocouples, various types of flow meters, and electronic displacement transmitters.
Prerequisite: INTC 100 and MATH 106 or instructor permission.
- IMT 245 Digital Instrumentation** 1
(was IMIN 210)
Introduces the principles of digital instrumentation and signal transmission. Principles of operation, the functions of electronic components, signal characteristics, and operation of single-loop digital controllers are included.
Prerequisite: IMT 134, 140, 144 and MATH 092 or equivalent experience are highly recommended.
- IMT 249 Troubleshooting Control Systems** 3
(was IMIN 220)
Introduces a systematic approach to troubleshooting all control systems, be they single/multiple box, or distributive. Enhances logical thinking.
Prerequisite: IMT 140, 144, 244 and MATH 092 or equivalent experience are highly recommended.



IMT 264 Applied Mechanical Maintenance 3
(was MAMT 265) **Techniques**

Offers instruction in application of a wide variety of maintenance skills to a variety of mechanical maintenance situations. Practical application and problem solving are emphasized.

Prerequisite: Completion of all 100 and 200 level Mechanical courses or instructor permission.

IMT 265 Applied Electrical Maintenance 3
(was IMEL 265) **Techniques**

Offers instruction in application of a wide variety of electrical skills with emphasis on problem solving.

Prerequisite: Completion of all 100 and 200 level Instrumentation courses or instructor permission.

Instrumentation Technology (INTC)

INTC 101 Process Control I 6

Covers temperature bridges, preparation and development of temperature media and devices, calibration of simple temperature devices, the theory and physics behind pressure and pressure measurements and level measurement using different techniques.

Prerequisite: IMT 131, or instructor permission.

INTC 102 Process Control II 6

Covers methods and operation of flow measurement including orifice plates and venturi tubes, the function of relays and square root extractors in the process loop, and piping and instrument diagrams. Applies sensing and measurement principles in studying control loops, types and modes of control, and application of control elements, control valves, and actuators.

Prerequisite: INTC 101, or instructor permission.

INTC 201 Electronic Measuring Principles 6

Applies electronic fundamentals to measurement of viscosity, consistency, analytical measurements and data recorders. Discussions are supported by demonstrations, videotapes, and hands-on experience.

Prerequisite: INTC 102, IMT 132, or instructor permission.

INTC 202 Electronic Instrumentation and Control 6

Offers a discussion of electronic signal converters and conditioners, electronic control diagrams, process characteristics and disturbances. Feedback control loops are covered with various controller modes of operation and proper calibration and tuning procedures. Cascade, ration, dead time, forward and multivariable controls are introduced. Also covers troubleshooting techniques in electronic control systems.

Prerequisite: INTC 201 or instructor permission.

INTC 225 Programmable Logic Controllers, 6
Sensors and Communications

Covers programmable logic controller (PLC) components, internal operation and structure, number systems, basic programming, timers and counters, sensors, I/O modules, arithmetic instruction, advanced programming techniques, communications and installation, and troubleshooting. Theory supported with hands-on laboratory exercises in PLC system configuration and programming.

Prerequisite: IMT 131, or instructor permission.

Journalism (JOURN)

JOURN 110, 120, 130, 210, 220, 230 1-3
Editing/Newspaper Production

Provides hands-on experience in news writing, photography, editing, design and layout.

Prerequisite: ENGL 101, high school journalism or newspaper experience, or instructor permission.

JOURN 200 Basic News Writing 5

Provides a hands-on overview of the main aspects of newspaper reporting, including generating story ideas, gauging the newsworthiness of stories, interviewing news sources, and writing various types of stories – from personality profiles to “hard” news to human-interest features. Course requirements include reading and analyzing professional newspaper stories as well as writing news articles and performing all the steps that go along with that. This may be offered as a Capstone course. See Capstone prerequisites on Page 31.

Prerequisite: ENGL 101 with a grade of C or better or instructor permission.

Library (LIBR)

LIBR 101 Introduction to Library & 2
Information Research

Introduces students to the basic principles of information research. Emphasis is placed on the process of locating and evaluating information in both print and online formats. Includes basic introduction to the Internet, online databases and library catalogs, and the use of various print tools to access information. An annotated bibliography will be developed in an academic area of the students’ choice. This course is especially helpful to those enrolled in classes with a required research paper.



Machine Trades (MASP)

MASP 107 Machining for Related Occupations 2-6

This course will expose students to three basic types of machine tools as well as general shop safety, layout, cutting tool geometry, and precision measuring. The three areas of focus will be hole operations such as drilling, reaming, and tapping, engine lathe operations such as turning, facing, and boring, and the basic operation of the vertical milling machine.

MASP 111 Machine Shop I 2-10

Designed to introduce the beginning student to the safe operation of basic hand tools, saws, bench grinders, drill press and the engine lathe. The student will use these tools to complete basic projects designed to use the equipment in a wide variety of operations to develop basic skills.

MASP 112 Machine Shop II 2-10

Continues building skills learned in MASP 111, while expanding the scope to include more advanced procedures on equipment used in the previous class. This class also introduces new equipment such as a shaper and surface grinder, along with tools and procedures required for their safe operation.

Prerequisite: MASP 111.

MASP 113 Machine Shop III 2-10

Teaches students the use of milling machines and carbide cutting tools. This course will cover various techniques of holding parts and the proper use of different styles of machinery. The student will also learn to apply basic and advanced procedures to accomplish the required tasks.

Prerequisite: Completion of, or concurrent enrollment in MASP 112.

MASP 114 Machine Shop IV 2-10

Teaches design, and students will build a major project using as many machines and skills as possible to complete the project within the quarter. The project must demonstrate the proper use of machine tools and procedures learned throughout the program.

Prerequisite: Completion of, or concurrent enrollment in MASP 113.

MASP 204 CNC Machining Center Fundamentals 3

This course introduces students to the history, theory, and workings of computer numerically controlled Machining Centers. The course provides a basic understanding of the required skills to program, set up, and operate computerized machine tools.

MASP 205 CNC Turning Center Fundamentals 3

This course introduces students to the history, theory, and workings of computer numerically controlled Turning Centers. The course provides a basic understanding of the required skills to program, set up, and operate computerized machine tools.

MASP 221 Basic Computer Numerical Control: Machine Shop 2-10

Introduces students through hands-on experience to the basic operations of CNC machines. Working with computer controlled mills and lathes, basic machine functions are used to produce parts of various shapes that could not be easily made on conventional equipment.

Prerequisite: MASP 113 and MASP 210.

MASP 222 Advanced Computer Numerical Control: Machine Shop 2-10

Further the student in hands-on applications of CNC operations

Prerequisite: MASP 221 or instructor permission.

Manufacturing (MFG)

MFG 105 Industrial Safety 3

Provides instruction in general safety related to personal protection, work areas, hand tools, material handling, electrical, welding and cutting, hazardous materials, fire prevention, ladders, basic power tools and basic rigging.

MFG 110 Project Management 4

The course is an introduction to the theory of project development procedures. The concepts used for project management will include scheduling by means of the critical path method. The fundamentals of CPM will be presented and the concepts applied with software used in industry. Basic job estimating theory will be presented and applied using current industrial software.

MFG 115 Manufacturing Processes 5

A compressive study of the processing of materials, industry standards, and the manufacturing techniques that expose students to the basic types of machine tools as well as cutting tool geometry and precision measuring.

MFG 120 Quality Assurance 4

Provides the student with a comprehensive introduction to the principles and purpose of Quality Assurance Management in industry. The student will also gain basic understanding of the quality control tools used in industry, such as standard deviation, histograms, distribution curves, etc.

MFG 130 Materials Science 5

Material Science is a study of the nature, structure, characteristics, and properties of natural and synthetic materials used in contemporary industry. Emphasis will be placed on understanding how the structure and properties of industrial influence the selection of primary materials and their conversion into useful products.



MFG 140 Applied Hydraulics 4
 Covers basic problems of hydraulics, fluids, power, hydraulics actuators, controls, pressures and circuits, and principles of industrial applications.
Prerequisite: Math 091 or higher or instructor permission.

MFG 205 Work Teams in Industry 5
 Describes the interpersonal skills, teamwork and organized problem solving necessary for employees in the pulp and paper industry. Students will practice skills necessary to succeed in the workplace.

MFG 211 Statics 4
 (was 210)
 Introduces force systems and the analysis of structures, fluid static systems, and machinery using graphical techniques, right triangle trigonometry, and elementary algebra. Topics include vector notation, equilibrium, moments, couples, resultants, trusses, frames, center of mass, beams, and friction.
Prerequisite: MATH 092 or concurrent enrollment in MATH 076 (Math Lab), or instructor permission.

MFG 212 Strength of Materials 4
 Introduces design and analysis of structures and machine components through the fundamental concepts of stress, strain, and deformation of solid materials. Students will recognize axial, bending and torsional loading of structural and machine members, and solve problems that involve members under combined loading.
Prerequisite: MFG 211.

MFG 230 Computer Integrated Manufacturing 4
 Introduces the student to the basic concepts of Computer Integrated Manufacturing and provides a foundation for applying those concepts in actual industrial situations. The course also introduces the student to CAD/CAM concepts and their function in the design and manufacturing process. Students will use specialized software to design parts, simulate the machining process, and observe the production of actual machine parts.
Prerequisite: DRFT 107.

triangles with the aid of a table of trigonometric functions. A background in algebra and geometry is helpful, but not mandatory.
Prerequisite: MATH 070 with a grade of C or better.

MATH 091 Pre-Algebra 5
 This course is intended for students who need an exposure to or a review of pre-algebra concepts. It includes operations on signed numbers, algebraic expressions, solving and using simple equations, ratio and proportions, exponents, and measurement. Topics from elementary geometry, statistics and an introduction to graphing in the Cartesian coordinate are also included.
Prerequisite: MATH 070 with a grade of C or better.

MATH 092 Elementary Algebra 5
 This course is an introductory course for students without high school credit in algebra or for those students needing to refresh their algebra skills. It includes properties of real numbers, linear equations, inequalities, graphing, polynomials, factoring, rational expressions, roots and radicals, quadratic equations, and an introduction to functions.
Prerequisite: MATH 091 with a grade of C or better.

MATH 093 Geometry 5
 Explores geometric sets, angles and triangles, proof, geometric inequalities, parallels, areas and volumes of plane and solid regions, similarity, circles, and spheres. Equivalent to one year of high school geometry. Designed for students with no geometry credits or for a review of geometry.
Prerequisite: MATH 092 with a grade of C or better, or one year of high school algebra

MATH 099 Intermediate Algebra 5
 This course reviews concepts covered in Elementary Algebra in greater depth, including algebraic operations, equations and inequalities, graphs of polynomials, exponents, roots and radicals, functions, and an introduction to complex numbers and logarithms. Note: MATH 099 is not accepted by all baccalaureate institutions. Check with your advisor for further information.
Prerequisite: MATH 092 with a grade of C or better.

MATH 105 Mathematics for Health Sciences 5
 Includes a review of the basic arithmetic skills, including whole numbers and decimal numbers; fractions and percentages; powers of 10 and logarithms; introduction to basic algebraic concepts, including fractional equations and formulas; metric, apothecaries and household systems of measurement and calculations needed to determine dosages.
Prerequisite: MATH 070 with a grade of C or better.

MATH 106 Industrial Mathematics 5
 Emphasizes basic skills in applied mathematics designed to support students entering the vocational/technical work force of tomorrow. The focus is real world problem solving that students

Math (MATH)

MATH 070 Review of Math Fundamentals 5
 This course provides the student with a review of arithmetic operations on whole numbers, fractions and decimals. Covers applications of percent and proportions. To prepare the student for future math courses, introduces basic geometry and operations with signed numbers.

MATH 076 Right Triangle Trigonometry 1
 Includes theory and practical techniques of solving plane right



carry to their specific careers. Although the use of math in the workplace is primary, emphasis is given to the critical and creative thinking process as students look to strengthen their use of arithmetic concepts, measurements, practical geometry, basic algebra and right angle trigonometry.

Prerequisite: MATH 091 with a C or better or instructor permission.

MATH 107 Math in Society 5

(was MATH 130) (was titled *The Practical Art of Mathematics*)

Functions as a terminal course in mathematics for students whose major does not require further mathematics. The core topics of this course are logic, probability and statistics. Additional topics will be selected by the instructor. These topics could include geometry, number systems, linear programming, set theory, number theory, functions, graph theory, topology, etc.

Prerequisite: MATH 099 with a grade of C or better.

MATH 112 College Algebra 5

This course prepares students for further study in science, engineering, mathematics and business. The course covers advanced techniques for solving equations and systems of equations. The analysis and graphing of functions including polynomial, rational, exponential and logarithmic functions is emphasized.

Prerequisite: MATH 099 with a grade of C or better.

MATH 113 Trigonometry 5

Provides preparation for further math studies, including calculus. Students review properties of real numbers, and then investigate angle measurement, trigonometric functions and their inverses, graphs of trig functions, solving trig equations, complex numbers, polar coordinates and DeMoivre's Theorem. Students study appropriate applications throughout the course.

Prerequisite: MATH 112 with a grade of C or better.

MATH 121 Math for Elementary Teachers I 5

Strengthens students understanding of problem solving, operations on whole numbers, decimals and fractions, and number theory. This is the first class in a two-part series designed to meet the Washington State University CTEP requirements for future teachers of grades K-8.

Prerequisite: MATH 099 with a grade of C or better. (Math 107 (was Math 130) is recommended.)

MATH 122 Math for Elementary Teachers II 5

Strengthens students' understanding of the real number system, probability and statistics, geometry, measurement, functions and graphs. This is the second class in a two-part series designed to meet the Washington State University CTEP requirements for future teachers of grades K-8.

Prerequisite: MATH 121 with a grade of C or better. (Math 107 (was MATH 130) is recommended.)

MATH 125 Finite Mathematics 5

Acquaints students with linear equations and matrices, simplex method, sets and counting, probability, statistics, Markov processes, and game theory.

Prerequisite: MATH 112 with a grade of C or better.

MATH 148 Business Calculus 5

(was titled *Essentials of Calculus*)

Introduces calculus concepts needed by students of management, social science or biology, or can serve as a survey course for liberal arts majors. Course covers sets, systems of numbers, relations and functions, limits, differentiation and integration, including the definite integral, exponential and logarithmic functions and applications from various fields.

Prerequisite: MATH 112 or MATH 150 with a grade of C or better.

MATH 150 Precalculus 5

Prepares the student for the calculus sequence of courses. Students review real number systems, field properties, relations and functions, equations and inequalities, circular and inverse functions and graphs. Intended for the student with a strong background in high school mathematics.

Prerequisite: MATH 112 and MATH 113 with a grade of C or better.

MATH 151 Calculus I 5

Investigates the ideas of continuity and limit, introduces the derivative as a limit, practices techniques for computing derivatives of functions, discusses the mean value theorem and its significance, utilizes these concepts to solve problems involving related rates and extreme values.

Prerequisite: MATH 150 with a grade of C or better.

MATH 152 Calculus II 5

Introduces techniques of anti-differentiation of functions including trigonometric, logarithmic, exponential, and hyperbolic functions. Applies the concept of the definite integral to solve problems involving force, work, volume, surface area, business and economics.

Prerequisite: MATH 151 with a grade of C or better.

MATH 153 Calculus III 5

Focuses on infinite series, partial derivatives, vector calculus and their applications. Incorporates the use of polar, cylindrical and spherical coordinate systems in applications of the calculus.

Prerequisite: MATH 152 with a grade of C or better.

MATH 154 Calculus IV 3

Continuation of Calculus III. Topics include partial derivatives, multiple integrals, and vector calculus.

Prerequisite: MATH 153 with a grade of C or better.



MATH 210 Elements of Statistics 5

Introduces the student to descriptive statistics, probability and inferential statistical methods. Topics include probability distributions, sampling techniques, measures of central tendency and dispersion, correlation, regression, hypothesis testing and statistical inference. Credit cannot be earned for both BUS 206 (was BSAD 206) and MATH 210.

Prerequisite: MATH 099 with a grade of C or better.

MATH 211 Statistical Projects 3

Provides an opportunity for students to apply the statistical processes learned in MATH 210/BUS 206 (was BSAD 206) by designing their own statistical project. Topics may include nonparametric statistics, sampling techniques, design of experiments and data analysis. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: MATH 210 or BUS 206 (was BSAD 206) with a grade of C or better or concurrent enrollment in MATH 210 or BUS 206 (was BSAD 206).

MATH 215 Discrete Structures 5

Acquaints students with mathematical concepts used in computer science. Topics can include logic, induction, combinatorics, recursion, analysis of algorithms and graph theory.

Prerequisite: MATH 150 with a grade of C or better or instructor permission.

MATH 220 Linear Algebra 5

Presents the theory and properties of matrices, determinants and linear transformations. Introduces vector space and the Gram-Schmidt orthonormalization process. Deals with the calculation and application of eigenvalues and eigenvectors.

Prerequisite: MATH 151 with a grade of C or better or instructor permission.

MATH 240 Differential Equations 5

Introduces techniques of solving ordinary differential equations including the elementary methods used for first order differential equations, method of undetermined coefficients and variation of parameters for higher order equations. Includes techniques of solving systems of differential equations, the method of La Place transforms and series solutions to differential equations. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: MATH 153 with a grade of C or better.

Medical Assisting (MEDA)

MEDA 101 Medical Vocabulary I 3

Provides a foundation for building a medical vocabulary including the study of prefixes, roots, suffixes, combining forms, and pronunciation. Emphasis is on using medical terms accurately in documenting and reporting patient care procedures.

MEDA 102 Medical Vocabulary II 3

Continues the focus of MEDA 101 incorporating actual medical records and demonstrating how medical terminology is used in the clinical setting. Electronic media are used.

Prerequisite: MEDA 101 or BTEC 181.

MEDA 120 Survey of Human Anatomy and Physiology 5

Introduces students to such fundamental biological principles as the cell and metabolism, then progresses through tissues to human organ systems including respiratory, circulatory, digestive, reproductive, immune, nervous, musculoskeletal, urinary and sensory organs.

Prerequisite: Competency of ENGL 100 and MATH 070, and acceptance into the Medical Assisting program.

MEDA 121 Healthcare Law 1

Introduces the legal relationships of physicians and patients, professional liability, physician's public duties, and the role of medical office personnel in risk management. Covers the basic principles of psychology, which includes the developmental stages of the life cycle along with heredity, cultural, and environmental influences on behavior. Includes mental health issues and treatments.

Prerequisite: ENGL 100 and MATH 070, and current enrollment in the Medical Assisting program.

MEDA 122 Healthcare Ethics and AIDS Education 2

Introduces business structures in health care and the different medical specialties as well as standards of conduct, individual responsibilities, and professional attitudes necessary for medical office personnel. Examines ethical issues relating to health care. Provides seven hours of AIDS education, which meets state requirements.

Prerequisite: ENGL 100, MATH 070, MEDA 121, and current enrollment in the Medical Assisting program.

MEDA 145 Medical Laboratory Techniques 4

Provides students with skills necessary to work in a physician's office laboratory. Focuses on quality control, record keeping, specimen collection, processing and disposal, urinalysis, hematology, blood chemistry, immunology, and microbiology. Students enrolled in this course must show documentation for the hepatitis B vaccine series.

Prerequisite: MEDA 120 or BIOL 221 and BIOL 222, ENGL 100 or higher, and current enrollment in the Medical Assisting program



MEDA 146 Invasive Procedures 2

Provides students the knowledge and helps them develop the expertise to perform and document phlebotomy and intradermal injections. This course is part of the educational requirement for categories A, C, and E of the Law relating to Health Care Assistants, teaches to the scope of practice according to this law. Students enrolled in this course must show documentation for the hepatitis B vaccine series.

Prerequisite: MEDA 120 or BIOL 221 and BIOL 222, MATH 105, ENGL 100 or higher, and current enrollment in the Medical Assisting Program.

MEDA 161 Examining Room Procedures I 3

Gives students a foundation of knowledge and basic skills for assisting a health care practitioner in a clinical setting. Requires students to perform vital signs, infection control, patient care, and sterile technique. Explains and discusses OSHA standards for handling biohazardous materials along with first aid and medical emergencies.

Prerequisite: ENGL 100 and MATH 070, and current enrollment in the Medical Assisting program.

MEDA 162 Examining Room Procedures II 3

Builds on competencies developed in MEDA 161, necessary for assisting a health care provider in a clinical setting. Focuses on electrocardiography; specialty procedures, safety in radiography; nutrition in health and disease, dosage calculations, and advanced patient screening techniques.

Prerequisite: BTEC 101, MATH 105, MEDA 120 or BIOL 221 and BIOL 222, MEDA 161, and current enrollment in the Medical Assisting program.

MEDA 164 Medication Administration and Injections 1

Provides students the knowledge and helps them develop the expertise to administer and document oral, subcutaneous, intramuscular, intradermal, otic, ophthalmic, and rectal medications. This course is part of the educational requirement for categories A, C, and E of the state law relating to Health Care Assistants, and teaches to the scope of practice outlined in this law.

Prerequisite: MEDA 101 or BTEC 181; MEDA 120 or BIOL 221 and BIOL 222; MATH 105, MEDA 161 and current enrollment in the Medical Assisting program.

MEDA 165 Medications in Medical Assisting & Diseases 3

Develops an understanding and knowledge of common diseases and pathology. Students will become knowledgeable about diagnostic and treatment modalities, and become efficient in using drug reference materials. This course is part of the educational requirement for categories A, C, and E of the state law relating to Health Care Assistants, and teaches to the scope

of practice outlined in this law.

Prerequisite: MATH 105, MEDA 120 or BIOL 221 and BIOL 222, MEDA 161 and 162 and current enrollment in the Medical Assisting program.

MEDA 190 Medical Assisting Externship 6

Provides student the opportunity to apply learned skills and knowledge to a practical experience. Students are assigned to clinics and doctors' offices where they rotate to different tasks, building from the simpler to the more complex, under the supervision of a facility-appointed preceptor.

Prerequisite: All previous MEDA courses.

MEDA 195 Medical Assisting Seminar 1

Brings together students currently in externships to discuss issues as they arise in the work place. Also provides an opportunity to introduce advanced topics in medical assisting or healthcare, and to augment those subjects covered with guest speakers. Discussion and practice for the AAMA/AMA certification exam is included.

Prerequisite: All previous MEDA courses.

Music (MUSC)**MUSC 100 Fundamentals of Music 5**

Introduces music through investigation of melodic, rhythmic, and harmonic structure, and emphasizes development of basic concepts and skills in music through performance on appropriate instruments, such as tonebells, recorders, and guitars.

MUSC 101, 102, 103 Theory and Musicianship 5

Covers fundamentals, including keys, clefs, scales, intervals & triads, four-part-writing in root position & inversions; non-harmonic tones; the melodic line, major & minor keys, rhythm & syncopation; introduction to diatonic seventh chords; secondary dominants; modulation; analysis & keyboard harmony; and creative writing. Sight singing, dictation, & ear training are included.

MUSC 105 Music Appreciation 2, 3 or 5
(was MUSC 110)

Includes history, development of music, and music appreciation. Part of the course is the study of the music of foreign cultures. Lectures, readings, and recordings provide students with background for understanding and appreciation of significant musical styles of many cultures and historical periods. Meets the associate's degree cultural diversity requirement.

MUSC 106, 107, 108, 206, 207, 208 Group Piano Instruction 2

Offers study of scales, intervals, chords, and simple exercises in improvisation for those who want basic keyboard skills. Students may enroll any quarter at any level.



- MUSC 111, 112, 113** **1**
Computer Assisted Theory Laboratory
 Supplements the musicianship portion of the MUSC 101,102,103 coursework. Covers terminology, scale construction and interval construction, including aural practice in harmony, rhythm and melody.
- MUSC 115** **3**
Live Ensemble Recording
 Focuses on types of microphones, pros and cons of stereo pair miking patterns and the role of acoustics on microphone selection and placement.
- MUSC 116, 216** **1**
Musicum Practicum
 Students attend and participate in weekly concerts of popular music presented by musical ensembles/soloists. Students will critique the musical pieces that are presented, including appropriateness of style (interpretation), musical effect, technique, musicianship and stage deportment of the performers.
Prerequisites: None, but students should be prepared to perform publicly either as a member of a musical ensemble or as a soloist.
- MUSC 117** **2-5**
Music Cultures of the World
 Introduces the music of non-Western cultures. Readings, and recorded selections on CDs provide students with background for understanding and appreciation of music cultures selected from Native America and/or Black America and/or Southeast Europe and/or Latin America. Meets the associate's degree cultural diversity requirement.
- MUSC 119** **5**
American Music
 Surveys music in American life from an historic and stylistic perspective in a non-technical method. Contributions of various cultures to the music of the United States are included, with emphasis on contemporary classical and popular idioms. Meets the associate's degree cultural diversity requirement.
- MUSC 126, 127, 128, 226, 227, 228** **1**
Applied Music
 Includes one individual half-hour lesson per week. No fee is charged when lessons are provided by regular faculty. Students who study with other teachers make their own financial arrangements and pay their teachers directly.
 A-Piano; B-Brass; G-Guitar; O-Organ; P-Percussion; S-String; V-Voice; W-Woodwind.
Prerequisite: Instructor permission.
- MUSC 130** **2**
Jazz Ensemble
 Preparation and performance of literature from the jazz idiom appropriate from small to large jazz ensemble for required on and off campus concerts. Jazz literature from the swing era to the present will include bebop, rock, funk, fusion and blues. Prior knowledge of jazz improvisation not required. Open to trumpet, trombone, all saxophone, drum, bass, and guitar players with strong musical skills and good music reading abilities. The course may be repeated for credit up to seven quarters.
Prerequisite: Audition or approval by instructor.
- MUSC 131, 132, 133, 231, 232, 233** **1**
Musicum Practicum I - VI
 (was MUSC 116, 216)
 Students attend and participate in weekly concerts of popular music presented by musical ensembles/soloists.
Prerequisites: Students should be prepared to perform publicly either as a member of a musical ensemble or as a soloist.
- MUSC 134** **2-5**
Chamber Ensemble
 Offers rehearsal and performance of standard chamber music from the seventeenth through twentieth centuries. Students may form ensembles or work individually with the instructor. The course may be repeated for credit up to seven quarters.
 B-Brass; W-Woodwind; E-Mixed Ensemble; P-Percussion.
Prerequisite: Instructor permission.
- MUSC 135** **1**
Orchestra
 Offers participation in the Southwest Washington Symphony, a student/community orchestra, which rehearses and performs standard symphonic literature. Admission is by audition. The course may be repeated for credit up to seven quarters.
Prerequisite: Instructor permission.
- MUSC 140** **2**
Concert Choir
 Includes performing at college convocations, local organizations, college Christmas programs, and a spring concert. Participation in all performances and activities is required. Various styles of choral literature are studied. The course may be repeated for credit up to seven quarters.
Prerequisite: Instructor permission.
- MUSC 144** **2**
Vocal Ensemble
 Offers performance of selected music from many types of choral idioms in a small vocal ensemble. The course includes performing at local organizations, departmental concerts, and, usually, a spring tour. Participation in all activities and performances is required. The course may be repeated for credit up to seven quarters. A-Chamber Singers; B-Jazz Vocal Ensemble.
Prerequisite: Instructor permission.
- MUSC 145** **1**
Beginning Voice
 Presents beginning vocal instruction, including development of basic skills, tone production, breathing, diction, rhythm, song interpretation, and song repertoire. The course may be repeated for credit up to seven quarters.



- MUSC 150 Symphonic Band** 2
Offers rehearsal and performances of standard concert band repertoire. Activities of this college/community band include performances for special civic events in community and public concerts. The course may be repeated for credit up to seven quarters.
Prerequisite: Instructor permission.
- MUSC 161 Digital Audio I** 5
Students will study the theories and mechanics of recording audio signals to a digital medium. Students will begin to assemble the components of a final recording portfolio. Lab is included.
- MUSC 162 Digital Audio II** 5
Continued study of the theories and mechanics of recording audio signals to a digital medium. Emphasis on microphone techniques and applying technology to the acoustic realm and the effects of digital translation. Components will accumulate in the final recording portfolio. Lab is included.
Prerequisite: Music 161.
- MUSC 163 Digital Audio III** 5
Continued study of the theories and mechanics of recording audio signals to a digital medium. Students will create the initial mix of their final multi-track recording project, which will be further refined and completed during the second year of the program. Lab is included.
Prerequisite: Music 162.
- MUSC 170 Jazz Improvisation** 2
Instructs instrumental improvisation for dance combo, jazz ensemble, and accompaniment. Rhythm section, brass, and single reed instruments are emphasized.
Prerequisite: Music 101 or instructor permission.
- MUSC 181 Contemporary Musicianship and Applications I** 3
Introduces students to music theory and musicianship as related to popular (American) music. Included is basic ear training in musical styles, form and structure.
Prerequisite: Music 100.
- MUSC 182 Contemporary Musicianship and Applications II** 3
Integrates music theory and musicianship. This course continues the development of musicianship and applications from MUSC 181.
Prerequisite: MUSC 181 or MUSC 101 or MUSC 100.
- MUSC 183 Contemporary Musicianship and Applications III** 3
Integrates music theory and musicianship. This course continues the development of musicianship and applications from MUSC 181 and 182.
Prerequisite: MUSC 181 or MUSC 182 or MUSC 101.
- MUSC 200 Beginning Composition** 2
Offers study of notational, formal, melodic, harmonic, rhythmic, textural, dynamic, and expressive aspects of musical composition for the beginner including special study of the relationship of lyrics to melody. One-hour lecture class, plus weekly small group lessons.
- MUSC 201, 202, 203 Advanced Theory** 3
Includes modal theory; counterpoint; advanced modulation; altered chords; borrowed chords; secondary dominants; augmented sixth chords; the Neapolitan sixth; chords of the ninth, eleventh, and thirteenth; chromatic harmony; twentieth-century developments; analysis; composition; written work; and basic score reading.
Prerequisite: MUSC 201 – Concurrent enrollment in MUSC 211; MUSC 202 – Concurrent enrollment in MUSC 212; MUSC 203 – Concurrent enrollment in MUSC 213.
- MUSC 209 The Blues Culture** 5
Studies the perception and analysis of musical style as related to blues music. This course focuses on the chronology and cultural context of the blues from African sources through blues expansion, including its influence on American popular music. This may be offered as a Capstone course. See Capstone prerequisites on page 31. Meets the associate's degree cultural diversity requirement.
- MUSC 211, 212, 213 Computer Assisted Theory Laboratory** 1
Supplements the musicianship portion of the MUSC 201, 202, and 203 course work. Includes melodic, harmonic, and rhythmic dictation drills at advanced levels.
Prerequisite: MUSC 211 – Concurrent enrollment in MUSC 201; MUSC 212 – Concurrent enrollment in MUSC 202; MUSC 213 – Concurrent enrollment in MUSC 203.
- MUSC 261 Advanced Audio Production I** 5
Mix-down of multi-track project begins. Students will begin to assemble the components of a final recording portfolio. Lab is included.
Prerequisite: Concurrent enrollment in MUSC 161 or 162.
- MUSC 262 Advanced Audio Production II** 5
Continued study of the theories and mechanics of recording audio signals to a digital medium. Introduction to MIDI, MMC, SMPTE, synthesis and digital sampling. Use of these concepts in a multi-track environment prior to final mix-down. Creation of final pre-mastered stereo image. Lab is included.
Prerequisite: Concurrent enrollment in MUSC 161, 162, or 261.



MUSC 263 Advanced Audio Production III 5
 Application of final mastering processes and promotional material to CD for portfolio presentation. Students will finish creating their final recorded work, which will be presented in a public performance. Lab is included.
Prerequisite: Concurrent enrollment in MUSC 161, 162, 261, or 262. *Co-requisite:* MUSC 284.

MUSC 281 Contemporary Musicianship and Applications IV 3
 This course continues the study of music theory and musicianship as related to popular (American) music, reviewing and building on the concepts/skills developed in MUSC 181, 182, and 183. Included are melodic dictation, extended and altered chords, non-chord tones, rhythmic dictation & notation, and a survey of pop/rock music from c. 1950–1970.
Prerequisite: MUSC 181, 182, and 183 or MUSC 101 and 102.

MUSC 282 Contemporary Musicianship and Applications V 3
 This course continues the study of music theory and musicianship as related to popular (American) music, reviewing and building on the concepts/skills developed in MUSC 281. Included are song-writing, harmonic progressions, rhythm dictation, and trends in popular music since the 1970's.
Prerequisite: MUSC 181, 182, 183, and 281 or MUSC 101 and 102.

MUSC 284 AAS Degree Project 3
 The audio production program culminates with this course. Students complete their final portfolio, which includes their master CD, all pertinent documentation, and a business and marketing plan. The final examination is a public presentation of their completed CD with appropriate discussion and critique.
Prerequisite: MUSC 262 and MUSC 282, *Co-requisite:* MUSC 263.

MUSC 296, 297, 298 History of Music 3
 Studies history and development of western art music from Middle Ages to the present and analyzes compositions from the various musical style periods.
Prerequisite: MUSC 103.

Nursing (NURS)

NURS 090 Nursing Assistant 8
 Provides the content and experiences for students to achieve mastery of the state-defined competencies required to assist in giving basic nursing care to residents/clients under the supervision of a licensed nurse.

NURS 101 Nursing Foundations 5
 Explores concepts that form the foundation of practice as a licensed nurse in the role of caregiver, collaborator or care, decision-maker, communicator, teacher, and professional.
Prerequisite: BIOL 221, PSYC 100 (was PSYC 111), MATH 099, all with a grade of C or higher. Concurrent enrollment or prior completion of BIOL 222.

NURS 102 Basic Nursing I 5
 Builds on previously learned concepts in NURS 101 and introduces basic medical-surgical nursing care of clients with selected health challenges throughout the lifespan, including endocrine, respiratory, immune, cardiovascular, hematological, lymphatic, and musculoskeletal disorders.
Prerequisite: NURS 101 and NURS 111, and concurrent enrollment or prior completion of BIOL 260 (was BIOL 257), all with a grade of C or higher.

NURS 103 Basic Nursing II 5
 Builds on previously learned concepts in NURS 101 and NURS 102 and continues exploration of basic medical-surgical nursing care of clients with selected health challenges throughout the lifespan including gastrointestinal, genitourinary, neurological, acid-base, fluid and electrolyte, cancer, eye, ear and mental health disorders.
Prerequisite: Nursing 102 and 112; concurrent enrollment or prior completion of PSYC 200 (was PSYC 205), all with a grade of C or higher.

NURS 104 Family Nursing 5
 Builds on previously learned concepts from prior nursing courses and expands preparation for the role of the licensed nurse in the care of the family.
Prerequisite: Nursing 103 and 113; concurrent enrollment or prior completion of ENGL 101, all with a grade of C or higher.

NURS 111 Nursing Foundations - Clinical 5
 Provides opportunities to apply knowledge gained in NURS 101 and to develop skills in the performance of nursing care in the role of caregiver, collaborator of care, decision-maker, communicator, teacher and professional, with a focus on the adult client.
Prerequisite: BIOL 221, PSYC 100 (was PSYC 111), MATH 099, all with a grade of C or higher. Concurrent enrollment or prior completion of BIOL 222.

NURS 112 Basic Nursing I - Clinical 5
 Provides opportunities to build on previously learned skills and apply knowledge gained in NURS 102 through the performance of nursing care in the role of caregiver, collaborator of care, decision-maker, communicator, teacher and professional, with a focus on medical/surgical nursing care
Prerequisite: NURS 101 and 111.



- NURS 113 Basic Nursing II - Clinical** 5
Provides opportunities to build on previously learned skills and apply knowledge gained in NURS 103 through continuing and expanding the performance of nursing care in the role of caregiver, collaborator of care, decision-maker, communicator, teacher and professional, with a focus on medical/surgical nursing care.
Prerequisite: NURS 102 and 112.
- NURS 114 Family Nursing - Clinical** 5
Provides opportunities to build on previously learned skills and apply knowledge gained in NURS 104 through expanding the performance of nursing care in the role of caregiver, collaborator of care, decision-maker, communicator, teacher and professional, into care of the family.
Prerequisite: NURS 103 and 113.
- NURS 121 Nursing Foundations—Review** 2
Provides additional learning opportunities to enhance the knowledge and skills presented in NURS 101 and NURS 111.
- NURS 122 Basic Nursing I—Review** 2
Provides additional learning opportunities to enhance the knowledge and skills presented in NURS 102 and NURS 112.
- NURS 123 Basic Nursing II—Review** 2
Provides additional learning opportunities to enhance the knowledge and skills presented in NURS 103 and NURS 113.
- NURS 124 Family Nursing —Review** 2
Provides additional learning opportunities to enhance the knowledge and skills presented in NURS 104 and NURS 114.
- NURS 201 Advanced Comprehensive Nursing I** 5
(was NURS 211)
Builds on knowledge of nursing concepts and care gained at the basic level, focusing on comprehensive care of clients throughout the lifespan, in preparation for the role as a registered nurse. Topics include care of the client with cardiac, respiratory, renal, and behavioral health disorders.
Prerequisite: Completion of the LPN program; AH 101, 102, 131, and 132 or equivalent. Completion of or concurrent enrollment in CHEM 121 (was CHEM 111).
- NURS 202 Advanced Comprehensive Nursing II** 5
(was NURS 212 and 213)
Builds on concepts presented in NURS 201/221 and continues focusing on comprehensive care of clients throughout the lifespan, in preparation for the role as a registered nurse. Topics include care of the client with vascular, hematological, gastro-intestinal, and behavioral health disorders.
Prerequisite: NURS 201/221. Completion of or concurrent enrollment in SOC 101 (was SOCY 110) or ANTH 206 (was ANTH 207).
- NURS 203 Advanced Comprehensive Nursing III** 5
(was NURS 214)
Expands on knowledge gained in previous nursing courses to further prepare the students for the role of a registered nurse. Focuses on providing comprehensive nursing care for clients throughout the lifespan with endocrine disorders, cancer, burns, trauma, terminal illness, and multi-system disorders. Disaster planning, research, and professional role issues are discussed.
Prerequisite: NURS 202/222.
- NURS 209 Nursing Success** 2
Strengthens nursing skills and knowledge to promote success in upper level nursing courses. Reviews selected nursing skills, care planning, dosage calculations, legal concepts and professional issues. Familiarizes the student with LCC Nursing Program policies and clinical requirements.
Prerequisite: NURS 104 or formal acceptance into the campus-based 2nd year of LCC nursing program. Instructor permission required for enrollment.
- NURS 221 Advanced Comprehensive Nursing Clinical I** 5
Provides opportunities to apply knowledge and concepts learned in NURS 201 to nursing practice, cultivate critical thinking, and develop skill in the performance of nursing care at the registered nurse level in the role of caregiver, collaborator of care, decision-maker, communicator, teacher and professional. Acute care and community-based setting will be utilized.
Prerequisite: Completion of LPN program. AH 101, 102, 131, and 132 or equivalent. Completion of or concurrent enrollment in NURS 201.
- NURS 222 Advanced Comprehensive Nursing Clinical II** 5
Provides opportunities to apply knowledge and concepts learned in NURS 202 to nursing practice, advance critical thinking, and expand skill in the performance of nursing care at the registered nurse level in the role of caregiver, collaborator of care, decision-maker, communicator, teacher and professional. Acute care and community-based setting will be utilized.
Prerequisite: NURS 201 and 221.
- NURS 223 Advanced Comprehensive Nursing Clinical III** 5
Provides opportunities to apply knowledge and concepts learned in NURS 203 to nursing practice, reinforce critical thinking, and enhance skill in the performance of nursing care at the registered nurse level in the role of caregiver, collaborator of care, decision-maker, communicator, teacher and professional. Acute care and community-based setting will be utilized.
Prerequisite: NURS 202 and 222.



NURS 231 Advanced Comprehensive Nursing I—Review

Provides additional learning opportunities to enhance the knowledge and skills presented in NURS 201 and NURS 221.

NURS 232 Advanced Comprehensive Nursing II—Review

Provides additional learning opportunities to enhance the knowledge and skills presented in NURS 202 and NURS 222.

NURS 233 Advanced Comprehensive (was NURS 225) Nursing III—Review

Provides additional learning opportunities to enhance the knowledge and skills presented in NURS 203 and NURS 223.

LPN2RN Online Program Classes

Lower Columbia College's online distance education LPN to RN nursing program was developed to enable working LPNs to return to college. The program can be completed on a full-time or part-time basis. During Fall, Winter, and Spring quarters, the program will provide short, self-paced theory courses. A traditional clinical session is offered summer quarter. For more information, go to lowercolumbia.edu/lpn2rn. Each of the nursing classes below is open only to admitted LPN to RN students.

NURS 240 Management of Care

Provides an introduction to Registered Nurse practice. Concepts of leadership and management will be included. Nursing delivery systems, standards of care, quality management, and evidence-based practice will be described. The course will culminate with an in-depth review and application of the nursing process. First in 9-part course sequence.

Prerequisites: Admission to LERN program.

NURS 241 Safe, Effective Care Environment

Provides the student with the skills to promote achievement of patient outcomes by providing and directing nursing care that enhances the care delivery setting in order to protect patients, families, significant others, and other health care personnel. Topics include safety, infection control, health promotion, and health maintenance. Second in 9-part course sequence.

Prerequisites: NURS 240 or concurrent enrollment.

NURS 242 Health Throughout the Lifespan

Provides the student with the ability to direct nursing care that incorporates understanding of expected growth and development principles, prevention and/or early detection of health problems, and strategies to achieve optimal health for patients across their lifespan. Third in 9-part course sequence.

Prerequisites: NURS 241 or concurrent enrollment.

2 NURS 243 Behavioral Health

Provides the student with knowledge to direct nursing care that promotes and supports the emotional, mental, and social well-being of patients and their families. Fourth in 9-part course sequence.
Prerequisites: NURS 242 or concurrent enrollment.

2 NURS 244 Physiological Health I

Using a body systems approach, this course provides the student with the opportunity to promote physical health and wellness throughout the lifespan by providing nursing care and comfort, reducing risk potential, and managing health problems. Topics include nursing management of the patient with disorders of the respiratory, cardiovascular, peripheral vascular and lymphatic, neurologic, urinary/renal, hepatobiliary/pancreatic, digestive/gastrointestinal systems and acid-base/fluid imbalance. Fifth in 9-part course sequence.

Prerequisites: NURS 243 or concurrent enrollment.

NURS 245 Physiologic Health II

Using a body system approach, this course continues to provide the student with the opportunity to promote physical health and wellness throughout the lifespan by providing nursing care and comfort, reducing risk potential, and managing health problems. Topics include nursing management of the patient with a disorder of the musculoskeletal, dermatologic, immunologic, metabolic/endocrine, hematologic, reproductive, visual/auditory systems and cancer. Sixth in 9-part course sequence.

Prerequisites: NURS 244.

NURS 246 Skills Laboratory

Provides the student with practice opportunities in the skills laboratory. Seventh in 9-part course sequence.

Prerequisites: NURS 244. May be taken concurrently with NURS 245.

NURS 247 Clinical Practicum

Provides the student with opportunities to apply theoretical principles of nursing to practice in a variety of clinical healthcare settings. The focus of this course is on managing the nursing care of the patient experiencing complex acute and chronic illness. This course is designed to further the student's understanding of roles of the registered nurse in the role of caregiver, decision maker, user of information technology/communications, teacher, manager of care/collaborator, possessor of professional values/behaviors, developer of professional role, researcher, and leader. Eighth in 9-part course sequence.

Prerequisite: NURS 246; SOC 101 (was SOCY 110) or ANTH 206 (was ANTH 207); CHEM 121 (was CHEM 111).

NURS 248 Advanced Clinical Practicum

Provides the student with opportunities to apply theoretical principles of nursing to practice in a clinical healthcare setting. The course



is a comprehensive product of the nursing student's general education and nursing didactic and clinical experiences. Students are placed in selected healthcare settings in which they can practice the beginning role of the registered nurse. The course focuses on moving students toward autonomous professional nursing practice within a consistent clinical setting. Ninth in 9-part course sequence.
Prerequisites: NURS 246; course offered sequentially after NURS 247 but may be concurrently enrolled.

Oceanography (OCNG)

OCNG 140 Introduction to Oceanography 3, 5

Emphasizes principles and processes governing the ocean and its interactions with the surrounding physical environment. Covers topics from physical, chemical, biological and geological oceanography, including origin and evolution of the ocean basins, seafloor sediments, seawater, currents, waves, tides, marine life, and human impacts. Students may choose to take the course for 3 credits (lecture only) or for 5 credits (lecture and lab). Laboratory involves use of globes, charts and graphs, sediment and biological samples. A field trip may be required.

Philosophy (PHIL)

PHIL 101 Introduction to Philosophy 5

(was PHIL 200)

Analyzes essential philosophical questions such as the one and/or many, what is truth, what is real being, etc. Pursues various Western attempts at their answers along with students' own personal approaches. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: ENGL 101.

PHIL 120 Critical Reasoning 5

Introduction to critical reasoning emphasizing concepts and methods useful for practical analysis of arguments in everyday contexts including the exercise of symbolic reasoning through the analysis of meaning, syllogisms, logical diagrams, inductive and statistical inference, informal fallacies, argument structures. Specific emphasis will be placed on the evaluation of claims of scientific research and epistemology.

Prerequisite: ENGL 101.

PHIL 210 Ethics 5

Critically examines major Western philosophical answers to the questions of the good and how to achieve it. Application to some contemporary problems is also covered. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: ENGL 101.

PHIL 260 Philosophy of Religion 5

Offers a critical, philosophic examination of the nature of religious beliefs, the functions of religious language, the arguments for the existence of God, attributes of God, the possible psychological and sociological origins of religions, the problem of evil, and the immortality of the soul, and some comparisons and contrasts between Eastern and Western religions. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: ENGL 101.

Physical Education (PHED)

PHED 104, 204 1

Pilates and Stretch

Strength and flexibility exercises are practiced with pilates routines to create a balanced and effective program, emphasizing core strength, posture, balance, and toning.

PHED 110, 210 2

Circuit Training

Develops the basic components of physical fitness for students through participation in an aerobic circuit weight training program. The super-circuit aerobics program utilizes a combination of endurance and strength machines to provide one of the most effective conditioning methods known for developing baseline levels of physical fitness.

Prerequisites: for PHED 210-PHED 110, 126, 128, 140, 141 or 146.

PHED 114 Ultimate Frisbee 1.5

Introduces the skills and techniques basic to Ultimate Frisbee, including offensive and defensive play, strategies, etiquette and rules of the game. Ultimate Frisbee is a fast-paced, non-contact team sport, combining parts of soccer, football and basketball.

PHED 121 Beginning Foil Fencing 1

Presents the skills, strategies, rules and physical conditioning for the competitive or leisure pursuit of fencing.

PHED 122 Intermediate Foil Fencing 1

Advancement of the skills, strategies, rules and physical conditioning beyond the basics for competitive or leisure pursuit.
Prerequisite: PHED 121 or instructor permission.

PHED 126, 226 1-2

Aerobic Exercise

Guides students through rhythmical and continuous exercise performed to music. Every student, no matter what age or body type, will be provided the opportunity to improve their cardio-respiratory endurance through participation.



<p>PHED 128, 228 Weight Training</p> <p>Improves strength, physical conditioning, and performance through correct use of universal equipment, free weights and cardio-respiratory equipment. Emphasis will be on health and fitness education. Each student will design a program specific to his or her goals for the quarter.</p>	1–2	<p>PHED 149, 249 Applied Soccer—Women</p> <p>Provides students the opportunity to demonstrate soccer skills, strategies, rules of play, and to participate in a conditioning program. <i>Prerequisite:</i> Instructor permission.</p>	2
<p>PHED 130, 230 Swimming</p> <p>Provides instruction of the basic swimming strokes, personal safety skills and conditioning programs for muscular and cardiovascular endurance of the swimmer. Students will attend this class at the Mark Morris pool.</p>	1	<p>PHED 152, 252 Personalized Fitness</p> <p>Requires students to plan and execute their own exercise program designed specifically to meet their goals and objectives as it relates to physical fitness. Students may utilize Lower Columbia's exercise facility or may choose to participate in off-campus activities. A contract with the instructor will initiate the class and written workout logs are required on a weekly basis throughout the quarter.</p>	1–2
<p>PHED 135, 235 Fitness Walking</p> <p>Utilizes walking in developing the health-related components of physical fitness. Emphasis will be placed on cardio respiratory endurance through low-impact, moderate intensity exercise.</p>	1–2	<p>PHED 160, 260 Baseball</p> <p>Enables students the opportunity to learn basic baseball skills, strategies and rules of play. A strict baseball-conditioning program will be emphasized. Fall quarter.</p>	1
<p>PHED 140, 240 Basketball—Men</p> <p>Provides opportunity for students to learn basketball skills, strategies, rules of play and to participate in a basketball conditioning program.</p>	1	<p>PHED 162, 262 Applied Baseball</p> <p>Provides students the opportunity to demonstrate baseball skills, strategies, rules of play and to participate in a baseball conditioning program. <i>Prerequisite:</i> Instructor permission.</p>	2
<p>PHED 141, 241 Basketball—Women</p> <p>Provides an opportunity for the students to learn basketball skills, strategies, rules of play and to participate in a basketball conditioning program.</p>	1	<p>PHED 164, 264 Applied Basketball—Men</p> <p>Gives students the opportunity to demonstrate basketball skills, strategies, rules of play and to participate in a basketball conditioning program. <i>Prerequisite:</i> Instructor permission.</p>	2
<p>PHED 145 Softball Coaching Theory</p> <p>Addresses philosophy, technique, strategy, and knowledge. Progresses from basic theories through sophisticated situational theories and strategies. The course is designed for any level of play or coach in fast-pitch softball.</p>	3	<p>PHED 165, 265 Applied Basketball—Women</p> <p>Gives students the opportunity to demonstrate basketball skills, strategies, rules of play and to participate in a basketball conditioning program. <i>Prerequisite:</i> Instructor permission.</p>	2
<p>PHED 146, 246 Fastpitch Softball—Women</p> <p>Presents students the opportunity to learn fastpitch skills, strategies, and rules of play. Students will participate in a softball-conditioning program designed for the sport-related needs. Fall quarter.</p>	1	<p>PHED 167, 267 Applied Volleyball</p> <p>Gives students an opportunity to demonstrate volleyball skills, strategies, and rules of play and to participate in a volleyball-conditioning program. <i>Prerequisite:</i> Instructor permission.</p>	2
<p>PHED 147, 247 Applied Fastpitch Softball—Women</p> <p>Provides students the opportunity to demonstrate fastpitch softball skills, strategies, rules of play and participation in a softball-conditioning program. <i>Prerequisite:</i> Instructor permission.</p>	2		



PHED 171 Prevention and Care of Athletic Injuries 3

Provides training in basic prevention and care of athletic injuries. Includes an introduction to the field of sports medicine, organization and administration of a sports medicine program, recognition of common athletic injuries, evaluation and treatment protocols, rehabilitation techniques and emergency procedures. Basic wrapping, taping, and bracing techniques will be studied and practiced. Basic anatomy, physiology, and infection control will be included.

PHED 190 Baseball Coaching Theory 3

Addresses philosophy, technique, drill, application, demonstration, strategy and knowledge. Baseball coaching theory progresses from basic theories through situational theories. This course is designed for any level of player or coach of softball and baseball.

PHED 192 Basketball Coaching Theory 2

Offers a philosophical and fundamental study of basketball as played at the college level and includes fundamental approaches, offensively and defensively, designed to produce winning teams.

PHED 282 Water Safety Instruction 3

Provides instruction in how to teach swimming and diving skills for infants through adults and is designed to prepare lifeguards, instructors, and pool administrators for employment as certified American Red cross water safety instructors.

PHED 284 Lifeguard Training 3

Provides explanations, demonstrations, practice and review of rescue skills essential for Lifeguards as well as develop participants; speed, endurance, and technique in swimming and Lifeguard skills. This course meets the requirements for American Red cross certification in Lifeguard Training and is open to students who pass qualifying tests in swimming.

Physics (PHYS)

PHYS 100 Physics: Non-Science Major 5
(was titled Concepts of Physics)

Emphasizes the process and historical/logical development of physics and relates the conceptual ideas of physics to everyday experience. The course is offered primarily to meet laboratory science requirements for an Associate degree; it is also useful in lieu of high school physics. Laboratory is included.

PHYS 101 Introductory Physics 5

Provides the first quarter of a sequence for students in various health science, technology, and pre-professional areas. Student-initiated motion studies introduce the fundamental principles of mechanics through studies of kinematics, Newton's Principles, energy and momentum conservation principles, and their

rotational analogues. Students participate in supporting small group laboratory investigations.

Prerequisite: MATH 099 and MATH 076 (Math Lab) or equivalent working knowledge of elementary algebra and right triangle trigonometry, or instructor permission.

PHYS 102 Introductory Physics 5

Incorporates both thermodynamics and electromagnetism, including active student investigations of temperature, heat and thermal energy, entropy, the properties of simple electric and magnetic fields, and simple AC and DC circuits. Classroom activities help students connect the nature and role of fundamental principles in physics with real everyday operations of those principles. Students learn operation and use of contemporary instrumentation in lab investigations.

Prerequisite: PHYS 101, MATH 099 and MATH 076 (Math Lab) or instructor permission.

PHYS 103 Introductory Physics 5

Emphasizes the scientific development of fundamental principles through active student investigations of mechanical and electromagnetic waves, geometrical and physical optics, special relativity, particles, waves, the quantum theory of the atom, the physics of the nucleus, and elementary particle theory as time permits. Student lab investigations feature landmark experiments of the 20th Century.

Prerequisite: PHYS 102 or instructor permission.

PHYS 210 The Environmental Physics of Energy 5

Solicits student descriptions of energy production, patterns of use, and the challenges posed by dwindling energy resources using the language of physics: work, power, energy, heat, and the Conservation of Energy Principle. Students explore the physical/technological bases of current/proposed technologies, along with current scientific discussions of environmental effects such as global warming and radiation. This course is cross-listed with ENV 210 and ENGR 210. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: Algebraic, writing, and presentation skills; a previous distribution science course (e.g., PHYS& 100) would be helpful.

PHYS 251 General Physics 5

Provides the first quarter of a calculus-based sequence for majors in the physical sciences, engineering, or mathematics. The Principles of Newtonian Mechanics are introduced through motion analysis, with subsequent application to problems involving particle and rigid body motion. Small groups carry out supporting lab investigations. Use of elementary calculus in creases during the term.

Prerequisite: High school or college level physics course, completion of, or concurrent enrollment in ENGR 106 (was ENGR 121), MATH 151, or instructor permission.



PHYS 252 General Physics 5

Incorporates study of thermodynamics and electromagnetism, and includes student investigations of temperature, heat and thermal energy, entropy and absolute zero, simple static and time-varying electric and magnetic fields, and AC and DC circuits. Classroom activities help students connect the sweeping power of fundamental principles with real everyday engineering physics applications. Students operate and utilize contemporary instrumentation in lab investigations.

Prerequisite: PHYS 251, MATH 152 or instructor permission.

PHYS 253 General Physics 5

Incorporates wave physics and topics from contemporary physics through active student investigation of mechanical and electromagnetic waves, geometrical and physical optics, relativistic mechanics, Bohr's hydrogen atom, simple wave mechanisms, and nuclear and elementary particle physics as time permits. Small group lab projects support these contemporary topics.

Prerequisite: PHYS 252, completion of, or concurrent enrollment in MATH& 153 is highly recommended, or instructor permission.

Political Science (POLS)

POLS 107 Comparative Government 5

Analyzes the political and economic systems and ideologies of capitalism, socialism, communism, and fascism within the context of the cultural traditions of Western Civilization and considers these systems as alternative methods of the allocation of political and economic power in society, with special emphasis given to the disparity between the stated objectives of these systems and their actual accomplishment.

POLS 202 American Government 5

(was POLS 106) (was titled American Political Institutions)

Studies the structure and functions of the government of the United States, with an evaluation of the United States as a democracy, in both theory and practice.

POLS 203 International Relations 5

(was POLS 108)

Introduces the nature and basic principles of international politics, with an analysis of such concepts as imperialism, nationalism, internationalism, the causes of war, and conditions for peace.

POLS 220 The Law and Social Issues 5

Studies lines drawn by democracies in the attempt to reconcile individual freedoms with the rights of the community. Analyzes and evaluates the basic problem of dealing with basic rights and liberties, freedom of expression, due process of law, and political and racial equality.

Psychology (PSYC)

PSYC 100 General Psychology 5

(was PSYC 111) (was titled Introduction to General Psychology)

Studies the science of behavior and fosters understanding of human development, learning, motivation, emotions, reactions to frustration, mental health and therapy, perception, and personality.

PSYC 140 Introduction to Sport Psychology 3

Emphasizes the psychological factors affecting individual behavior as it relates to sport performance and provides student athletes the resources to better understand, predict, and modify competitive sport performance as a result.

PSYC 200 Lifespan Psychology 5

(was PSYC 205) (was titled Developmental Psychology)

Studies the physical, emotional, and social developmental behavior of the individual from childhood through adolescence, early adulthood, and late adulthood, and emphasizes specific stages encountered at various developmental levels. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: PSYC 100 (was PSYC 111) or instructor permission.

PSYC 204 Applied Psychology 5

Studies applications of psychology in such areas as human motivation, business, industry, education, psychiatry, law, death and dying, combat, violence, and problems related to development. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: PSYC 100 (was PSYC 111) or instructor permission.

PSYC 209 Interviewing Techniques 5

Studies techniques of active listening and responding, and emphasizes the development of communication skills for those considering the social service field or related helping professions.

Prerequisite: PSYC 100 (was PSYC 111).

PSYC 214 Psychology of Adjustment 5

Studies the nature of the personality, personality formation, and adjustment to environment. Dynamics of adjustment, normal and abnormal patterns of adjustment, the development of emotional, social, and intellectual competencies, and a survey of applicable theories of personality are included. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

Prerequisite: PSYC 100 (was PSYC 111) or instructor permission.



PSYC 220 Abnormal Psychology 5
(was PSYC 220)
Presents a study of abnormal psychopathology, specifically a study of abnormal human behavior, its description, causes, and diagnosis. Emphasis on treatment and major diagnostic categories, such as schizophrenia, personality, mood, and organic brain disorders. This may be offered as a Capstone course. See Capstone prerequisites on page 31.
Prerequisite: PSYC 100 (was PSYC 111) or instructor permission.

PSYC 240 Compulsive Sexual Behavior 3
Focuses on the assessment, clinical and theoretical clarification, and treatment of a number of forms of compulsive sexual behaviors. A distinction between addictive, compulsive, and impulsive sexual behavior will be presented, as well as various theories of the condition's development. A variety of treatment modalities will be reviewed. Cross-listed with CDS 240.

Pulp & Paper Manufacturing Technology (PULP)

PULP 101 Introduction to Pulp & Paper 3 or 5
(was PULP 106) **Technology**
Current pulping and bleaching processes used during the production of various types of paper products. Basic forestry practices, wood properties and pre-pulping operations are explored. Overview of the pulp and paper business will be covered. Variations in the preparation of pulp needed for different paper products are identified. Students may choose to take the course for 3 credits (lecture only) or for 5 credits (lecture and lab).

PULP 102 Paper Processing 3 or 5
(was PULP 107)
Explores current papermaking techniques and equipment used in the production of various types of paper and paperboard products. Basic principles of paper machine operation and the relationship of papermaking to the pulping and bleaching and paper conversion stages of the manufacturing process are also explored. Students may choose to take the course for 3 credits (lecture only) or for 5 credits (lecture and lab).
Prerequisite: PULP 101.

PULP 104 Survey of Paper Conversion Techniques 3
(was PULP 108)
Provides a general overview of the processes used to convert paper into various types of paper and paperboard products. Techniques used in the production of newsprint, tissue, boxes, bags, and various types of specialty paper, as well as the relationship of paper conversion to pulping, bleaching, and papermaking are explored. Also included is an overview of printing processes used in the production of various products.

PULP 214 Introduction to Process Technology 5
Provides basic orientation for operators in the pulp and paper industry. Introduces many of the terms encountered in the workplace. Topics include operator roles, responsibilities, expectations, terminology, chemical process, basic plant principles, applied safety, general material handling, flow diagrams and plant organization. Will include labs on paper testing and dynamic process control simulations.
Prerequisite: MATH 099.

PULP 224 Maintenance in Pulp & Paper 5
Provides instruction in maintenance procedures as applied to the pulp and paper industry. Students will receive instruction on piping systems, boilers, valves, pumps and heat exchanges. Course will also cover proper chemical handling procedures, lubricating techniques, bearing maintenance, surface preparation practices and alignment procedures.

PULP 225 Paper Chemistry and Environment 5
Addresses the chemical recovery and environmental processes in the pulp and paper industry. Safety aspects will include personal safety and HAZCOM, along with government regulations. Topics will include emphasis on chemical recovery, wastewater treatment systems, air filtering systems, solid waste systems and organizations and operations of EPA and its significance to the pulp and paper industry.

Sociology (SOC) (was SOCY)

SOC 101 Introduction to Sociology 5
Studies principles of understanding human relationships. Various forms and processes of group interaction are analyzed, including primary groups, associations, and major institutions; urban and rural communities; intergroup and interclass relationships; structured and unstructured behavior; socialization of the individual; social organization and disorganization; and deviance and conformity to cultural patterns. Meets the associate's degree cultural diversity requirement.

SOC 209 Sociology and the Family 5
Provides study of the family as the basic societal institution. Several approaches are used including comparing past and present patterns, cultural variations of families, effects of social change upon the family, and a discussion of how the family might increase its own stability and best fulfill the needs of its members and society. This may be offered as a Capstone course. See Capstone prerequisites on page 31. Meets the associate's degree cultural diversity requirement.
Prerequisite: SOC 101 (was SOCY 110) or instructor permission.



SOC 210 Human Sexuality 5
Presents examination of the scientific research that has led to a better understanding of human sexuality in its anatomical, physiological, sociological, cultural, and psychological aspects. This may be offered as a Capstone course. See Capstone prerequisites on page 31.

one level to the next in sequence (SPAN 105, 106, and 107).
Prerequisite: SPAN 105 or equivalent.

Spanish (SPAN)

INDV 097 Spanish Grammar for Beginners: Present Tense Verbs 2

Provides an individualized plan for students who need more time to master language, reading comprehension, and/or study skills as recommended by the instructor, student, and/or Learning Center supervisor. This course is graded on a pass/fail basis.

SPAN 107 Spanish in the Workplace 3-5

Increases fluency, concentrating on effective communication (listening and speaking), self-expression, and literacy. Within a particular domain, students will learn to interact with clients and co-workers whose principal language is Spanish. Within any of the vocabulary-specific domains, students will advance from one level to the next in sequence (SPAN 105, 106, and 107).
Prerequisite: SPAN 106.

INDV 098 Spanish Grammar for Beginners: Agreement of Nouns and Modifiers 1

Enables understanding of grammatical agreement of nouns and modifiers in Spanish. Presents minimal vocabulary and does not concern oral proficiency. While this course is self-directed, students may be assisted by a tutor or an instructor. Graded on a credit/no credit basis.

SPAN 110 Introduction to Spanish Language and Culture 3

Surveys cultural attributes of the Spanish-speaking world, which includes Spain and the Americas. Provides an overview of language, art, literature, music, history, geography, and customs. Addresses contemporary issues pertaining to an intercultural world.

SPAN 104 Introduction to Spanish in the Workplace 3-5

Introduces Spanish, presenting realistic situations and specialized vocabulary needed for basic communication with Spanish speakers in the workplace. Personalized questions, grammar exercises, dialog activities, and role-playing provide students with numerous opportunities to apply points of language in a wide variety of practical contexts. Within any of the vocabulary-specific domains, students will advance from one level to the next in sequence (SPAN 105, 106, and 107).

SPAN 114 Introduction to Spanish Language and Culture: Study Abroad 3

Surveys cultural attributes of the Spanish-speaking world, which includes Spain and the Americas. Provides an overview of language, art, literature, music, history, geography, and customs. Addresses contemporary issues pertaining to an intercultural world through study abroad.

SPAN 105 Introduction to Spanish in the Workplace 3-5

Builds vocabulary and introduces more complex points of language, including idioms, grammar, and, especially, pronunciation. Provides additional opportunities for telephone and face-to-face communication in workplace settings. Within any of the vocabulary-specific domains, students will advance from one level to the next in sequence (SPAN 105, 106, and 107).
Prerequisite: SPAN 104 or equivalent.

SPAN 121 Spanish I 5
(was SPAN 101) (was titled Elementary Spanish)

Introduces Spanish, emphasizing basic vocabulary and points of language used in contemporary Spanish-speaking cultures. Meets the associate's degree cultural diversity requirement.

SPAN 106 Spanish in the Workplace 3-5

Accumulates vocabulary and introduces additional verb forms and pronoun usage, which are essential to clear oral communication. Enables further telephone and face-to-face communication with clients and co-workers whose principle language is Spanish. Within any of the vocabulary-specific domains, students will advance from

SPAN 122 Spanish II 5
(was SPAN 102) (was titled Elementary Spanish)

Provides continuation of basic principles offered in SPAN 121 (was SPAN 101). Accumulates vocabulary, reinforces basic grammar, and increases fluency. Meets the associate's degree cultural diversity requirement.
Prerequisite: SPAN 121 (was SPAN 101) with a grade of C or better or two years of high school Spanish.

SPAN 123 Spanish III 5
(was SPAN 103) (was titled Elementary Spanish)

Provides further development of basic skills. Accumulates vocabulary, reinforces basic grammar, introduces new grammatical principles, and increases fluency. Meets the associate's degree cultural diversity requirement.
Prerequisite: SPAN 122 (was SPAN 102) with a grade of C or better or three years of high school Spanish.



SPAN 221 Spanish IV 5
(was SPAN 201) (was titled Intermediate Spanish)
Provides an intensive review of vocabulary and basic points of language included in the first year, introduces new points, develops communication problem solving skills, and builds an extensive vocabulary pertinent to contemporary social and cultural issues.
Prerequisite: For enrollment in second-year Spanish courses, students must complete first-year college level Spanish.

SPAN 222 Spanish V 5
(was SPAN 202) (was titled Intermediate Spanish)
Continues to build communication skills, accumulate vocabulary, and increase fluency, with added emphasis on literacy.
Prerequisite: SPAN 221 (was SPAN 201) or equivalent.

SPAN 223 Spanish VI 5
(was SPAN 203) (was titled Intermediate Spanish)
Continues to build communication skills, accumulate vocabulary, and increase fluency, with added emphasis on literacy.
Prerequisite: SPAN 222 (was SPAN 202) or equivalent.

Speech (SPCH)

SPCH 104 Interpersonal Communication 3
Explores how communication develops and changes relationships. Addresses theories and principles of interpersonal communication, including perception, self-concept, feedback, listening, nonverbal communication, empathy and disclosure, and handling conflict with an emphasis on skill building and improvement. Personal, family, and working contexts are considered.

SPCH 109 Intercultural Communication 5
Examines the intercultural aspects of the communication process. Emphasizes the significance of communicating a cross cultural lines in today's world, cultural identity, behaviors and values, historical context, language and nonverbal expression, intercultural transitions, and conflict. Focuses on the application of theory and skills designed to increase competence in intercultural communication. Meets the associate's degree cultural diversity requirement.

SPCH 110 Intro to Public Speaking 5
Examines the planning, development, and delivery of speeches. Emphasis is given to effective structure and support of informational and persuasive messages, audience analysis, language use, verbal and nonverbal presentation skills, and listening. Self- critiques are also stressed.

SPCH 126, 127, 128 226, 227, 228 2
Competitive Public Speaking
Provides investigation and practice in background, format, procedures and evaluation criteria of forensics events. Students must participate in a minimum of two competitive intercollegiate tournaments.

SPCH 136, 137, 138, 236, 237, 238 2
Intercollegiate Debate
Provides investigation and practice in oral problem solving through the debate format. The student is expected to attend a minimum of two debate tournaments.

SPCH 204 Small Group Communication 5
Principles and processes of small groups and development skills for participation and leadership in small group settings. Practice in problem solving, decision making, and information sharing. Includes analysis and evaluation of project-based small group work.
Prerequisite: ENGOL 101 or ENGL 102 or instructor permission.

SPCH 205 Persuasion 3
Studies the art of persuasion, both its theory and practice, as an instrument to motivate human behavior. Students work with application of logical, emotional and ethical proof in the process of developing persuasive speeches.

SPCH 210 Argumentation 3
Includes principles of argumentation, investigation, and analyses of propositions; location of issues; use and tests of evidence, reasoning, and logic; detection of fallacies; structure of arguments, including making briefs; and methods of refutation and rebuttal.

SPCH 290 Forensic Management and Organization 1
Provides instruction and practical experience in the setup, administration, and judging of forensics tournaments. Graded on a pass/fail basis.

Technology Education (TECH)

TECH 070 Introduction to Technical Reading/Writing 5
Offers basic writing/reading skills for technical students. Skills include writing complete sentences, improving spelling, and using writing as a form of communication. Additionally, students will learn how to read technical materials effectively, expand vocabulary, and improve comprehension.

TECH 090 Principles of Technology 5
Explores the mechanical, fluid, electrical, and thermal systems on which modern technology operates. Hands-on, real-world lab activities are integrated with mathematics and physics instruction to provide an understanding of the units of force, work, rate, resistance, and energy associated with each system.



TECH 100 Advanced Principles of Technology 5

Provides hands-on study of energy, power, and force transformers in mechanical, fluid, electrical and thermal energy systems. Includes a review of force, work, rate, and resistance. Students will learn through a combination of lab experiments and discussion of the physics and math related to each energy system. The application in industry of various concepts is also explored.

Prerequisite: One year of high school principles of technology (certificate from instructor required), or TECH 090, or MATH 106 or higher

TECH 170 Statistical Process Control 4

Explores the use of statistical process control as a means of improving a process. Problem-solving techniques including brainstorming, Pareto diagrams, and cause and effect diagrams are also examined.

Prerequisite: Recommended: MATH 106 or higher.

Welding (WELD)

WELD 105 Related Welding I 2-6

Studies shop safety practices and common welding techniques for related curriculums. The common welding techniques will include oxy-acetylene cutting and brazing, electrode arc welding, and wire free welding.

WELD 151 Introduction to Oxy-Acetylene 2-6

Covers basic principles, procedures, and safety in using oxy-acetylene equipment. Mild steel rod, brazing rod, soldering, temperatures, metal testing, fluxes, expansion, contraction and dry cutting. Projects are assigned to give practice in making basic welds.

WELD 152 Introduction to Arc Welding 2-10

Studies basic principles, procedures, and safety in the use of welding equipment. Students must complete satisfactory vertical, flat, horizontal, and overhead welds using E6010. Projects are assigned to help develop student skills.

WELD 158 Welding Theory and Fabrication 5

Covers theoretical and practical applications of welding processes and metal fabrication. Work on project is required outside of class. *Prerequisite:* WELD 151, 152 or instructor permission.

WELD 221 Wire Machine 10

Presents a general overview of various metallic inert gas (MIG) welding machines, including instructions on stainless steel, mild steel, aluminum, flux core wire welding, and machine troubleshooting and setup problems/safety.

Prerequisite: WELD 151, 152, 254, or instructor permission.

WELD 222 Advanced Wire Machine 6

Prepares the student for successful employment in flux core wire welding. Emphasizes safety, care and use of equipment, types of testing (destructive and non-destructive), welding specifications and codes, welding procedures and qualification requirements, visual inspection, weld defects, and workmanship.

Prerequisite: WELD 151, 152, 221, 254, 256, or instructor permission.

WELD 254 Arc Welding 2-10

Continues arc welding procedures, rods, symbols, and metal testing using E7018 and different alloy rods and sizes. Students also work towards AWS/WABO certification.

Prerequisite: WELD 152 or instructor permission.

WELD 255 Advanced Welding Processes 2-10

Provides training opportunity with tungsten inert gas (TIG) and aluminum, mild steel, stainless steel, and pipe.

Prerequisite: WELD 151, 152, 254, 256, or instructor permission.

WELD 256 Advanced Welding Application 2-10

Studies maintenance, repair and production welding and provides a testing program and a service course for those desiring to complete a certification test meeting AWS or WABO specifications.

Prerequisite: WELD 152, 254, or instructor permission.

WELD 259 Pipe Welding 2-10

Studies maintenance, repair and production welding and provides a testing program and a service course for those desiring to complete a certification test meeting AWS or WABO specifications.

Prerequisite: WELD 151, 152, 254, 255, 256, or current WABO or AWS card, or instructor permission.

