ADDENDUM INFORMATION - PLEASE READ

The following replaces pages 26 - 107 of the 2004-06 Catalog. All references to page numbers are referring to the 2004-06 Catalog. Items that are highlighted in yellow are either new or changed. Items with a strike-through (~~strike-through~~) 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 2004-06 Catalog.

Degree and Certificate Options

You may choose from several different degree and certificate options at Lower Columbia College:

- **Associate in Arts transfer degree** (AA–DTA).
- **Associate in Arts and Sciences transfer degree** (AA).
- **Associate in Sciences transfer degree** (AS–Transfer).
- **Associate in Applied Science degree** (AAS) (non-transferable professional or technical degree; some disciplines may offer a transfer option—see page 27 of the 2004-06 catalog).
- **Associate in Applied Science transfer degree** (AAS–Transfer)
- (specially-articulated transfer degree; check with your advisor).
- **Certificate of Proficiency** (specialized one-year occupational training, 45 or more credits).
- **Certificate of Completion** (short-term occupational training, 15-44 credits).

Transfer Degrees

Lower Columbia College's academic transfer degrees—the Associate in Arts, Associate in Arts and Sciences, and Associate in Sciences—allow you to complete the first two years of a bachelor's degree at LCC. If you are planning to transfer to a 4-year university, remember to work closely with your advisor to craft the transfer degree that works best for you and the bachelor's program that you choose.

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 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.
- 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.

*LCC Distance Education classes (online, correspondence, etc.) fulfill this requirement.

Associate in Arts (AA–DTA)

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 Associate in Arts–Direct Transfer by Agreement (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.

Degree Requirements

General requirements listed for transfer degrees:

- **Communications** requirement—ENGL 101, ENGL 102, and SPCH 110 (15 credits).
- **Quantitative skills** requirement—5 credits.
- MATH 099 or proficiency, and one of the following: BSAD 206, ENGR 122 or 261; 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 Associate in Arts Distribution List. 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 Associate in Arts Distribution List. No more than 10 credits from any one discipline.
- **Natural Science** requirement—15 credits from at least three areas on the Associate in Arts Distribution List. No more than 10 credits from any one discipline; must include 5 credits of lab courses. No more than 5 credits from Math, Computer Information Systems, 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. 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.

Associate in Arts and Sciences (AA)

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 such as engineering or medicine, 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.

Degree Requirements

General requirements listed on page 26 for transfer degrees, including:
- **Communications** requirement—ENGL 101, ENGL 102 or ENGL/ENGR 220, and SPCH 110 (15 credits).
- Courses as prescribed by the faculty advisor and approved by department chair.

Associate in Sciences (AS–Transfer)

This degree, similar in concept to the Associate in (Major)-DTA, is designed for students who intend to transfer to an upper division program in science or engineering. The AS-T includes major-specific program requirements in two different tracks:
- 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.

Degree Requirements

General requirements listed on page 26 for transfer degrees, including:
- **Communications** requirement—ENGL 101 (5 credits).
- **Computational** 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.

Associate in Applied Science (AAS–Transfer)

This specially-articulated degree differs from the Associate in Applied Science (AAS) degree in that it is intended to transfer to specific bachelor's degree programs. As a transfer degree, the general education requirements are different from the non-transfer AAS. In general, the Associate in Applied Science degrees are not designed for transfer to other colleges or universities. However, some four-year colleges and universities have specific bachelor's degree programs that accept an AAS-T. Check with your advisor. Students seeking to transfer to degree programs other than those specifically designed for the AAS-T are urged to consider the DTA or AS-T in preparation for transfer. Institutions and majors outside the specifically designed degrees listed above likely will accept very few of the credits in the AAS-T degree (English Composition, college-level math, and other general education courses will usually transfer).

Distribution List for Transfer Degrees

Humanities
ART 101*, 102*, 103*, 106*, 107*, 110 or 114, 111*, 112*, 113*, 119, 151*, 152*, 206, 207, 208, 226, 227, 228, 241*, 242*
DRAM 100, 106*, 107*, 108*, 215C, 255C
ENGL 124*, 125*, 126*, 204, 205, 220, 224*, 225*, 226*, 231, 232, 233, 234, 235, 240, 245, 251, 252, 254, 256, 260, 270
ENGR 220
FREN 101, 102, 103, 110 or 114
HIST 106, 116
HUMN 110, 164, 165, 166, 210
JOURN 200
LIBR 101
MUSC 100, 101, 102, 103, 110, 117, 119, 130*, 134*, 135*, 140*, 144*, 150*, 209
PHIL 200, 210, 260
SPAN 101, 102, 103, 110 or 114
SPCH 104, 105, 109, 205, 210

Social Sciences
ADMJ 186
ANTH 207
BSAD 110, 251
ECON 105, 205, 206 ~~or 211, 207,~~ 208
HLTH 106
HIST 107, 117, 118, 156, 157, 205, 254
POLS 106, 107, 108
PSYC 111, 204, 205, 214, 220
SOCY 107 or 110, 209, 210

Natural Sciences
ANTH 206
ASTR 110**
BIOL 100**, 120, 130**, 150, 201**, 202**, 203**, 221**, 222**
BSAD 206, 207
CHEM 105**, 111**, 112**, 120, 151**, 152**, 153**, 161**, 162**, 163**, 171**, 172**, 173**
CIS 180, 280
ERSI 104** or 105 or GEOG 105**
ENGR 210
ENVS 120, 130**, 200, 210
GEOL 105** or 116** or 117**, 118**, 170**
MATH 112, 113, 121, 122, 125, 130, 140, 150, 151, 152, 153, 210, 211, 220, 240
METL 170**
OCNG 140**
PHIL 120 or 150
PHYS 100**, PHYS 101**, 102**, 103**, 210

Restricted Course List
ACCT 101, 150, 241
AH 110, 205, 230
APPEL—all courses
ADT—all courses
ITEC—all courses
BLPT—all courses
BSAD 104, 111, 115, 130, ~~169~~, 190, 250
BTEC—all courses
CDS—all courses
CIS 100, 101, 102, 105, 106, 107, 108, 109, 110, 120, 130, 150, 184, 185, 211, 212, 213, 220, 230, 235, 251, 252, 270, 282, 283, 284, 285, 290
COLL 100
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
~~IMEL – all courses~~ (see IMT courses)
~~IMIN – all courses~~ (see IMT courses)
IMT – all courses
INDV—all courses
INTC—all courses
JOURN 110, 120, 130, 210, 220, 230
MASP—all courses
~~MAMT – all courses~~ (see IMT courses)
MATH 105, 106
METC—all courses
MEDA—all courses
MFG—all courses
NURS—all courses
PULP—all courses
TECH—100, 170
WELD—all courses

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

Diversity Courses*
ANTH 207—Cultural Anthropology
ART 110—Introduction to 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
BSAD 120—Introduction to Organizational Behavior
BSAD 126—Management of Human Relations
BSAD 164—Customer Service/Management
EDUC 110—Introduction to Education
ENGL 204—The Novel (intermittent Cultural Diversity course)
ENGL 205—Film and Drama Appreciation
ENGL 245—Contemporary Literature
HIST 116 – World History to 1500
HIST 117 – World History 1500 to 1800
HIST 118 – World History 1800 to Present
HUMN 110—Introduction to Cultures
HUMN 210—Myths and Rites
MUSC 110—Music Appreciation
MUSC 117—Music Cultures of the World
MUSC 119—American Music
MUSC 209—The Blues Culture
SOCY 110—Introduction to Sociology (includes WAOL's SOCY 110 effective April 2004)
SOCY 209—Sociology and the Family
SPAN 101—Elementary Spanish
SPAN 102—Elementary Spanish
SPAN 103—Elementary Spanish
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.

Professional/Technical Degrees & Certificates

Associate in Applied Science (AAS)

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, 101, 102, or 110; 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 BSAD 104.
- **Human Relations** requirement—2-5 credits. ANTH 207; BSAD 120, 126, 164, or 240; CDS 102 or 215; ECED 119; HDEV 110; NURS 101 or 202; PSYC 111, 204, or 214; SOCY 110; or SPCH 104 or 105. 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.

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.

Certificate of Completion

This short-term program of occupational training consists of a sequence of courses totaling 15-44 credits. Many students choose to continue earning credits, going on to earn a certificate of proficiency or an associate's degree.

Certificate of Completion Requirements

15-44 credits, including:

- A specific sequence of specialized occupational training.

Associate in Applied Science (AAS)

Distribution List

- **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 BSAD 120, 126, and HOFL 131, 132, 133.

Accounting

See **Accounting** under **Business**.

Administration of Justice

Associate in Arts and Sciences transfer degree

LCC's Administration of Justice degrees prepare students to transfer to a four-year institution to complete a bachelor's degree, required for state or federal employment in law enforcement. Many local law enforcement and public services agencies require a 4-year degree for advancement.

Associate in Applied Science degree

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 Administration of Justice. People working within those areas can use the program to enhance their skills.

General Education Requirements

Communications Requirement		
ENGL 101	English Composition ***and***	
ENGL 102	English Composition ***and***	
SPCH 110	Introduction to Public Speaking	15
Computation Requirement		
MATH 092	Elementary Algebra	5
Human Relations/Social Sciences Requirement*		
PSYC 111	Introduction to General Psychology	5
Natural Sciences Requirement/Humanities Requirement		
	From distribution list	5
Diversity Requirement		
SOCY 110	Introduction to Sociology	5
Health Requirement		
HLTH 106	Health Today	2
	Total	**37**

Program Requirements

ADMJ 154*	American Legal System	5
ADMJ 181	Report Writing for Law Enforcement	3
ADMJ 182*	Criminal Law	5
ADMJ 183*	Administration of Justice	5
ADMJ 186*	Introduction to Criminal Justice	5
ADMJ 260*	Physical Evidence & Criminalistics	5
BSAD 251	Business Law	5
CIS 110	Microcomputer Applications	3
POLS 106	American Political Institutions	5
POLS 220	Law and Social Issues	5
Electives	See Admin of Justice advisor for electives	11-13
	Total	**57-59**

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

Anthropology

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

You can start a 4-year degree in Anthropology at LCC, going on to specialize in the diverse fields of archaeology, social and cultural anthropology, linguistics, culture and personality, or human biology. Graduates may seek a position in teaching, research, museum work, Foreign Service, or other areas.

Architecture

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Architecture is a 4- or 5-year program at most colleges and universities. Architecture majors can complete general education requirements for some accredited architecture programs and take drawing/drafting courses at Lower Columbia College. Students should work closely with an LCC advisor and examine a catalog or other materials from the school to which they plan to transfer. Students should take one year of general education and drawing/drafting courses at LCC and plan to transfer at the end of their freshman year.

Art

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Whether you are planning to major in art, need humanities credit, or are studying art for personal enrichment, LCC's art courses - both lab and lecture - are designed to provide a comprehensive educational experience. Art majors who want careers in fine arts, interior design, graphic arts, or photography should work closely with their LCC faculty advisors and the college, university, or art school to which they plan to transfer.

Automotive Technology

Associate in Applied Science degree

The Automotive Technology program is an LCC option that prepares students 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).

Note: If you have no prior mechanical training or experience, take ADT 110 (Introduction to Auto Mechanics) concurrent with your first quarter classes. You may enter this program in fall, winter, or spring quarter.

General Education Requirements

Communications Requirement		
	(ENGL 110 recommended)	5
Computation Requirement		
	MATH 092 or higher, (MATH 106 recommended)	5
Human Relations/Social Sciences/Diversity Requirement		
	(BSAD 120 or 126 recommended)	5
Natural Sciences Requirement		
	(TECH 100 recommended)	5
HLTH 100	Occupational Safety and Health	3
	Total	**23**

**Note*: Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

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

ADT 100	Essentials of Mechanics	5
ADT 101	Electrical Systems I	5
ADT 102	Electrical Systems II	10
ADT 104	Vehicle Climate Control	6
ADT 111	Hydraulic Brakes	5
ADT 112	Advanced Brakes	3
ADT 121	Gas Engines I	5
ADT 122	Gas Engines II	10
ADT 201	Fuels and Emissions	10
ADT 202	Computerized Engine Controls	10
ADT 215	Suspension and Alignment	8
ADT 216	Automatic Transmission	8
ADT 217	Power Trains	6
Electives	Select from list below.	1-15
	Total	**92-106**

Electives—Select electives to meet individual needs: ACCT 101, ADT 108, 200, 299, BSAD 110, CIS 110, ELEC 101, WELD 151, 152, 221.

Earn an **Associate in Applied Science degree in Automotive Technology-ITEC** by completing the Independent Technicians Education Coalition internship program: ITEC 191, 192 and ~~294~~ 292. Admission to this program is selective. Ask your advisor for details.

Earn an **Associate in Applied Science Degree in Diesel/Heavy Equipment Technology** by adding the following:

Diesel Technology

ADT 205	Hydraulics	5
ADT 206	H.D. Power Trains	10
ADT 207	H.D. Chassis	10
ADT 210	Hydraulics II	5
ADT 223	Diesel Engine Rebuild	16
ADT 226	Heavy Duty Engine Performance	15
	Total additional credits	**61**

Biological Sciences

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Associate in Sciences transfer degree

At LCC you can prepare for a wide range of occupations and transfer to degree programs at four-year institutions. See an advisor from this area to plan a program in fisheries, wildlife biology or management, biological education, environmental studies, microbiology, medical technology, pre-veterinary medicine, or a related area.

Business

Accounting—General Transfer Degrees

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

If you want a 4-year degree in accounting, LCC's Accounting transfer degree will cover your first two years. [See also the AA-DTA in Business with WSU on page 34. This degree also directly transfers to the WSU Accounting Department.]

Accounting Technician

Associate in Applied Science transfer degree

General Education Requirements

Communications Requirement		
ENGL 101	English Composition	5
Computation Requirement		
MATH 112	College Algebra	5
Social Science Requirement		
BSAD 251	Business Law	5
Natural Science & Humanities Requirement		
	5 cr. each in Natural Sciences and Humanitites, chosen from the DTA distribution list	10
Human Relations Requirement		
BSAD 126	Management of Human Relations	5
	Total	**30**

Program Requirements

ACCT 101	Introduction to Accounting Concepts	5
ACCT 150	Payroll Accounting and Business Tax Reporting	5
ACCT 231	Financial Accounting I	5
ACCT 232	Financial Accounting II	5
ACCT 233	Managerial Accounting	5
ACCT 241	Computerized Accounting Concepts	4
ACCT 288-289	Cooperative Education	5
BSAD 164	Customer Service/Management	5
BTEC 130	Electronic Calculators	2
~~BTEC 131~~	~~10-Key Operations~~	~~1~~
~~BTEC 132~~	~~Applications for Electronic Calculator~~	~~1~~
BTEC 145	Word Processing I	3
CIS 120	Introduction to Spreadsheets	5
CIS 130	Introductory Database Applications	5
CIS 150	Intro to Microcomputer Op. Systems	4
HLTH 100	Occupational Safety and Health	3
	Total	**61**

Accounting Technician

Associate in Applied Science degree

If you want to work in accounting after completing a 2-year degree, this degree program is designed for you.

General Education Requirements

Communication Requirement:		
BSAD 190	Business Communications or	
ENGL 101	English Composition	5
Computation Requirement		
MATH 092	Elementary Algebra	5
Human Relations /Social Sciences/Diversity Requirement:		
BSAD 120	Organizational Behavior or	
BSAD 126	Management of Human Relations	5
Humanities or Natural Sciences Requirement:		
	From distribution list	5
Health Requirement		
HLTH 106	Health Today or	
HLTH 100	Occupational Safety and Health	2-3
	Total	**22-23**

Program Requirements

ACCT 101	Introduction to Accounting Concepts	5
ACCT 150	Payroll Accounting and Business Tax Reporting	5
ACCT 231	Financial Accounting I	5
ACCT 232	Financial Accounting II	5
ACCT 233	Managerial Accounting	5
ACCT 241	Computerized Accounting Concepts	4
ACCT 288/289	Cooperative Education	5
BSAD 104	Business Math Applications	5
BSAD 110	Intro to Business or	
ECON 205	Principles of Microeconomics	5
~~BSAD 164~~	~~Customer Service/ Management~~	~~5~~
BSAD 251	Business Law	5
BTEC 130	Electronic Calculators	2
~~BTEC 131~~	~~10-Key Operations~~	~~1~~
~~BTEC 132~~	~~Applications for the Electronic Calculator~~	~~1~~
BTEC 145	Word Processing I	3
CIS 120	Introduction to Spreadsheets	5
CIS 130	Introductory Database App.	5
CIS 150	Intro to Windows	4
	Total	**68**

Business Management

Associate in Applied Science transfer degree

Associate in Applied Science degree

If you want a 4-year degree in Business Management from The Evergreen State College, LCC's Business Management transfer degree will cover your first two years.

You will get classroom instruction in the management field and develop job entry skills, prepare yourself to open and manage your own small business, or find advancement opportunities for management or supervisory positions through the Business Management Program.

Associate in Applied Science transfer degree

Business Management

General Education Requirements

Communications Requirement		
ENGL 101	English Composition and	
ENGL 102	English Composition	10
Computation Requirement		
MATH 112	College Algebra	5
Human Relations/Diversity Requirement		
BSAD 126	Management of Human Relations	5
Social Sciences		
BSAD 251	Business Law and	
ECON 105	Intro to Economics or	
ECON 205	Principles of Microeconomics	10
Natural Sciences		
	From distribution list	5
Humanities Requirement		
	From distribution list	5
Health Requirement		
HLTH 100	Occupational Safety and Health	3
	Total	**43**
Program Requirements		
ACCT 231	Financial Accounting I	5
BSAD 110	Introduction to Business	5
BSAD 111	Starting/Managing A Business	5
BSAD 115	Salesmanship	5
BSAD 164	Customer Service/Management	5
BSAD 240	Principles of Supervision	5

BSAD 263	Introduction to Marketing	5
BSAD 275	Principles of Management	5
CIS 120	Introduction to Spreadsheets	5
Technical Electives		2
	Total	**47**

Associate in Applied Science degree

Business Management

General Education Requirements

Communications Requirement

ENGL 101	English Composition or	
BSAD 190	Business Communications	5

Computation Requirement

BSAD 104*	Business Math Applications	5

Human Relations/Social Sciences /Diversity Requirement*

BSAD 126	Management of Human Relations	5

Natural Sciences/Humanities Requirement

	From distribution list	5

Health Requirement

HLTH 106	Health Today or	
HLTH 100	Occupational Safety and Health	2-3
	Total	**22-23**

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

***Note**: Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

ACCT 101	Introduction to Accounting Concepts or	
~~ACCT 241~~	~~Computerized Accounting Concepts or~~	
ACCT 231	Financial Accounting I	5
~~ACCT 232~~	~~Financial Accounting II or~~	
~~ACCT 231~~	~~Financial Accounting I and~~	
~~ACCT 241~~	~~Computerized Accounting Concepts~~	
BSAD 110	Introduction to Business	5
BSAD 111	Starting/Managing A Business	5
BSAD 115	Salesmanship	5
BSAD 164	Customer Service/Management	5
BSAD 240	Principles of Supervision	5
BSAD 251	Business Law	5
BSAD 263	Introduction to Marketing	5
BSAD 275	Principles of Management	5
CIS 120	Introduction to Spreadsheets	5
ECON 105	Intro to Economics or	
ECON 205	Principles of Microeconomics	5
~~ECON 206~~	~~Principles of Macroeconomics or~~	
~~ECON 207~~	~~Principles of Microeconomics~~	~~5~~
Technical Electives		12-13
	Total	**67-68**

~~Certificate of Proficiency—Financial Technician~~

~~General Education Requirements~~

~~Communications Requirement~~

~~BSAD 190~~	~~Business Communications or~~	
~~ENGL 110~~	~~Industrial Communications or~~	
~~ENGL 101~~	~~English Composition~~	~~5~~

~~Computation Requirement~~

~~BSAD 104~~	~~Business Mathematics~~	~~5~~

~~Human Relations/Social Sciences Requirement~~

~~BSAD 164~~	~~Customer Service/Management~~	~~5~~
	~~Total~~	**~~15~~**

~~Program Requirements~~

~~ACCT 101~~	~~Introduction to Accounting Concepts~~	~~5~~
~~BSAD 110~~	~~Introduction to Business~~	~~5~~
~~BSAD 115~~	~~Salesmanship or~~	
~~BSAD 263~~	~~Introduction to Marketing~~	~~5~~
~~BSAD 165~~	~~Principles of Banking~~	~~5~~
~~BSAD 169~~	~~Banking/Teller Operations~~	~~5~~
~~BSAD 251~~	~~Business Law~~	~~5~~
~~BSAD 288/289~~	~~Coop Work Experience (Optional)~~	~~1-10~~
~~CIS 110*~~	~~Intro to Microcomputer Applications~~	~~3~~
	~~Total~~	**~~48~~**

~~*Instructor approval required for other CIS options.~~

Certificate of Proficiency ~~Completion~~—General Business

Prepares you for entry-level employment.

General Education Requirements

Communications Requirement

ENGL 101	English Composition	5

Computation Requirement

BSAD 104	Business Mathematics	5

Human Relations/Social Sciences Requirement

BSAD 190	Business Communication	5
	Total	**15**

ACCT 101	Introduction to Accounting Concepts	5
BSAD 110	Introduction to Business	5
BSAD 115	Salesmanship	5
BTEC 130	Electronic Calculators	2
~~BTEC 131~~	~~10-Key Operations~~	~~1~~
BTEC 145	Word Processing I	3
CIS 108	Internet Fundamentals	1
CIS 109	Fundamentals of PowerPoint	1
CIS 110	Intro to Microcomputer Applications	3
CIS 120	Introduction to Spreadsheets	5
	Total	**30**

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

Business-Management Information Systems

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

If your goal is a degree in Management Information Systems (MIS) at a 4-year college or university, select LCC equivalent courses as defined by your target college. Contact your advisor for information about equivalent courses. With a 4-year degree, you will be qualified to develop, use, and maintain information systems that will support management decision-making.

Business Technology

Associate in Applied Science degree

Business Technology career responsibilities continue to grow with new technology and range from routine office tasks and operation of computers and office equipment to expertise in human relations. LCC's BTEC program provides traditional classroom teaching as well as individualized instruction in a computer lab. Two specific options are available. Students will complete the general education and program requirements, as well as the courses identified for their particular option.

General Education Requirements

Communications Requirement		
ENGL 101	English Composition	5
Computation Requirement		
BSAD 104	Business Math Applications	5
Human Relations/Social Sciences/Diversity Requirement		
BSAD 126	Management of Human Relations or	
BSAD 164	Customer Service	5
Natural Sciences/Humanities Requirement		
	From distribution list	5
Health Requirement		
HLTH 100	Occupational Safety and Health	3
	Total	**23**

Program Core

ACCT 101	Introduction to Accounting Concepts	5
BSAD 190	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 113	Applied Word Processing and Desktop Publishing	5
BTEC 130	Electronic Calculators	2
~~BTEC 131~~	~~10-Key Operations~~	~~1~~
BTEC 211	Machine Transcription	3
	Total	**37**

Administrative Assistant Option

BSAD 110	Intro to Business	5
BTEC 125	Filing	3
~~BTEC 132~~	~~Applications for the Electronic Calculator~~	~~1~~
BTEC 260	Office Procedures	5
CIS 120	Intro to Spreadsheets	5
CIS 130	Introductory Database Applications	5
CIS 150	Intro to Microcomputer Operating Systems	4
Elective	ACCT, BSAD, BTEC or CIS elective	3
	Total	**30**

Medical Administrative Support Option

BTEC 125	Filing	2
BTEC 171	Medical Reception Procedures	3
BTEC 172	Medical Office Procedures	4
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
CIS 120	Intro to Spreadsheets	5
Elective	Social Sciences Elective	5
	Total	**34**

Certificates of Proficiency

Five options are available in Business Technology. Complete courses for the appropriate option.

The first four options share the same General Education Requirements:

Communications Requirement		
BSAD 190	Business Communications	5
Computation Requirement		
MATH 091	Pre-Algebra or	
BSAD 104	Business Math Applications	5
Human Relations/Social Sciences Requirement		
BSAD 126	Management of Human Relations or	
BSAD 164	Customer Service/Management	5
	Total	**15**

Administrative Support Option

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	2
~~BTEC 131~~	~~10-Key Operation~~	~~1~~
BTEC 211	Machine Transcription	2
BTEC 260	Office Procedures	5
	Total	**32**

Legal Transcription Option

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
	Total	**30**

Medical Reception Option

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	2
~~BTEC 131~~	~~10-Key Operations~~	~~1~~
BTEC 171	Medical Reception Procedures	3
BTEC 181	Medical Terminology I	3
BTEC 182	Medical Terminology II	3
	Total	**31**

Medical Transcription Option

BTEC 101	Basic Word Processing/Formatting	5
BTEC 106	Proofreading	2
BTEC 111	Intermediate Word Processing	5
BTEC 112	Advanced Word Processing	5
BTEC 125	Filing	2
BTEC 171	Medical Reception Procedures	3
BTEC 181	Medical Terminology I	3
BTEC 182	Medical Terminology II	3
BTEC 185	Medical Machine Transcription	3
	Total	**31**

Word Processing Option

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 113	Applied Word Processing & Desktop Publishing or	
BTEC 147	Intro to Desktop Publishing	3-5
BTEC 125	Filing	2
BTEC 130	Electronic Calculators	2
~~BTEC 131~~	~~10-Key Operations~~	~~1~~
BTEC 211	Machine Transcription	3
	Total	**32-34**

Medical Billing and Coding Specialist

This program has its own General Education Requirements:

Communication requirement		
BSAD 190	Business Communications or	
ENGL 101	English Composition	5
Computation Requirement		
BSAD 104	Business Math Applications or	
MATH 105	Mathematics for Health Sciences	5
Human Relations/Social Sciences		
BSAD 126	Management of Human Relations or	
BSAD 164	Customer Service/Management	5
	Total	**15**

Program Requirements

BTEC 104	Introduction to Business Technology or	
CIS 110	Intro. To Microcomputer Applications	5 or 3
BTEC 130	Electronic Calculators	2
~~BTEC 131~~	~~10-Key Operations~~	~~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	4
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 120	Human Biology or	
MEDA 120	Survey of Human Anatomy & Physiology	5
	Total	**39-41**

Chemical Dependency Studies

Associate in Applied Science degree

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.

General Education Requirements

Communications Requirement		
ENGL 100	or higher	5
Computation Requirement		
MATH 092	or higher	5

Human Relations/Social Sciences Requirement		
PSYC 111	Introduction to General Psychology	5
Natural Sciences Requirement		
BIOL 100, 120, 221, 222, or CHEM 100, 111		5
Diversity Requirement		
SOCY 110	Introduction to Sociology or	
SPCH 109	Intercultural Communication	5
Health Requirement		
HLTH 100 ~~or 106 or NURS 101~~		3
	Total	**28**

Program Requirements

CDS 101*	Intro to Chemical Dependency Counseling	3
CDS 102*	Intro to Theories/Counseling of Chemically Dependent Clients	3
CDS 107	Adolescent Developmental Issues and Chemical Dependency	3
CDS 110*	Alcohol/Drug Pathophysiology and Pharmacology	3
CDS 111*	Record Keeping and Case Management	3
CDS 113	Treatment Principles of Chemical Dependency	3
CDS 121*	Ethical Issues in Chemical Dependency Counseling	2
~~CDS 131~~	~~Legal Issues in CDS~~	~~2~~
CDS 201	Dynamics of the Family and Chemical Dependency Counseling	3
CDS 202	Chemical Dependency Counseling With Diverse Populations	3
CDS 203	Relapse Prevention and Intervention	3
~~CDS 211~~	~~Alcohol/Drug Pathophysiology and Pharmacology~~	~~3~~
~~CDS 213~~	~~Treatment Principles of Chemical Dependency~~	~~3~~
CDS 215*	Group Counseling: Theories/Application	4
CDS 220	Co-occurring Disorders: Mental Health Disorders in CDS	3
	~~A Psycho-Social Perspective~~	
CDS 288	Cooperative Work Experience/ Field Placement I (5 credits/quarter)	10
CDS 289	Cooperative Work Experience Seminars/ Field Placement II (1 credit/quarter)	2
PSYC 205	Developmental Psychology	5
Electives*		9
	Total	**62**

*These courses must be completed along with math, English, psychology, natural science requirements to be eligible for your field work credits.

At least 9 elective credits are required, in addition to the General Education and Program Requirements, for a minimum of 90 credits to earn the Associate in Applied Science Degree. Students should contact the CDS program advisor for any changes in State of Washington requirements.

Recommended Electives:

CDS 105	Chemical Dependency/Domestic Violence	3
CDS 106	Prevention/Intervention Specialist	3
~~CDS 206~~	~~Prevention/Intervention Specialist~~	~~3~~
~~CDS 207~~	~~Adolescent Development Issues and Chemical Dependency~~	~~2~~
CDS 108	Running School-based Support Groups	3
~~CDS 208~~	~~School-based Support Groups~~	~~2~~
PSYC 209	Interviewing Techniques	5

Chemistry, Chemical Engineering

Associate in Arts and Sciences transfer degree

Associate in Sciences transfer degree

Today's chemists and chemical engineers work in laboratory operations, manufacturing firms, research, mid-management in chemical companies, environmental services, and other areas. Analysts or technicians assist scientists in general lab work or process control.

Computer Aided Drafting

Certificate of Proficiency

General Education Requirements

Social Sciences/Human Relations:		
	(BSAD 120 recommended)	5
Communications Requirement		
	(ENGL 100, 101 or 110)	5
Computation Requirement		
MATH 099	Int. Algebra (or higher level math)	5
Health Requirement		
HLTH 100	Occupational Safety and Health	3
	Total	**18**

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
METC 171	Industrial Hydraulics	4
METC 181	Statics	4
MFG 110	Project Management or	
MFG 115	Manufacturing Processes	4-5
MFG 130	Materials Science	5
	Total	**29-30**

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 or	
MFG 115	Manufacturing Processes or	
MFG 130	Materials Science	4-5
	Total	**16-17**

Computer Information Systems

Associate in Arts and Sciences transfer degree

Associate in Applied Science transfer degree

Associate in Applied Science degree

You can start your bachelor's degree in Computer Information Systems 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 operator, programmer, or applications specialist by successfully completing one of these three programs. You may also pursue further computer science education and training.

Associate in Applied Science transfer degree

CIS – Software Development Specialist

CIS – Microcomputer Applications Specialist

CIS – Microcomputer Network Specialist

General Education Requirements

Communications Requirement		
ENGL 101	English Composition	5
Computation Requirement		
MATH 112	College Algebra or higher (excluding MATH 121/122)	5
Human Relations/Diversity Requirement*		
BSAD 126	Management of Human Relations or	
SOCY 110	Introduction to Sociology	5
Humanities Requirement/Natural Science Requirement		
CIS 180	Fundamentals of Computer Programming and	
5 additional credits from second area on DTA distribution list		10
Social Science Requirement		
BSAD 126	Management of Human Relations or	
SOCY 110	Introduction to Sociology	5
Health Requirement		
HLTH 100	Occupational Safety and Health	3
	Total	**33**

Program Requirements

CIS 102	Intermediate Internet Theory, Application, and Web Page Design	5
CIS 120	Intro to Spreadsheets	5
CIS 130	Introductory Database Applications	5
CIS 150	Introduction to Windows	4
CIS 185	Event-Driven Programming	5
CIS 211	Networking Basics	5
CIS 230	Database Development	5
CIS 251	Hardware Configuration	4
CIS 252	Advanced Microcomputer Operating Systems	4
CIS 286	System Analysis/Design	4
CIS 297	CIS Project	4
ENGR 220	Technical Writing	5
	Total	**55**

CIS - Software Development Specialist Option

CIS 280	Introduction to C++	5
CIS 284	Structured Programming and Data Structures	5
CIS 285	Object-Oriented Programming in Java	4
	Total	**14**

CIS - Microcomputer Applications Specialist Option

ACCT 101	Intro to Accounting Concepts	5
CIS 220	Advanced Spreadsheet Applications	5
	Total	**10**

CIS - Microcomputer Network Specialist Option

CIS 212	Local Area Network: Theory and Application	4
CIS 213	Local Area Network: Theory and Application	4
CIS 220	Advanced Spreadsheet Applications or	
CIS 280	Introduction to C++	5
CIS 240	Introduction to Network Security	5
	Total	**18**

Associate in Applied Science

Program Prerequisites

CIS 110	Intro to Microcomputer Applic. (or equivalent)	3

General Education Requirements

Communications Requirement		
	(ENGL 101 recommended)	5
Computation Requirement		
MATH 112	College Algebra or	
MATH 130	The Practical Art of Mathematics or	
MATH 210	Statistics	5
Human Relations/Social Sciences/Diversity Requirement*		
	(SOCY 110 or BSAD 126 recommended)	5
Natural Sciences Requirement		
CIS 180	Fundamentals of Computer Programming	5
Health Requirement		
HLTH 100	Occupational Safety and Health	3
	Total	**23**

*Note: Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

CIS 102	Intermediate Internet Theory, Application, and Web Page Design	5
CIS 120	Intro to Spreadsheets	5
CIS 130	Introductory Database Applications	5
CIS 150	Introduction to Windows	4
CIS 185	Event-Driven Programming	5
CIS 211	Local Area Network: Theory and Application	5
CIS 230	Database Development	5
CIS 251	Hardware Configuration	4
CIS 252	Advanced Microcomputer Operating Systems	4
CIS 286	System Analysis/Design	4
CIS 297	CIS Project	4
ENGR 220	Technical Writing	5
	Total	**55**

~~Applications Programmer Option~~
Software Development Specialist Option

CIS 280	Introduction to C++	5
CIS 284	Structured Programming and Data Structures	5
CIS 285	Object-Oriented Programming in Java	4
	Total	**14**

Microcomputer Applications Specialist Option

ACCT 101	Intro to Accounting Concepts	5
CIS 220	Advanced Spreadsheet Applications	5
Electives	See CIS advisor for approved electives	7
	Total	**17**

Microcomputer Network Specialist Option

CIS 212	Local Area Network: Theory and Application	4
CIS 213	Local Area Network: Theory and Application	4
CIS 220	Advanced Spreadsheet Applications or	
CIS 280	Introduction to C++	5
CIS 240	Introduction to Network Security	5
	Total	**18**

Certificate of Proficiency

—Microcomputer Information Processing

Courses in the Microcomputer Information Processing program can be used to meet requirements for the Associate in Applied Science degree or the transfer degree in Computer Information Systems.

General Education Requirements

Communications Requirement		
ENGL 101	English Composition or	
BSAD 190	Business Communications	5
Computation Requirement		
BSAD 104*	Business Math Applications	5
Human Relations/Social Sciences Requirement		
BSAD 120	Organizational Behavior or	
BSAD 126	Management/ Human Relations or	
PSYC 111	General Psychology	5
	Total	**15**

*MATH 092 (Elementary Algebra) or higher-level math course may be substituted for BSAD 104.

Program Requirements

ACCT 101	Introduction to Accounting Concepts	5
BTEC 111	Intermediate Word Processing or	
BTEC 145/146	Word Processing I and II	5-6
CIS 101	Intro to Internet Theory and Application or	
CIS 102	Intermediate Internet Theory, Application, and Web Page Design	3-5
CIS 120	Introduction to Spreadsheets	5
CIS 130	Introductory Database Applications	5
CIS 150	Intro to Microcomputer Oper. Systems	4
Electives	See advisor for approved electives	4-5
	Total	**48-50**

Computer Science

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Associate in Sciences transfer degree

In Computer Science, advanced education results in higher pay. LCC provides solid core courses in math, programming, applications, and operating systems. If you want a bachelor's degree in Computer Information Systems, work closely with your advisor and your target college to be sure your coursework matches its requirements.

Diesel/Heavy Equipment Technology

Associate in Applied Science degree

The Diesel/Heavy Equipment Technology program prepares students for a wide variety of career possibilities in any industry that utilizes trucks or heavy equipment. The LCC program covers diagnosis, service, and repair of trucks and equipment and is one of the few programs nationwide that is Automotive Service Excellence (ASE) certified by the National Automotive Technician Education Foundation in heavy-duty truck repair. Coursework consists of a mix of classroom theory and extensive hands-on experience. Students may elect to take additional courses to earn a welding certification and/or a commercial truck driving license. Students may also transfer to pursue a bachelor's degree at several four-year institutions. Students may enter the Diesel program any quarter.

General Education Requirements

Communications requirement		
	(ENGL 110 recommended)	5
Computation Requirement		
MATH 092 or higher, (MATH 106 recommended)		5
Human Relations/Social Sciences/Diversity Requirement		
	(BSAD 126 or 120 recommended)	5
Natural Science requirement		
	(Tech 100 or MFG 130 recommended)	5
HLTH 100	Occupational Health and Safety	3
	Total	**23**

**Note:* Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

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

ADT 100*	Essentials of Mechanics	5
ADT 101	Electrical Systems I	5
ADT 102	Electrical Systems II	10
ADT 104	Vehicle Climate Control	6
ADT 111	Hydraulic Brakes	5
ADT 122	Gas Engines II	5
ADT 205	Hydraulics	5
ADT 206	H.D. Power Trains	10
ADT 207	H.D. Chassis Maintenance	10
ADT 210	Hydraulics II	5
ADT 223	Diesel Engine Rebuild	16
ADT 226	Diesel Engine Performance	15
Electives	Choose from list below	2-15
	Total	**99-112**

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

Electives

Choose electives from the following courses to meet individual needs:

ADT 122	Gas Engines II (additional credits)	5
ADT 228	Truck Driving for Technicians	2
ADT 299	Independent Study	1-10
MASP 107	Machining for Related Occupations	2-6
WELD 151	Introduction to Oxy-Acetylene	2-6
WELD 152	Introduction to Arc Welding	2-10
WELD 221	Wire Machine	10

Add the following core courses to earn a second degree in **Automotive Technology**:

Automotive Technology Option

ADT 112	Advanced Brakes	3
ADT 201	Fuels and Emissions	10
ADT 202	Computerized Engine Controls	10
ADT 215	Suspension and Alignment	8
ADT 216	Automatic Transmission	8
ADT 217	Power Trains	6
	Total	**45**

Certificate of Proficiency

—Heavy Equipment Preventive Maintenance

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 or higher		5
Human Relations/Social Sciences Requirement		
	(BSAD 120 or 126 recommended)	5
	Total	**15**

Program Requirements

Any ADT courses approved by program advisor		45
	Total	**45**

Drama

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

The Drama (theatre) program includes classes of general interest to all students, as well as classes for drama majors. Drama students select a program within their particular areas of interest, with seminars and special projects available for qualified students. A major production is presented each quarter.

Early Childhood Education

Associate in Arts and Sciences transfer degree

Associate in Arts Direct transfer degree

If you plan to transfer and earn a four-year degree in Early Childhood Education, make an early decision on your transfer school and work closely with an advisor to determine appropriate course work. LCC provides core requirements and courses in psychology, child development, and other specialized classes from the Early Childhood curriculum.

Associate in Applied Science degree

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. Students may be required to pay for the required criminal background check and proof of a negative tuberculin (TB) skin test.

General Education Requirements

Communications Requirement		
(Must include ENGL 101)		8-10
Computation Requirement		
BSAD 104	Business Math Applications or	
MATH 092	Elementary Algebra or higher	5
Human Relations/Social Sciences Requirement		
PSYC 111	Introduction to General Psychology	5
PSYC 205	Developmental Psychology	5
Natural Sciences/Humanities Requirement		
From distribution list		5
Diversity Requirement		
	(EDUC 110 recommended)	5
Health Requirement		
HLTH I00	Occupational Safety and Health	3
	Total	**36-38**

Program Requirements

ECED 109	Literature and Language Development for Young Children	3
ECED 114	Child Development	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 210	Young Children with Special Needs	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
Electives		3-5
	Total	**54-56**

Certificate of Completion

ECED 109	Literature and Language Development for Young Children	3
ECED 114	Child Development	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 210	Young Children with Special Needs	3
ECED 219	Math, Science, and Computers for Young Children	3
ECED 220	Arts and Crafts for Young Children	3
ENGL 100	English Fundamentals or	
ENGL 101	English Composition	5
HLTH 100	Occupational Safety and Health	3
	Total	**44**

Earth Sciences

(Astronomy, Geology, Oceanography)

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Associate in Sciences transfer degree

Earth sciences careers include positions with government agencies and private industry, independent consulting, teaching, and basic research. Earth Sciences include a broad range of disciplines: astronomy, geology, meteorology, and oceanography. See also Biological Sciences, Geography, Geology, and Natural Resources.

Economics

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Economics majors study resource use in relation to production and distribution of wealth. Economics study is important to students interested in business, law, finance, government services, and social service.

Education

General Transfer Degrees

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Do you want to teach? LCC's transfer degree programs prepare you to enter professional teacher education programs. While jobs are available in all areas and levels of education, competition to obtain a teaching position is often intense, so teacher candidates should maintain a high level of scholarship and participate in service organizations.

More information about the WSU Bachelor of Arts in Education program, which allows you to earn your elementary teaching certificate with classes on the LCC campus, is on page 13.

Elementary Education

(with Paraeducator certification)

Associate in Arts transfer degree

This degree qualifies you to apply for admission to WSU's Collaborative Teacher Education Program in Elementary Education. By taking additional paraeducator preparation courses, you may also certify as a paraeducator, qualifying for employment by a school district, assisting certified teachers in classroom duties. Students pursuing an apprenticeship program should contact an advisor for additional course offerings.

Certificate of Proficiency—Paraeducator

Prepare for entry-level employment within school districts with this certificate program of introductory courses.

General Education Requirements

Communications Requirement		
ENGL 100	English Fundamentals or	
ENGL 101	English Composition	5
Computation Requirement		
MATH 099	Intermediate Algebra or	
MATH 121	Math for Elementary Teachers	5
Human Relations/Social Sciences Requirement		
PSYC 111	General Psychology	5
	Total	**15**

Program Requirements

CIS 110	Intro to Microcomputer Applications	3
ECED 210	Children with Special Needs	3
EDUC 110	Intro to Education	5
EDUC 114	Curriculum & Instruction	2
EDUC 115	Education & the Law	3
EDUC 214	Instructional Strategies	3
EDUC 215	Classroom Management	3
PSYC 205	Developmental Psychology	5
Electives from the list below:		3-5
ART 110	Introduction to Art Appreciation	5
ECED 204	Music & Movement for Young Children	3
ECED 220	Art for Young Children	3
MUSC 100	Fundamentals of Music	5
	Total	**30-32**

Electronics Technology

Associate in Applied Science degrees

If you want a career in Electronics Technology, LCC's Electronics program works at several levels. You can prepare for entry-level employment or, if you're already working in the industry, you may take all or part of the program to upgrade your technical knowledge and skills. Transfer students can complete the first two years of study at LCC toward a Bachelor of Technology degree or Bachelor of Engineering Technology degree at selected four-year institutions.

General Education Requirements

Communications Requirement		
	(ENGL 110 recommended)	5
Computation Requirement		
MATH 099	Intermediate Algebra	5
Human Relations/Social Sciences/Diversity Requirement*		
	(BSAD 126 or 120 recommended)	5
Natural Sciences Requirement		
	(PHYS 100 recommended)	5
Health Requirement		
HLTH 100	Occupational Safety and Health	3
	Total	**23**

****Note:*** Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

BLPT 120	Basic Blueprint Reading or	
DRFT 107	Technical Graphics	3
CIS 150	Intro to Microcomputer Operating Systems	4
CIS 180	Fundamentals of Computer Programming	5
ELEC 101	Basic Electronics: DC Circuits	6
ELEC 102	Basic Electronics: AC Circuits	6
ELEC 103	Basic Electronics: Electronic Circuits	6
ELEC 111	Shop Practices: Basic Skills	2
ELEC 112	Shop Practices: Printed Circuit Board Techniques	2
ELEC 113	Shop Practices: Superheterodyne Receiver Construction and Alignment	2
ELEC 121	Digital I: Introductory Digital Electronics	5
ELEC 122	Digital II: Intermediate Digital Electronics	5
ELEC 201	Advanced Electronics: Solid State Analysis	10
ELEC 202	Advanced Electronics: Microprocessor Fundamentals/Advanced Digital	10
ELEC 203	Advanced Electronics: Microcomputer Interfacing or	
ELEC 205	Advanced Electronics: Microcomputer Interfacing and Troubleshooting	10
INTC 225	Programmable Logic Controllers, Sensors and Communications	6
	Total	**82**

Electronics Instrumentation Option

To learn more about instrumentation, process control, pneumatics, hydraulics, and calibration, choose this program. Current technicians may take all or part of the program to upgrade their technical knowledge and skills.

General Education Requirements

Communications Requirement		
	(ENGL 110 recommended)	5
Computation Requirement		
MATH 099	Intermediate Algebra	5
Social Sciences/Human Relations/Diversity Requirement*		
	(BSAD 126 or 120 recommended)	5
Natural Sciences Requirement		
	(PHYS 100 recommended)	5
HLTH 100	Occupational Safety and Health	3
	Total	**23**

****Note:*** Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

BLPT 120 DRFT 107	Basic Blueprint Reading or Technical Graphics	3
CIS 150	Introduction to Microcomputer Operating Systems	4
CIS 180	Programming Fundamentals	5
ELEC 101	Basic Electronics: DC Circuits	6
ELEC 102	Basic Electronics: AC Circuits	6
ELEC 103	Basic Electronics: Electronic Circuits	6
ELEC 111	Shop Practices: Basic Skills	2
ELEC 112	Shop Practices: Printed Circuit Board Techniques	2
ELEC 121	Digital I: Introductory Digital Electronics	5
ELEC 122	Digital II: Intermediate Digital Electronics	5
ELEC 202	Advanced Electronics: Microprocessor Fundamentals/Advanced Digital	10
ELEC 205	Advanced Electronics: Microprocessor Interfacing/Troubleshooting	10
INTC 101	Process Control I	6
INTC 102	Process Control II	6
INTC 201	Electronic Measuring Principles	6
INTC 202	Electronic Instrumentation and Control	6
INTC 225	Programmable Logic Controllers, Sensors and Communications	6
METC 171	Industrial Hydraulics	4
	Total	**98**

Electronics Microcomputer Technology Option

Choose this option to learn more about microcomputer operation, programming, electronics, interfacing, and troubleshooting. Current technicians may take all or part of the program to upgrade their technical knowledge and skills.

General Education Requirements

Communications Requirement		
	(ENGL 110 recommended)	5
Computation Requirement		
MATH 099	Intermediate Algebra	5
Human Relations/Social Sciences/Diversity Requirement		
	(BSAD 126 or 120 recommended)	5
Natural Sciences Requirement		
	(PHYS 100 recommended)	5
Health Requirement		
HLTH 100	Occupational Safety and Health	3
	Total	**23**

***Note:** Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

BLPT 120 DRFT 107	Basic Blueprint Reading or Technical Graphics	3
CIS 150	Intro to Microcomputer Operating Systems	4
CIS 180	Fundamentals of Computer Programming	5
CIS 211	Local Area Networks: Theory and Application	5
CIS 212	Local Area Networks: Theory and Application	4
CIS 280	Introduction to C++ or	
CIS 284	Structured Programming and Data Structures	5
ELEC 101	Basic Electronics: DC Circuits	6
ELEC 102	Basic Electronics: AC Circuits	6
ELEC 103	Basic Electronics: Electronic Circuits	6
ELEC 111	Shop Practices: Basic Skills	2
ELEC 112	Shop Practices: Printed Circuit Board Techniques	2
ELEC 121	Digital I: Introductory Digital Electronics	5
ELEC 122	Digital II: Intermediate Digital Electronics	5
ELEC 201	Advanced Electronics: Solid State Analysis	10
ELEC 202	Advanced Electronics: Microprocessor Fundamentals/Advanced Digital	10
ELEC 205	Advanced Electronics: Microcomputer Interfacing & Troubleshooting	10
	Total	**88**

Engineering

Associate in Arts and Sciences transfer degree
Associate in Arts transfer degree
Associate in Sciences transfer degree

The Engineering transfer degree can prepare students for entry into modern technology fields such as mechanical, civil, electrical, chemical, materials, and computer engineering.

English

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

English courses meet communications and humanities requirements for students earning associate's degrees, and they provide cultural enrichment electives. LCC offers classes in composition, creative writing, literature, and journalism. If you plan to major in English at a 4-year college or university, work with your advisor to select courses matching those required at your target college.

Environmental Studies

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Associate in Sciences transfer degree

Career opportunities in Environmental Sciences include positions in government agencies and private industry, independent consulting, teaching, and basic research. If you're interested in a career in Environmental Sciences, refer to the Catalog sections on Biological Sciences, Earth Sciences, Environmental Studies, and Natural Resources.

Fire Science Technology

Associate in Applied Science degree

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.

General Education Requirements:

Communications Requirement		
ENGL 101	English Composition or	
ENGL 110	Industrial Communications	5
~~SPCH 101~~	~~Introduction to Speech Communication or~~	
SPCH 110	Introduction to Public Speaking	5
Computation Requirement		
MATH 099	Intermediate Algebra or higher or	
MATH 106	Industrial Mathematics	5
Human Relations/Social Sciences Requirement/Diversity		
BSAD 120	Organizational Behavior or	
BSAD 126	Management of Human Relations	5
Natural Sciences Requirement		
CHEM 100	Introductory Chemistry or	
PHYS 100	Concepts of Physics	5
Health Requirement		
HLTH 100	Occupational Safety and Health	3
	Total	**28**

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 112	Intermediate Fire Fighting Skills	5
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	**72**

Certificate of Proficiency —Fire Prevention Specialist

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

General Education Requirements

Communications Requirement		
ENGL 101	English Composition	5
~~SPCH 101~~	~~Introduction to Speech Communication or~~	
SPCH 110	Introduction to Public Speaking	5
Computation Requirement		
MATH 099 or higher or		
MATH 106	Industrial Math	5
Human Relations/Social Sciences Requirement*		
BSAD 120	Organizational Behavior or	
BSAD 126	Management of Human Relations	5
	Total	**20**

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	**30**

Certificates 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	**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	**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 101	Intro to Speech Communications or	
SPCH 110	Intro to Public Speaking	5
	Total	**17**

~~Fire Service Officer~~

~~Associate in Arts and Sciences transfer degree~~

~~If you are affiliated with a fire service agency and are either a Fire Service Officer or wish to become one, you can get started on your bachelor's degree through LCC's Fire Service Officer degree, which transfers to specific four-year institutions. The curriculum is designed around NFPA Standard 1021, Guidelines for Professional Fire Officers, and is intended to prepare students for International Fire Service Accreditation Congress (IFSAC) Fire Officer I and II certification. Before enrolling in this program, you must contact the Fire Science Technology advisor.~~

Foreign Languages

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Foreign language courses meet humanities requirements for students earning associate's degrees and provide cultural enrichment electives. LCC offers two full years each of French and Spanish, in addition to a series of courses in Spanish for the workplace. If you plan to major in Foreign Languages at a 4-year college or university, work with your advisor to select courses matching those required at your target college.

Geography

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Associate in Sciences transfer degree

Career opportunities in Geography (a major component of earth sciences) include positions in government agencies and private industry, independent consulting, teaching, and basic research. See also Earth Sciences, Environmental Studies, and Natural Resources.

Geology

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Associate in Sciences transfer degree

Careers in Geology (a major component of earth sciences) include positions in government agencies and private industry, independent consulting, teaching, and basic research. See also Biological Science, Earth Sciences, and Natural Resources.

History

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

History courses support economics, political science, and other majors. History majors may enter government service, education, and other research careers.

Industrial Maintenance ~~Multi-Craft~~ Technology

LCC's Industrial Maintenance ~~Multi-Craft~~ Technology programs serve people with previous work experience or background in manufacturing industries. You'll enhance your on-the-job experience with technical and theoretical background. Although some hands-on training is provided, those with little or no previous experience should contact the program advisor.

Associate in Applied Science degree—Industrial Maintenance Technology

Complete the General Education Requirements and both the electrical and mechanical technical core lists, for 93-101 total credits.
~~*Note:* MAMT 270 may be substituted for IMEL 265 and MAMT 265.~~

Certificate of Proficiency

Industrial Maintenance—Electrician

Industrial Maintenance—Mechanical

Industrial Maintenance—Power Utility

Complete the General Education Requirements, IMT 100 – Maintenance Fundamentals, plus the electrical, mechanical or power utility core list for 62-69 total credits.

Certificate of Completion

Industrial Maintenance—Electrician

Industrial Maintenance—Mechanical

Complete Health 100 and the electrical or mechanical core courses for 39-46 total credits.

General Education Requirements

Communications Requirement		
	ENGL 100 or higher	5
Computation Requirement		
	MATH 092 or higher	5
Human Relations/Social Sciences/Diversity Requirement		
	BSAD 120 or 126	5
Natural Sciences Requirement		
	(MFG 130 recommended)	5

Health Requirement

HLTH 100	Occupational Safety and Health	3
	Total	**23**

**Note:* Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

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

IMT 100	Maintenance Fundamentals	3
	Total	**3**

Electrical & Instrumentation Core Requirements

IMT 130	Electrical Safety	1
IMT 131	Electrical Fundamentals – DC Circuits	4
IMT 132	Electrical Fundamentals – AC Circuits	4
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 145	Survey of Data Communications	3
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 Electrical Maintenance Techniques	3
	Total	**43**

~~IMEL 100 Electrical Safety 1~~
~~IMEL 101 Electrical/Electronic Theory 4~~
~~IMEL 102 Electrical Print Reading 1~~
~~IMEL 103 National Electrical Code 3~~
~~IMEL 110 Electrical/Electronic Test Instruments 2~~
~~IMEL 201 Electrical Control Equipment 3~~
~~IMEL 202 Electric Motors 2~~
~~IMEL 203 Electrical Switch Gear 2~~
~~IMEL 215 Digital Electronic Theory 2~~
~~IMEL 220 Programmable Controllers or~~
~~INTC 225 Programmable Logic Controllers 2-6~~
~~IMEL 265 Applied Electrical Maint Techniques or~~
~~MAMT 270 Maintenance Fundamentals 3-6~~
~~IMIN 100 Fundamentals of Industrial Measurement 2~~
~~IMIN 105 Industrial Process Control 1~~
~~IMIN 205 Instrument Calibration 3~~
~~IMIN 210 Digital Instrumentation 1~~
~~IMIN 220 Troubleshooting 3~~
~~**Total** **35-42**~~

~~To learn more about electricity, substitute the following courses for IMEL 100, 101 and 110: ELEC 101, DC Circuits and ELEC 102, AC Circuits.~~

~~To learn more about instrumentation, substitute the following courses for IMIN 100, 105, 205, and 210: INTC 101, Process Control I, and INTC 102, Process Control II.~~

Mechanical Core Requirements

IMT 104	Rigging, Lifting, and Rigging Gear Inspection	5
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
MFG 140	Applied Hydraulics	4
MASP 107	Machining for Related Occupations or	
MASP 111	Machine Shop I	6
WELD	Any WELD courses	6
	Total	**36**

~~MAMT 100* Hand Tools and Measuring Instruments 1~~
~~MAMT 105 Rigging and Lifting 2~~
~~MAMT 108 Industrial Hydraulic Power or~~
~~METC 171 Industrial Hydraulics 3-4~~
~~MAMT 110* Industrial Lubrication 1~~
~~MAMT 115 Mechanical Seals 1~~
~~MAMT 120* Bearings-Reducing Failure Rate 1~~
~~MAMT 125 Rotating Equip. Predictive Maintenance and Alignment 4~~
~~MAMT 204 Centrifugal Pumps 1~~
~~MAMT 205 Air Compressor Repair 1~~
~~MAMT 210 Valve Repair 1~~
~~MAMT 215 Pipefitting 2~~
~~MAMT 265 Applied Mechanical Maintenance Techniques or~~
~~MAMT 270 Maintenance Fundamentals 3-6~~
~~Welding—any WELD courses 6~~
~~Machine Shop, MASP 111 or higher 6~~
~~**Total** **33-37**~~

~~*Students may substitute ADT 100, Essentials of Mechanics (5 credits) for these three courses.~~

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	4
IMT 132	Electrical Fundamentals – AC Circuits	4
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	**43**

~~IMEL 100~~	~~Electrical Safety~~	~~1~~
~~IMEL 101~~	~~Electrical/Electronic Theory~~	~~4~~
~~IMEL 102~~	~~Electrical Print Reading~~	~~1~~
~~IMEL 110~~	~~Electrical/Electronic Test Equipment~~	~~2~~
~~IMEL 120~~	~~Conduit Bending and Installation~~	~~1~~
~~IMEL 201~~	~~Electrical Control Equipment~~	~~3~~
~~IMEL 220~~	~~Programmable Controllers~~	~~2~~
~~IMEL 288/289~~	~~Cooperative Education*~~	~~*15~~
~~IMIN 100~~	~~Fundamentals of Industrial Measurement~~	~~2~~
~~IMIN 220~~	~~Troubleshooting Control Systems~~	~~3~~
~~MAMT 100~~	~~Hand Tools and Measuring Instruments~~	~~1~~
~~MAMT 105~~	~~Rigging and Lifting~~	~~2~~
~~MAMT 108~~	~~Industrial Hydraulic Power~~	~~3~~
~~MAMT 110~~	~~Industrial Lubrication~~	~~1~~
	~~**Total**~~	~~**41**~~

~~*Students may enroll in the Power Utility certificate program without previous work experience. However, 15 credits of Cooperative Education work experience are required to complete the program.~~

Instrumentation & Control Technology

Associate in Applied Science degree

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.

General Education Requirements

Communications Requirement		
	(ENGL 110 recommended)	5
Computation Requirement		
MATH 099	Intermediate Algebra or higher	5
Natural Sciences Requirement		
	(~~PHYS~~ TECH 100 recommended)	5
Human Relations/Social Sciences/Diversity Requirement		
	(BSAD 120 or BSAD 126 recommended)	5
Health Requirement		
HLTH 100	Occupational Safety and Health	3
	Total	**23**

****Note:*** Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

BLPT 120	Basic Blueprint Reading or	
DRFT 107	Technical Graphics	3
CIS 150	Intro to Microcomputer Operating Systems	4
CIS 180	Programming Fundamentals	5
~~ELEC 101~~	~~Basic Electronics: DC Circuits~~	~~6~~
~~ELEC 102~~	~~Basic Electronics: AC Circuits~~	~~6~~
~~ELEC 103~~	~~Basic Electronics: Electronic Circuits~~	~~6~~
~~ELEC 121~~	~~Digital I: Intro Digital Electronics~~	~~5~~
~~ELEC 122~~	~~Digital II: Intermediate Digital Electronics~~	~~5~~
IMT 130	Electrical Safety	1
IMT 131	Electrical Fundamentals – DC Circuits	4
IMT 132	Electrical Fundamentals – AC Circuits	4
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 Converters and Analytical Instruments	6
INTC 225	Programmable Logic Controllers, Sensors and Communications	6
MFG 140	Applied Hydraulics	4
~~METC 171~~	~~Industrial Hydraulics~~	~~4~~
	Total	**68**

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 upgrade your technical skills and knowledge.

General Education Requirements

Communications Requirement		
	(ENGL 110 recommended)	5
Computation Requirement		
MATH 099	Intermediate Algebra or higher	5
Human Relations/Social Sciences Requirement		
	(BSAD 120 or BSAD 126 recommended)	5
HLTH 100	Occupational Safety and Health	3
	Total	**18**

****Note:*** Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

BLPT 120	Basic Blueprint Reading or	3
DRFT 107	Technical Graphics	
~~ELEC 101~~	~~Basic Electronics: DC Circuits~~	~~6~~
~~ELEC 102~~	~~Basic Electronics: AC Circuits~~	~~6~~
~~ELEC 103~~	~~Basic Electronics: Electronic Circuits~~	~~6~~
~~ELEC 121~~	~~Digital I: Intro Digital Electronics~~	~~5~~
~~ELEC 122~~	~~Digital II: Intermediate Digital Elect.~~	~~5~~
IMT 130	Electrical Safety	1
IMT 131	Electrical Fundamentals – DC Circuits	4
IMT 132	Electrical Fundamentals – AC Circuits	4
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
~~METC 171~~	~~Industrial Hydraulics~~	~~4~~
	Total	**47**

Journalism

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

You'll get experience in writing hard news, features, sports, and editorials in LCC journalism classes. Instruction focuses on theories, techniques, structure, and style of writing. If you plan to major in Journalism at a 4-year college or university, work with your advisor to select courses matching those required at your target college.

Law (Pre-Law)

Associate in Arts and Sciences transfer degree

Accredited law schools ordinarily require students to hold a bachelor's degree to be admitted. At LCC, you should plan to enroll in courses that are related to legal reasoning, including history, English, political science, or any of the social sciences. Work closely with your advisor and your chosen transfer college.

Machine Trades

Associate in Applied Science degree

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.

General Education Requirements

Communications Requirement		
	(ENGL 110 recommended)	5
Computation Requirement		
	MATH 092 Elementary Algebra or higher (MATH 106 recommended)	5
*Human Relations/Social Sciences/Diversity Requirement**		
	(BSAD 120 or 126 recommended)	5
Natural Sciences Requirement		
	(MFG 130 recommended)	5
HLTH 100	Occupational Safety and Health	3
	Total	**23**

***Note:** Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

BLPT 150	Machinists Blueprint Reading	5
~~DRFT 107~~	~~Technical Graphics~~	~~3~~
~~MASP 105~~	~~Basic Machine Shop Theory~~	~~4~~
MASP 111	Machine Shop I and/or	
MASP 107	Machining for Related Occupations	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 210~~	~~Fundamentals of CNC~~	~~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	**79**

Certificates of Proficiency

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. LCC offers two options: Computer Numerical Control or Machinist.

General Education Requirements

Communications Requirement		
	(English 110 recommended)	5
Computation Requirement		
	MATH 092 Elementary Algebra or higher (MATH 106 recommended)	5
*Human Relations Requirement/Social Sciences**		
	(BSAD 120 or 126 recommended)	5
Health Requirement		
HLTH 100	Occupational Safety and Health	3
	Total	**18**

***Note:** Courses that meet the Human Relations requirement

may also be used to satisfy another requirement, such as Social Sciences.

Computer Numerical Control (CNC) Option

BLPT 150	Machinists Blueprint Reading	5
~~MASP 105~~	~~Basic Machine Shop Theory~~	~~4~~
MASP 107	Machining for Related Occupations and/or	
MASP 111	Machine Shop I	10
~~MASP 112~~	~~Machine Shop II~~	~~10~~
~~MASP 113~~	~~Machine Shop III~~	~~10~~
MASP 204	CNC Machining Center Fundamentals	3
MASP 205	CNC Turning Center Fundamentals	3
~~MASP 210~~	~~Fundamentals of CNC~~	~~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	**50**

Machinist Option

BLPT 150	Machinists Blueprint Reading	5
~~MASP 105~~	~~Basic Machine Shop Theory~~	~~4~~
MASP 107	Machining for Related Occupations and/or	
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 210~~	~~Fundamentals of CNC~~	~~3~~
MFG 115	Manufacturing Processes	4
WELD 152	Introduction to Arc Welding	6
	Total	**55**

Manufacturing Occupations Core Option

BLPT 150	Machinists Blueprint Reading	5
MASP 107	Machining for Related Occupations and/or	
MASP 111	Machine Shop I	10
MASP 204	CNC Machining Center Fundamentals or	
MASP 205	CNC Turning Center Fundamentals	3
MFG 115	Manufacturing Processes	5
MFG 230	Computer Integrated Manufacturing	4
WELD 105	Related Welding	6
	Total	**33**

Management Information Systems

See Business—page 35.

Mathematics

Associate in Arts and Sciences transfer degree
Associate in Arts transfer degree
Complete the first two years at LCC toward a bachelor's degree in Mathematics at a four-year college. Math courses also supplement and enhance engineering, chemistry, physics and other natural sciences, and business programs.

Medical Assisting

Associate in Applied Science degree

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. Students 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. Other required courses may be taken 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.

General Education Requirements

Communications Requirement		
ENGL 101	English Composition or	
BSAD 190	Business Communications and	
ENGL 102	English Composition	10
Computation Requirement		
MATH 105	Mathematics for Health Sciences	5
Human Relations Requirement*		
PSYC 111	Intro to General Psychology	5
Natural Sciences/Humanities Requirement		
	From distribution list	5
Diversity Requirement		
	From distribution list	5
	Total	**30**

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	5-10
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	**61-66**

*To complete your degree, you must have at least 90 credits from courses numbered 50 and above. Of those, 5 credits must be from either the Associate in Arts Direct Transfer Degree Social Sciences Distribution List or the Natural Sciences 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.

Certificate of Proficiency

Medical assistants work with physicians and other health care providers, contributing support services in the office or laboratory. Certificates of Proficiency are available in both 1-year and 2-year (extended) programs. 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. Other required courses may be taken out of sequence as long as prerequisites are met. No person found guilty of a felony may take the certification examination without a waiver from the AAMA certifying board.

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 or	
BSAD 190	Business Communications	5
Computation Requirement		
MATH 105	Mathematics for Health Sciences	5
Human Relations/Social Sciences Requirement		
PSYC 111	Introduction to General Psychology	5
	Total	**15**

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	5-10
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	**47-52**

Medical Professions

(Medical Technology, Pre-Chiropractic,

Pre-Dentistry/Dental Hygiene,

Pre-Medicine, Pre-Pharmacy, Pre-Physical Therapy, Pre-Veterinary Medicine)

Associate in Arts and Sciences transfer degree
Medical professional careers are varied and challenging and require years of advanced study. Medical coursework is rigorous, and entrance into professional schools is very competitive. LCC students who are planning to study medicine, dentistry, or veterinary medicine must complete at least 12 credits in biology, 18 credits in chemistry, and 12 credits in physics. Some schools require a foreign language. It is important to work with your advisor and consult an advisor at your intended transfer institution.

Music

Associate in Arts and Sciences transfer degree
Associate in Arts transfer degree
Music courses and musical activities are designed to serve both the music major and the general college student. For the music major, jobs are primarily in music education and professional performance. As an LCC music major, you will be expected to participate in the musical organizations appropriate to your performing medium and to take private lessons (applied music) for your primary instrument.

Contemporary Musicianship & Audio Production

Associate in Applied Science degree
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 present 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		
ENGL 101	English Composition	5
Computation Requirement		
MATH 092	Elementary Algebra (taken in MUSC 182 IS: The Music and Math Connection)	5
Social Science/Human Relations Requirement*		
PSYC 111	Intro to General Psychology	5
Health Requirement		
HLTH 106	Health Today	2
Humanities/Natural Science/Diversity Requirement		
MUSC 119	American Music	5
	Total	**22**

Program Requirements

MUSC 100	Fundamentals of Music	5
MUSC 106	Group Piano Instruction	2
MUSC 116 and 216	Musicum Practicum	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	The Music and Math Connection	5
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
Electives		
BSAD 110	Introduction to Business and	
CIS 110	Intro to Microcomputer Applications Recommended	8
	Total	**73**

Certificate of Completion

CIS 110	Intro to Microcomputer Applications	3
ENGL 101	English Composition	5
MATH 092	Elementary Algebra	5
MUSC 100	Fundamentals of Music	5
MUSC 106	Group Piano Instruction	2
MUSC 116	Musicum Practicum	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	The Music and Math Connection	5
	Total	**48**

Natural Resources

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Associate in Sciences transfer degree

Study the development, management, administration, and scientific investigation of renewable and nonrenewable natural resources in LCC's Natural Resources program. You'll consider preservation, restoration, beautification, substitution, maximization, and recycling, as well as short- and long-term impact of society's use upon the environment.

Nursing

Associate in Applied Science degree

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. Students 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. Students interested in a career in nursing must work closely with their 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 web site, http://www.lcc.ctc.edu/departments/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. Students may 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, as well as selected immunizations and current CPR for health care professionals. Costs associated with these requirements are the responsibility of the student. Program admission and progress may be denied if a student is not in compliance with requirements of clinical agencies. 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. 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.

Prerequisites:

MATH 099	Intermediate Algebra	5
BIOL 221	Human Anatomy and Physiology	5
PSYC 111	Introduction to General Psychology	5
	Total	**15**

General Education Requirements

General education requirements are included in the prerequisites and program requirements for these degrees.

Practical Nurse Level

(Certificate of Proficiency)

Program Requirements (co-requisites, four quarters)

NURS 101	Nursing Foundations	5
NURS 111	Nursing Foundations - Clinical	5
BIOL 222	Human Anatomy and Physiology	5
NURS 102	Basic Nursing I	5
NURS 112	Basic Nursing I - Clinical	5
AH 110	Employment Issues in Health Care Professions	1
BIOL 257	General Microbiology	5
NURS 103	Basic Nursing II	5
NURS 113	Basic Nursing II - Clinical	5
PSYC 205	Developmental Psychology	5
NURS 104	Family Nursing	5
NURS 114	Family Nursing - Clinical	5
ENGL 101	English Composition	5
	Total	**61**

Registered Nurse Level

(Associate in Applied Science Degree)

Prerequisites: Completion of Practical Nurse level as listed above.

Program Requirements (co-requisites, three quarters)

NURS 201	Advanced Comprehensive Nursing I	5
~~NURS 211~~	~~Advanced Comprehensive Nursing I~~	~~4~~
NURS 221	Advanced Comprehensive Nursing Clinical I	5
~~NURS 221~~	~~Advanced Comprehensive Nursing I~~	~~6~~
CHEM 111	General Chemistry	5
AH 230	Management Issues in Health Care Professions	1
NURS 202	Advanced Comprehensive Nursing II	5
~~NURS 212~~	~~Advanced Comprehensive Nursing II—High Risk Perinatal~~	~~3~~
NURS 222	Advanced Comprehensive Nursing Clinical II	5
~~NURS 222~~	~~Clinical Advanced Comprehensive Nursing II—High Risk Perinatal~~	~~3~~
SOCY 110	Introduction to Sociology or	
ANTH 207	Cultural Anthropology	5
~~NURS 213~~	~~Advanced Comprehensive Nursing II—Psychosocial Nursing~~	~~3~~
NURS 223	Advanced Comprehensive Nursing Clinical III	5
~~NURS 223~~	~~Clinical Advanced Comprehensive Nursing II—Psychosocial Nursing~~	~~3~~
NURS 203	Advanced Comprehensive Nursing III	5
~~NURS 214~~	~~Advanced Comprehensive Nursing III~~	~~4~~
NURS 224	Preceptorship in Advanced Comprehensive Nursing III	6
	Total	**47**

LPN-Entry RN

Distance Education Program

Lower Columbia College's online distance education LPN-Entry RN (LERN) 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, according to each student's needs.

During fall, winter, and spring quarters, the program will provide a number of short, one- to two-week theory courses. Each course is self-directed, so students can work at their own pace. The instructor will be actively involved, helping students individually, and assisting/instructing as needed. Regularly-scheduled chat sessions, telephone consultations, and class assignments will help students succeed. Students can even take tests without coming to campus. The program provides a laptop computer, scanner/printer, and PalmPilot for each student to use during the program. Students must provide their own Internet access.

A traditional clinical session is offered during summer quarter. While the theory courses are offered on a flexible basis, the summer clinical experiences will follow a full-time, 40-hour-per-week schedule for 8 weeks.

More information on the courses is on page 99. A full description of the program, admission requirements, and courses can be found at http://lcc.ctc.edu/faculty/kkearcher/lern.

Certificate of Completion

—Nursing Assistant - Certified

You may also take the state-approved six-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	6

Philosophy

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

If you plan a major in Philosophy at a 4-year college, select courses matching the requirements of your target institution. LCC courses focus on methods and systems of reasoning, critical examination of philosophic answers to questions of values and obligations, and justification of ethical beliefs.

Photography

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Art majors desiring a career in photography should work closely with their faculty advisors and the college, university, or art school to which they plan to transfer. LCC offers Beginning, Intermediate, and Advanced classes in photography, as well as opportunities for independent study.

Physical Education

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Careers in fitness, coaching, health promotion, exercise science, education, and athletic training available to Physical Education program graduates. You could also minor in community services, leisure activities, resources, therapeutic recreation, outdoor recreation, program supervision, and commercial recreation after transferring to a four-year college.

Physics

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Associate in Sciences transfer degree

Major in Physics as excellent preparation for advanced study in biophysics, medicine, astrophysics, geophysics, optics, chemical physics, engineering, meteorology, and computer science. Professional careers in physics include research and development positions with government, university, or private industrial laboratories. Some teaching opportunities are also available.

Political Science

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

The political scientist concentrates on the philosophy, structure, and actual workings of existing forms of government. Career opportunities exist in law, private business, public administration, nonprofit organizations, and teaching. If you're working toward a Transfer Degree, it's important to work closely with your advisor and the college to which you plan to transfer.

Psychology

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

A psychology major may work in personnel or as a guidance counselor, school psychologist, clinical psychologist, social worker, or educator. Psychology courses are especially useful for students majoring in health sciences, social sciences, business, and law. If you're working toward a Transfer Degree, it's very important to work closely with your advisor and the college to which you plan to transfer.

Pulp & Paper Manufacturing Technology

Associate in Applied Science degree

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

General Education Requirements		
Communications Requirement		
ENGL 100	English Fundamentals or	
ENGL 101	English Composition	5
Computation Requirement		
MATH 099	Intermediate Algebra	5
Human Relations Requirement/Social Science/Diversity		
BSAD 120	Organizational Behavior or	
BSAD 126	Mgmt of Humun Relations	5
Health Requirement		
HLTH 100	Occ Safety and Health	3
Natural Sciences Requirement		
CHEM 100	Introductory Chemistry or higher	5
	Total	**23**

Program Requirements

BLPT 120	Basic Blueprint Reading	3
SPCH 110	Intro to Public Speaking	5
CIS 110	Intro to Microcomputer Applications	3
IMT 131	Industrial Electricity – DC	4
IMT 132	Industrial Electricity - AC	4
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	**78**

Certificate of Completion

Natural Sciences requirement		
	(CHEM 100 or higher)	5
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	**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.

Sociology

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

Sociology majors find career opportunities in social work, public opinion research, public relations, journalism, guidance and counseling, education, community planning, and personnel relations. If you're working toward a Transfer Degree, it's very important to work closely with your advisor and the college to which you plan to transfer.

Speech

Associate in Arts and Sciences transfer degree

Associate in Arts transfer degree

The Speech program provides general education courses for students who wish to improve their understanding of communication and their communication skills. If you're working toward a Transfer Degree, it's very important to work closely with your advisor and the college to which you plan to transfer.

Welding

Associate in Applied Science degree

Prepare for the state commercial welding examination or qualify for welding jobs in manufacturing, maintenance, or instruction through LCC's Welding program. Students 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 recommended)	5
Computation Requirement		
	(MATH 106 recommended)	5
*Human Relations/Social Sciences/Diversity Requirement**		
	(BSAD 120 or 126 recommended)	5
Natural Sciences/Humanities Requirement		
MFG 130	Materials Science or	
TECH 100	Advanced Principles of Technology	5
Health Requirement		
	(HLTH 100 recommended)	3
	Total	**23**

***Note:** Courses that meet the Human Relations requirement may also be used to satisfy another requirement, such as Social Sciences.

Program Requirements

BLPT 160	Blueprint Reading for Welders	5
CIS 110	Intro to Microcomputer Applications	3
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	**71**

Certificate of Proficiency—Welding

These programs help you prepare for employment in manufacturing or maintenance.

General Education Requirements

Communications Requirement		
ENGL 110	Industrial Communications	5
Computation Requirement		
MATH 106	Industrial Math	5
Human Relations/Social Sciences Requirement		
BSAD 120	Organizational Behavior or	
BSAD 126	Management of Human Relations	5
Health Requirement		
HLTH I00	Occupational Safety and Health	3
	Total	**18**

Program Requirements

BLPT 160	Blueprint Reading for Welders	5
CIS 110	Intro to Microcomputer Applications	3
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	**39**

Certificate of Completion—Welding

BLPT 160	Blueprint Reading for Welders	5
HLTH I00	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	**44**

Adult Basic Education (ABE)

ABE 011 ABE Level I (Beginning ABE Literacy) 1-10

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 (Low Basic Education) 1-10

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 increasing complexity, goal-setting, and using word processing.
Prerequisite: Appropriate CASAS score

ABE 013 ABE Level III—(Low Intermediate Basic Education) 1-10

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 increasing complexity, goal-setting, and using word processing.
Prerequisite: Appropriate CASAS score

ABE 014 ABE Level IV-—(High Intermediate Basic Education) 1-10

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 1-10

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 1-10

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: No previous accounting courses are required

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's permission.

ACCT 231 Financial Accounting I 5

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 232 Financial Accounting II 5

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 231 with a grade of C or better.

ACCT 233 Managerial Accounting 5

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 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 231 or instructor's permission.

Administration of Justice (ADMJ)

ADMJ 100 Basic Law Enforcement 15

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.

ADMJ 154 The American Legal System 5

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

ADMJ 181 Report Writing for Law Enforcement 3

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

ADMJ 182 Criminal Law 5

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

ADMJ 183 The Administration of Justice 5

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.

ADMJ 186 Introduction to Criminal Justice 5

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.

ADMJ 260 Physical Evidence and Criminalistics 5

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.

ADMJ 286 Criminal Law Administration 5

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.

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

This module provides healthcare career information, legal and behavioral expectations of employers for quality healthcare environments and the types of healthcare organizational structures.
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 102 Healthcare Foundations II 1

This module emphasizes the legal/ethical and safe practices needed to provide positive teamwork and client relationships. The impact of financial, ethical, and legal aspects 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 110 Employment Issues in Health Care 1

Enables students to identify legal, ethical, and vocational issues related to health care.

AH 112 Body Structure, Function and Terminology I 1

Basic anatomy and function is 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 Therapeutic Communications I 1

This module concentrates on understanding self and presentation of self to healthcare clients with respect, compassion and confidentiality.
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 132 Therapeutic Communications II 1

This module emphasizes awareness, sensitivity and respect to the diversity for client and staff needs. This course will be web enhanced.
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 205 Phlebotomy Education 3

Provides opportunities for students to describe principles of theory and phlebotomy and the practical application of phlebotomy skills.

AH 230 Management Issues in Health Care 1

Provides students the opportunity to describe legal, management and research issues essential for practice as an entry-level graduate nurse.

Anthropology (ANTH)

ANTH 206 Biological Anthropology 5

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 207 Cultural Anthropology 5

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 26 for Capstone prerequisites. Meets the associate's degree cultural diversity requirement.

Art (ART)

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 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 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 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 110 Introduction to Art Appreciation 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 114. 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 110.

ART 119 Watercolor Painting 3

Introduces students to the transparent and opaque techniques of watercolor painting. Color, composition, and technical control are emphasized.

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 152 Intermediate Black & White Photography 3**~~

~~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. Students will also refine camera and darkroom skills, and participate in photo critiques.~~
~~Prerequisite: ART 151 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 permission.

ART 152B Intermediate Black & White Photography - Photojournalism 3

Provides students who have competed 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 152 or instructor's 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 26. 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 26. 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 26. 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 BC to 500 AD. This may be offered as a Capstone course. See Capstone prerequisites on Page 26.

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 AD to AD 1600. This may be offered as a Capstone course. See Capstone prerequisites on Page 26.

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 26.

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

ART 243 Advanced Ceramic Art, Pottery 3

Continues wheel and hand forming techniques with emphasis on aesthetics, including decoration and glazing.
Prerequisite: ART 242

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 it, of the moon, sun, planets, comets, and meteors of the solar system, distant stars, nebulae, clusters, and galaxies, and their theoretical evolution. Options include course with laboratory, engaging students in processes of scientific inquiry, or course without laboratory for three credits.

Automotive Technology (ADT)

ADT 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.

ADT 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.

ADT 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: ADT 101 or instructor's permission.

ADT 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.

ADT 110 Introduction to Auto Mechanics 4

Surveys basic automotive and related mechanics and studies basic hand tools, fundamentals of automotive engines and accessory systems, and simple auto repair. Students are not expected to have previous knowledge of auto mechanics.

ADT 111 Hydraulic Brakes 5

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

ADT 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: ADT 111 or instructor's permission.

ADT 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.

ADT 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: ADT 121 or instructor's permission.

ADT 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 ADT courses or instructor's permission.

ADT 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
Prerequisite: ADT 101 and 102 or instructor's permission.

ADT 202 Computer Engine Controls 10

Presents theory of operation, diagnosis and repair techniques of computer controlled electronic engine systems.
Prerequisite: ADT 101, 102, and 201 or instructor's permission.

ADT 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.

ADT 216 Automatic Transmission 8

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

ADT 217 Powertrains 6

Studies the theory of operation, diagnosis and repair of clutches, manual transmission/transaxles, drivelines, drive axles and transfer cases.

Automotive Technology - Independent Technicians Education Coalition (ITEC)

ITEC 191 Job Shadow 1

Provides on the job experience at several shops to explore a permanent internship job site, to continue for the rest of the program.
Prerequisite: Instructor permission. required.

ITEC 192 Internship 1-10

Provides work experience in an automotive shop practicing the skills learned in the program. A student work journal, logging hours and ASE tasks performed will be kept verifying skills practiced.
Prerequisite: ITEC 191

ITEC 292 Internship 1-10

Provides work experience in an automotive shop practicing the skills learned in the program. A student work journal, logging hours, as well as performing ASE tasks performed will be kept verifying skills practiced.
Prerequisite: ITEC 192.

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. ~~BIOL 106 and 107 are normally recommended for those desiring a more in-depth two-quarter sequence~~. Laboratory is included.

BIOL 120 Human Biology 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 and others. Also surveyed are heredity and human ecology.

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 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 subcellular levels of, organization, including the chemical basis of life, metabolism, cell biology, genetics, and molecular biology. Laboratory is included.
Prerequisite: CHEM 151 or CHEM 111 or instructor's 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 5

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: Biology 120 or equivalent, or instructor's permission.

BIOL 222 Human Anatomy and Physiology 5

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. Laboratory is included.
Prerequisite: Biology 221 with a C or better., or instructor's permission.

BIOL 257 General Microbiology 5

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 100, 120, or 221, or instructor's 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 (BSAD)

BSAD 104 Business Math Applications 5

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's permission.

BSAD 110 Introduction to Business 5

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.

BSAD 111 Starting/Managing A Business 5

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.

BSAD 115 Salesmanship 5

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.

BSAD 120 Organizational Behavior 5

Introduces the field of, organizational behavior with emphasis on applying theories and concepts in actual organizational settings. Focus is on the effects of globalization, cultural diversity, and workforce diversity on organizations. Topics include development of individual differences, fundamentals of group behavior, motivation, leadership, methods of comparing cultures, coping

with diversity in the workplace, and issues relating to quality of work life. Meets the associate's degree cultural diversity requirement.

BSAD 126 Management of Human Relations 5

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.

BSAD 135 Ethics in Management 5

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.

BSAD 160 Principles of Retailing 5

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

BSAD 164 Customer Service/Management 5

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.

~~**BSAD 165 Principles of Banking 5**~~

~~Surveys the history, role, scope and function of financial institutions and banking in today's society.~~

~~**BSAD 169 Banking/Teller Operations 5**~~

~~Studies banking operations and provides understanding of online computer systems as they relate to the banking environment. The course provides the student with knowledge and practice as a Paying and Receiving Teller Operator. Coin and currency handling, accepting and processing customer deposits, and practice with financial institution security procedures are provided.~~

BSAD 190 Business Communications 5

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.

BSAD 206 Statistical Methods 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 BSAD 206 and MATH 210.
Prerequisite: MATH 099 with a grade of C or better.

BSAD 207 Statistical Projects 2 3

Provides an opportunity for students to apply the statistical processes learned in MATH 210/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 26.
Prerequisite: MATH 210 or BSAD 206 with a grade of C or better or concurrent enrollment in MATH 210 or BSAD 206

BSAD 240 Principles of Supervision 5

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.

BSAD 251 Business Law 5

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 26.

BSAD 260 Human Resource Management 5

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 English 101 or equivalent test score.

BSAD 263 Introduction to Marketing 5

Studies marketing functions and their roles in the economic process, emphasizing marketing systems, product planning, promotion, and sales.

BSAD 270 Advertising 5

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.

BSAD 275 Principles of Management 5

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.

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's 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 101 or BSAD 190, each with a grade of C or better or Instructor permission.

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. Utilize software features to properly format business documents.
Prerequisite: BTEC 101 with a grade of C or better or instructor's 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's 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's 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 131 10-Key Operations 1**~~

~~Develops speed and accuracy by touch on the 10-key electronic calculator and the computer numeric keypad. In addition, students~~

~~will demonstrate a competency in the use of the special features of a calculator.~~

~~BTEC 132 Applications for the Electronic Calculator 1~~

~~Continues to develop speed and accuracy by touch on the 10-key electronic calculator skills.~~
~~Prerequisite: BTEC 131~~

BTEC 145 Word Processing I 1-3

Introduces students to Microsoft Word. Develops word processing skills in creating, editing, and formatting research papers and business correspondence, including tables, columns, and graphics. This class is offered in a lab environment.

BTEC 146 Word Processing II 1-3

Offers additional training in Microsoft Word using advanced features and formatting techniques in creating outlines, brochures, magazine articles, fill-in forms, tables, and using macros, templates, styles, and advanced merging. This class is offered in a lab environment.
Prerequisite: BTEC 145 or equivalent 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's permission.

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's 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 talks 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 BSAD 190 or ENGL 101 each with a grade of C or better or instructor's 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, BSAD190, and BSAD 104 each with a grade of C or better or instructor's 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 course 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 (was CDS 206) Prevention/Intervention Specialist 3

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 (was CDS 207) Adolescent Developmental Issues And Chemical Dependency 3

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 (was CDS 208) Running School-Based Support Groups 3

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 (was CDS 211) Alcohol/Drug Pathophysiology and Pharmacology 3

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 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 (was CDS 213) Treatment Principles of Chemical Dependency 3

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 Ethical Issues in Chemical Dependency Studies 2

Studies ethical issues in chemical dependency counseling. Counselor/client professional relationship will be reinforced.
Prerequisite: Concurrent enrollment in CDS 131 or Instructor permission.

CDS 131 Legal Issues in Chemical Dependency Studies 2

Studies current laws and legislation, privileged communication and malpractice. Counselor/client confidentiality will be reinforced.
Prerequisite: Concurrent enrollment in CDS 131 or Instructor permission.

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 explores. Students must enroll concurrently in CDS 111, and either enroll concurrently in CDS 211 or obtain instructor's permission.
Prerequisite: CDS 101, 102, 113, 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, 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 or Instructor permission.

~~**CDS 206 Prevention/Intervention Specialist 3**~~

~~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 infrastucture, and systemic dynamics that may sabotage prevention efforts. This course is designed for CD counselors, nurses, social workers, counselors and teachers; instructor's permission. is required for others to enroll.~~

~~**CDS 207 Adolescent Developmental Issues and Chemical Dependency 3**~~

~~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 208 Running School-Based Support Groups 3**~~

~~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 211 Alcohol/Drug Pathophysiology and Pharmacology 3

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, 121, 131, 213 and 215 with a C or better.

CDS 213 Treatment Principles of Chemical Dependency 3

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.
Prerequisite: Concurrent enrollment in CDS 101 or instructor's permission.

CDS 215 Group Counseling: Theories and Application 4

Provides the student with the theory and the practice of group counseling with chemical dependent clients and their 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. Students must be concurrently enrolled in CDS 102 or obtain instructor's permission.
Prerequisite: CDS 101 and 113 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's 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 Introductory Chemistry 5

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 111 Basic General Chemistry 5

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 112 Organic Chemistry 5

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 alkalis, 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 111 or CHEM 151.

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 151 General Chemistry 5

Provides an in-depth study of chemistry formulas and equations, mathematics, atomic and molecular theory, periodic law, electron configurations, molecular geometry, bonding theories, 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. A basic understanding of algebra is necessary

CHEM 152 General Chemistry 5

Involves the applications portion of the year-long study of chemistry. This course examines 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: CHEM151

CHEM 153 General Chemistry 5

Involves some continued applications of the yearlong study of chemistry. Examines, in more detail, equilibrium, electrochemistry, and thermodynamics, then switch to the very detailed descriptive chemistry of elements such as hydrogen, oxygen and ozone, the halogens, nitrogen, and their compounds. Students will research an element and present the findings to the class. Laboratory is included.
Prerequisite: 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, and instrumental analysis of both organic and inorganic substances will be done. This is a one-quarter course required for most science majors.
Prerequisite: Completion of, or concurrent enrollment in CHEM 153

CHEM 251 Organic Chemistry 5

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 153 or instructor's permission.

CHEM 252 Organic Chemistry 5

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 studies 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 251

CHEM 253 Organic Chemistry 5

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 252

Computer Information Systems (CIS)

CIS 100 Computing Survival Skills 2 or 4

Introduces the student to microcomputers and software applications and the Internet. Basic keyboarding, Windows, word processing, browsing, email, searching the web, and electronic spreadsheets are introduced.

CIS 101 Introduction to Internet Theory and Application 3

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.

CIS 102 Intermediate Internet Theory, Application, and Web Page Design 5

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: CIS ~~101~~, 108 and CIS 110 or equivalent or instructor's permission.

CIS 104 Intermediate Web Page Design 5

~~Prepares students to design their own web page for personal or business use by teaching Hyper Text Mark-up Language (HTML). Knowledge of the web page design language complements other computer-related skills by instilling organizational techniques for displaying information to the viewer.~~
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: CIS 102, CIS 180 or equivalent, or Instructor permission.

CIS 105 Windows Fundamentals 1

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 CIS 110)

CIS 106 Word Processing Fundamentals 1

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 CIS 110)

CIS 107 Spreadsheet Fundamentals 1

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.

CIS 108 Internet Fundamentals 1

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.

CIS 109 Fundamentals of PowerPoint 1

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.

CIS 110 Introduction to Microcomputer Applications 3

Introduces the student to microcomputers and software applications. Windows, word processing, and electronic spreadsheets basics are presented.
Prerequisite: Ability to use a keyboard

CIS 120 Introduction to Spreadsheets 5

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 CIS 110, MATH 092 or BSAD 104, or instructor's permission.

CIS 130 Introductory Database Applications 5

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: CIS 120 with a grade of C or better., or instructor's permission.

CIS 150 Intro to ~~Microcomputer Operating Systems~~ Windows 4

Offers an introduction to the study of ~~microcomputer~~ the Microsoft Windows operating systems. ~~This course discusses~~ Presents fundamental concepts that are ~~applicable to a variety~~ of a Microsoft Windows client operating systems, such as ~~MS-DOS, Windows and Linux~~ file management and customizing a graphical user interface (GUI). ~~Students will work in both command line and graphical environments.~~
~~Prerequisite: CIS 110 or BTEC 104, or instructor's permission.~~

CIS 180 Fundamentals of Computer Programming 5

Offers an introduction to computer programming concepts, and the development of applications ~~languages, and applications~~. Program development, style, testing, and documentation are presented, discussed and applied using the C# ~~BASIC~~ programming language. This course is a beginning course for CIS majors and others wishing an introduction to computer programming.
Prerequisite: MATH 092 and knowledge of Windows is required

CIS 185 Event-Driven Programming 5

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: CIS 180

CIS 211 Networking Basics ~~Local Area Network: Theory and Application~~ 5

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. ~~This course gives the student an opportunity~~

~~to learn and apply basic theories of microcomputer networks. Students will apply their learning by designing simple Local Area Networks, making data cables and creating a peer-to-peer network~~.
Prerequisite: CIS 150 or instructor's permission.

CIS 212 Local Area Networks: Theory and Application 4

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: CIS 211 or instructor's permission.

CIS 213 Local Area Networks: Theory and Application 4

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: CIS 212 or instructor's permission.

CIS 216 Network Scripting 2

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: CIS 180 and CIS 252 or Instructor permission.

CIS 220 Advanced Spreadsheet Applications 5

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 CIS majors and business students who are ready for a challenging spreadsheet class.
Prerequisite: CIS 120 with a grade of C or better., or instructor's permission.

CIS 230 Database Development 5

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: CIS 130 with a grade of C or better., and CIS 180 or instructor's permission.

CIS 235 Programming Tools 5

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

CIS 240 Introduction to Network Security 5

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: CIS 211 or Instructor permission.

CIS 251 Hardware Configuration 4

Offers the computer student an introduction to the configuration of hardware in a computer system. The student will gain some experience installing new hardware and troubleshooting problems with installed hardware.
Prerequisite: CIS 150 with a grade of C or better.

CIS 252 Advanced Microcomputer Operating Systems 4

Offers further study of microcomputer operating systems. This course discusses advanced concepts that are applicable to a variety of operating systems, such as MS-DOS, Windows and Linux. Students will apply their learning by activities such as installing and configuring software, writing specialized menu systems, managing the Windows registry and various other hands-on activities.
Prerequisite: CIS 150 with a grade of C or better.

CIS 260 Introduction to Management Information Systems 5

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: BSAD 110, ENG 101, or instructor's permission. CIS 110 recommended.

CIS 280 Introduction to ~~C++~~ Data Structures 5

~~Offers an introduction to the art and science of computer programming using C++. Computer programs will be designed and implemented to solve problems in mathematics, science, and business.~~
Offers a detailed study of structured programming, algorithms, searching and sorting, and data structures using the programming language C++.
Prerequisite: MATH 099 and CIS 180

CIS 282 Digital Design 5

Provides an introduction to the design and implementation of combinational and sequential digital circuits and systems.
Prerequisite: Math 112 and CIS 280.

CIS 283 Microprocessors 5

Offers an introduction to the architecture of microprocessors and assembly language programming.
Prerequisite: Math 112, CIS 280, and CIS 282.

CIS 284 ~~Structured Programming and~~ Advanced Data Structures 5

Offers a detailed study of ~~structured programming~~, advanced data structures, ~~and algorithms~~, including the analysis of algorithms and object-oriented programming using the programming language C++. ~~The application of structured programming and data structures will enable the student to develop robust programs using a language in the C family of languages.~~
Prerequisite: CIS 280 or instructor's permission.

CIS 285 Object-Oriented Programming in Java 5

Offers an introduction to the object-oriented mode programming paradigm using Java. Various object-oriented programming concepts will be discussed. Object-oriented programs will be developed and implemented.
Prerequisite: ~~CIS 185 or CIS 280~~ CIS 180 or instructor's permission.

CIS 286 Systems Analysis and Design 4

Offers a detailed study of systems analysis applied to the System Development Life Cycle (SDLC) of event-driven, business information systems.
Prerequisite: CIS 130 and CIS 180 or instructor's permission.

CIS 297 CIS Project 4

Offers the computer information systems student an opportunity to use knowledge acquired in previous classes to create solutions to a simple business problem. A complete system will be designed, implemented and documented using appropriate applications software.
Prerequisite: CIS 220, 230, 252, 286, and two programming languages or instructor's permission.

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.

Diesel/Heavy Equipment Technology (ADT)

ADT 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.

ADT 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.

ADT 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: ADT 101 or instructor's permission.

ADT 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.

ADT 111 Hydraulic Brakes 5

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

ADT 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 ADT courses or instructor's permission.

ADT 205 Hydraulics I 5

Studies the basic principles, operation, and maintenance of mobile hydraulic systems. Fluids, filters, and fluid conductors shall also be discussed.

ADT 206 Heavy Duty Power Trains 10

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.

ADT 207 Heavy Duty Chassis Maintenance 10

Offers training in the repair, maintenance, and diagnosis of heavy equipment frames, steering and suspension, brakes and clutches, and drivelines.

ADT 210 Hydraulics II 5

Provides a more in-depth look at hydraulic pumps, valves, and actuators in mobile hydraulic systems. Emphasis will be placed on testing and diagnosis of hydraulic circuits.
Prerequisite: ADT 205 or permission. of the instructor

ADT 223 Diesel Engine Rebuild 16

Studies the operation, maintenance, repair, and overhaul of diesel engines used in heavy equipment.
Prerequisite: ADT 100

ADT 226 Heavy Duty Engine Performance 15

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: ADT 102 or permission. of the instructor

ADT 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: ADT 102, 205, 122, 210, or instructor's permission.

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 109 Descriptive Geometry 1-3~~

~~Introduces and involves students in descriptive geometry techniques applied to solve a variety of problems within construction and engineering. Students will use manual and computer-aided drafting tools throughout the course.
Prerequisite: DRFT 107/ENGR 111~~

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: CIS 110 or instructor's 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/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 107, DRFT 210

DRFT 260 Survey of Civil and Architectural Graphics 3

A survey course that introduces the student in 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 and ENGR 111 or instructor's permission.

Drama (DRAM)

DRAM 100 Introduction to Theatre 5

Provides an understanding and appreciation of theatre and how it relates to society. The approach is from the audience as observer,

then into the areas of acting, directing, producing, playwriting, designing, and theatre history.

DRAM 106, 107, 108 Introduction to Acting 5

This is a participatory course involving movement, voice production, improvisations, and scene work. Group work is stressed to allow each student 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.

DRAM 116, 117, 118 Stage Crafts 5

Teaches technical areas involved in building and running a play from design to construction to production. This is done through lecture and application of skills learned in selected technical areas. Depending on the current production, practical experience is gained in sets, costumes and lights.

DRAM 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.

DRAM 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.

DRAM 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: DRAM 106 or DRAM 107 or DRAM 108, or instructor's permission.

DRAM 210 Masks 5

Introduces masks as a component of actor training 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.

DRAM 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 26.

DRAM 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 26.

Early Childhood Education (ECED)

~~ECED 060 Family Childcare: Exempt In-home Provider Cert. 4~~

~~Provides basic training using STARS family home curriculum, basic First Aid/CPR with infant CPR, blood borne pathogen training, food handler permit training, and in-home mentoring. Students are required to pass criminal history background check.~~

APPED 090 Introduction to Apprenticeship 1

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

~~ECED 104 Child Development Associate Competencies Topics 6~~

~~Provides related training in competency areas required for a Child Development Associate or other competency based credentials. Introduces basic early childhood classroom competencies in the following areas; child growth and development, social/emotional development, physical/mental development, health and safety, management, observing and recording, families, and professionalism.~~

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 106 ECED Competency Topics: Principles of Physical and Intellectual Child Growth and Development 1

Provides training in competency areas required for a child development associate or other competency-based credentials. Introduces basic principles of physical and intellectual child growth and development to be used in early childhood classrooms.

ECED 107 ECED Competency Topics: Principles of Social and Emotional Child Growth and Development 1

Provides training in competency areas required for a child development associate or other competency-based credentials. Introduces basic principles of social and emotional child growth and development to be used in early childhood classrooms.

ECED 108 ECED Competency Topics: Observing, Recording, and Guiding Children's Behavior 1

Provides training in competency areas required for a child development associate or other competency-based credentials. Introduces basic principles of observing, recording, and guiding children's behavior in early childhood classrooms.

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. 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 are examined.

ECED 110 Basics of Child Care 2

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

ECED 114 Child Development 3

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.

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 116 ECED Competency Topics: Planning Safe, Healthy Environments 1

Provides training in competency areas required for a child development associate of other competency-based credentials. Introduces basic principles of planning safe, healthy environments to invite learning in early childhood classrooms.

ECED 117 ECED Competency Topics: Working with Families 1

Provides training in competency areas required for a child development associate of other competency-based credentials. Introduces basic strategies to establish productive relationships with families served by early childhood programs.

ECED 118 ECED Competency Topics: Professionalism 1

Provides training in competency areas required for a child development associate of other competency-based credentials. Introduces basic concepts of establishing and maintaining professionalism in the early childhood field.

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: ECED 114 or instructor's 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's 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's 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 peoples' 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 in on laws and regulations for child care centers and programs, including facilities, equipment, and materials, program planning, scheduling, staffing, and record keeping.
Prerequisite: ENGL 101 and all ECED 100 level courses with a grade of C or better., or instructor's permission.

ECED 210 Young Children with Special Needs 3

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 instructor's permission.

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 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 205 (was ECON 207) Principles of Microeconomics 5

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 BSAD 104 and ENGL 101 or BSAD 190

ECON 206 Principles of Macroeconomics 5

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 205 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 26.

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 100 Leadership in Learning 5

Provides a seminar and experiential environment in which students develop a personal philosophy, articulate a vision, make decisions and lead with goals, apply ethics to leadership, manage conflict, build a team, initiate change, and lead by serving. The course is humanities based with core readings from great works of literature, history, philosophy, and films.
Prerequisite: Acceptance into the Honors Program.

EDUC 110 Introduction to Education 5

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 114 Curriculum and Instruction 2

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 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 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 Course Organization and Curriculum Development 3

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.

~~Industrial Maintenance—Electrician (IMEL)~~

~~IMEL 100 Electrical Safety 1~~

~~Covers the principles of basic electrical safety as well as how to perform lockout and tagout procedures in accordance with OSHA requirements.~~

~~IMEL 101 Electrical/Electronic Theory 4~~

~~Introduces the basics of DC, AC and AC three-phase circuits and systems, solid-state theory, and digital electronics. Series, parallel and series/parallel circuits, Ohm's Law, inductance, capacitance, transformers, and three-phase voltage characteristics are covered. A study of basic semi-conductor devices, logic gates, and binary numbers is included.~~
~~Prerequisite: MATH 092.~~

~~IMEL 102 Electrical Print Reading 1~~

~~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.~~

~~IMEL 103 National Electric Code 3~~

~~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: IMEL 101 or equivalent experience~~

~~IMEL 110 Electrical/Electronic Test Instruments 2~~

~~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: IMEL 101~~

~~IMEL 120 Conduit Bending and Installation 1~~

~~Provides instructions and interaction concerning general conduit bending and installation, in accordance with the National Electric Code (NEC).~~

~~IMEL 201 Electrical Control Equipment 3~~

~~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: IMEL 101, 110 or equivalent experience~~

~~IMEL 202 Electric Motors 2~~

~~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: IMEL 201 or equivalent experience~~

~~IMEL 203 Electrical Switchgear 2~~

~~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: IMEL 202 or equivalent experience~~

~~IMEL 215 Digital Electronic Theory 2~~

~~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: IMEL 101,102~~

~~IMEL 220 Programmable Controllers 2~~

~~Trains participants to understand programmable controller system operations, interpret power flow though ladder logic, and troubleshoot common system failures. Troubleshooting simulations are included.~~
~~Prerequisite: IMEL 101 or equivalent experience~~

~~IMEL 265 Applied Electrical Maintenance Techniques 6~~

~~Teaches a wide variety of electrical skills with emphasis on problem solving.~~
~~Prerequisite: Current employment in a related work situation; all other 100 and 200-level IMEL courses; Math 092, 099, or 112; or instructor's permission.~~

Electronics (ELEC)

NOTE: The Electronic courses are available on a limited basis to current Electronics majors only. Instructor permission required to enroll. Please contact advisor for schedule and enrollment information.

ELEC 101 Basic Electronics: Direct Current Circuits 6

Provides study of direct current (DC) theory, magnetism, introduction to alternating current (AC), as well as electrical safety, basic electronical measurement, and an overview of electronics vocations.
Prerequisite: Completion of, or concurrent enrollment in MATH 092.

ELEC 102 Basic Electronics: Alternating Current Circuits 6

Provides study of alternating current (AC) theory, RC, RL, and RLC circuits, time constants, resonance, filters, and the use and maintenance of electronics test equipment.
Prerequisite: ELEC 101

ELEC 103 Basic Electronics: Electronic Circuits 6

Includes introductory transistor theory, basic amplifier circuits, operational amplifiers, power supplies, oscillators, pulse circuits, modulation, and operation of the superheterodyne receiver. Theory is supplemented with many laboratory exercises
Prerequisite: ELEC 102

ELEC 110 Semiconductor Manufacturing 3

Provides an introduction to semiconductor manufacturing. Covers the history of the semiconductor, industry, materials used, the process of manufacturing semiconductor materials, integrated circuits, and microelectronic devices.

ELEC 111 Shop Practices: Basic Skills 2

Covers schematic reading, component identification, breadboarding techniques, soldering and de-soldering, proper use of hand tools, power tools, and shop safety.

ELEC 112 Shop Practices: Printed CircuitBoard Techniques 2

Provides a study of printed circuit board layout, preparation of master artwork, and fabrication of printed circuit boards from schematics and logic diagrams.

ELEC 113 Shop Practices: Superheterodyne Receiver Construction and Alignment 2

Demonstrates proper use of audio frequency and radio frequency test equipment. A student project, the superheterodyne receiver, will be breadboarded, assembled, aligned, and used as a tool to teach troubleshooting.

ELEC 121 Digital I: Introductory Digital Electronics 5

Includes breadboarding techniques, component identification, logic and schematic diagrams, number systems, codes, basic gates, combinational logic, sequential logic, counters and shift registers. Circuit exploration and troubleshooting techniques are explored in the laboratory.
Prerequisite: ELEC 101 or instructor's permission.

ELEC 122 Digital II: Intermediate Digital Electronics 5

Continues the study of digital electronics including: encoders, multiplexers, code converters, adders, de-multipliers, data bussing, decoders, logic families, tri-state devices, conversion between analog and digital, memory devices, and an overview of computer organization. Circuit exploration and troubleshooting techniques are explored in the laboratory.
Prerequisite: ELEC 121

ELEC 201 Advanced Electronics: Solid State Analysis 10

Includes physics of solid state devices, transistor circuit analysis, operational amplifiers, other solid state devices, and FM receiver theory. Laboratory exercises on solid state devices, and alignment and troubleshooting FM receiver circuits are explored.
Prerequisite: Completion of, or concurrent enrollment in ELEC 103

ELEC 202 Advanced Electronics: Microprocessor Fundamentals and Advanced Digital 10

Introduces microprocessor theory, machine language programming, assembler techniques, digital topics, and hardware

interfacing, and includes laboratory exercises utilizing the 8085 microprocessor, video terminals, and digital hardware.
Prerequisite: ELEC 201 or instructor's permission.

ELEC 203 Advanced Electronics: Microcomputer Interfacing 10

Studies microprocessor peripherals, microprocessor interfacing, disk drive repair, and alignment and microcomputer operating systems. During the last six weeks of the quarter, students are involved in a special project. Laboratory exercises include hands-on troubleshooting, adjustments, and alignment of microprocessor systems.
Prerequisite: ELEC 202 and CIS 150 or instructor's permission.

ELEC 205 Advanced Electronics: Microcomputer Interfacing and Troubleshooting 10

Studies the theory of operation, construction, troubleshooting, repair of microprocessors. The IBM PC will be used in the laboratory to provide hands-on experience in troubleshooting and repair.
Prerequisite: ELEC 202 and CIS 150 or 174

ELEC 240 Color Television, Theory and Repair 8

Offers studies in color television theory, troubleshooting procedures, and test equipment use. Laboratory work involves actual troubleshooting and repair.
Prerequisite: ELEC 103 or instructor's permission.

ELEC 260Introduction to Microprocessors 4
Acquaints the student with the hardware and software of the 6800 microprocessor by guiding the student through the conception, configuration, writing, and running of a variety of programs that demonstrate practical use of a 6800 system. No special background in digital electronics is required.
Prerequisite: ELEC 103 or instructor's permission.

Engineering (ENGR)

ENGR 111 Engineering Graphics 1-3

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 112 Engineering Graphics II 1-3

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 111 or instructor's permission.

ENGR 113 Engineering Graphics III 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: ENGR 111 and 112 or instructor's permission.

ENGR 121 Engineering Problems 5

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, 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's permission.

ENGR 122 Statics 5

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 121, MATH 151 or instructor's permission.

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 26.
Prerequisite: Algebraic, writing, and presentation skills; a previous distribution science course (e.g., PHYS 100) would be helpful

ENGR 215 Electrical Engineering Science I: Circuits 5

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 220 Technical and Workplace Writing 5

~~Emphasizes practical workplace graphics and format skills used in occupations requiring concise, action-oriented presentation. Students learn to create process and mechanism descriptions, instructions, short reports, letters, memos, and the longer technical proposal.~~
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.

ENGR 254 Mechanics of Materials 4

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 122, concurrent enrollment in MATH 152 and PHYS 252, or instructor's permission.

ENGR 260 Engineering Thermodynamics 5

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 122, PHYS 251, and MATH 152 or instructor's permission.

ENGR 261 Dynamics 4

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 122, MATH 152 and PHYS 251, or instructor's 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 writing skills including 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 documentation.
Prerequisite: College-level 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 Arts Magazine Publication 2

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 26. 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 26. Meets the associate's degree cultural diversity requirement.
Prerequisite: ENGL 101 or instructor's permission.

ENGL 220 Technical and Workplace Writing 5

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 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 235C Creative Writing 5

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 26.
Prerequisite: ENGL 231 or instructor's 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 26.
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 26. 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 26.
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 26.
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 26.
Prerequisite: ENGL 101 or Instructor 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 26.
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 26.

English as a Non-Native Language (ENL)

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

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
Writing & Grammar (Levels I-4) 1-5

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 as a Non-native Language 1-5

Provides opportunities for study 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 1-10

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) 1-10

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) 1-10

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) 1-10

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) 1-10

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) 1-10

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) 1-10

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's 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 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 26.
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 26.
Prerequisite: Algebraic, writing, and presentation skills; a previous distribution science course (e.g., PHYS 100) would be helpful.

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 104 Foam and Fire Stream Operations 1

Studies foam eductor hydraulic principles, basic fire foam chemistry, application techniques, and fire fighter life safety as it relates to flammable fuel fires. In addition, a process will be introduced for the testing of fire streams and nozzles using calibrated flow meters and pressure gauges to accurately assess critical fire flow rates and nozzle performance.

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 inspections of building 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, increasing 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's 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.

~~Fire Service Officer (FISO)~~

~~FISO 101 Fire Officer I—Level One Fundamentals 3~~

~~Provides students with fundamental concepts relating to fire officer roles in supervising company and departmental operations, including: Group dynamics, leadership, report writing, managing cultural diversity, occupational health and safety, quality assurance related to budgetary systems, customer service and elements of pre-incident planning.~~

~~FISO 102 Fire Officer I—Level Two Concepts 3~~

~~Provides students with fundamental concepts relating to fire officer's roles in supervising company and departmental operations, including: Fire cause determination, emergency operations, safety accountability, Incident management systems, size-up, strategic goals, tactical objectives, resource management, and media and community relations.~~
~~Prerequisite: FISO 101 and 111~~

~~FISO 111 Fire Officer I—Level One Work-based Learning 3~~

~~Couples students' cognitive learning from the Fire Officer I-Level One Fundamentals course with applied learning to develop essential workplace skills through on-the-job experience. Students will develop skills necessary to obtain professional qualifications and International Fire Service Accreditation Congress (IFSAC) certifications, and develop the knowledge, skills, and abilities needed to perform the typical duties of a fire officer. May be taken concurrently with FISO 101.~~

~~FISO 112 Fire Officer I—Level Two Work-based Learning 3~~

~~Couples students' cognitive learning from the Fire Officer I-Level One Concepts course with applied learning to develop essential workplace skills through on-the-job experience. Students will develop skills necessary to obtain professional qualifications and International Fire Service Accreditation Congress (IFSAC) certifications, and develop the knowledge, skills, and abilities needed to perform the typical duties of a fire officer. May be taken concurrently with FISO 102.~~
~~Prerequisite: FISO 101 and 111~~

~~FISO 120 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.~~

~~FISO 140 Fire Service Incident Safety Officer 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.~~

~~FISO 201 Fire Officer II—Level One Fundamentals 3~~

~~Provides students with concepts relating to fire officer roles in supervising company and departmental operations, including: Governmental affairs, effective report writing, human resource management, affirmative action, budgetary processes, subordinate evaluation and appraisal processes, information technology systems, health hazards exposure reporting, injury prevention education.~~
~~Prerequisite: FISO 101, 111, 102, 112~~

~~FISO 202 Fire Officer II—Level Two Concepts 3~~

~~Provides students with concepts relating to fire officer's roles in supervising company and departmental operations, including: Conducting fire prevention inspections, conducting an initial fire~~

origin and cause investigation, developing public information media releases, planning for multi-unit response using the incident command system, and supervising multi-unit response operations utilizing the incident command system.
Prerequisite: FISO 101, 111, 102, 112, 201, 211

FISO 210 Fire Service Leadership 3

Presents students with concepts and tools relating to leadership needed to perform effectively in a fire service environment. The course includes: Managing multiple roles, enhancing effectiveness, ethics, decision making styles, problem solving, conducting meetings, situational leadership, delegating, coaching and discipline.

FISO 211 Fire Officer II—Level One Work-based Learning 3

Couples students' cognitive learning from the Fire Officer II-Level One Concepts course with applied learning to develop essential workplace skills through on-the-job experience. Students will develop skills necessary to obtain professional qualifications and International Fire Service Accreditation Congress (IFSAC) certifications, and develop the knowledge, skills, and abilities needed to perform the typical duties of a fire officer. May be taken concurrently with FISO 201.
Prerequisite: FISO 101, 111, 102, 112

FISO 212 Fire Officer II—Level Two Work-based Learning 3

Couples student's cognitive learning from the Fire Officer II-Level Two Concepts course with applied learning to develop essential workplace skills through on-the-job experience. Students will develop skills necessary to obtain professional qualifications and International Fire Service Accreditation Congress (IFSAC) certifications, and develop the knowledge, skills, and abilities needed to perform the typical duties of a fire officer. May be taken concurrently with FISO 202.
Prerequisite: FISO 101, 111, 102, 112, 201, 211

FISO 231 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.

FISO 232 Fire Service Instructor II 3

Presents students with educational theory and practice including the following: Instructional planning, needs analysis, developing course objectives, lesson plan development, lesson plan presentation, testing and evaluation, and managing and supervision of training.
Prerequisite: FISO 231

FISO 233 Fire Service Instructor—Work-based Learning 3

Couples students' cognitive learning from FISO 231 and 232 courses with applied learning to develop essential workplace skills through on-the-job experience. Students will develop skills necessary to develop skills to obtain professional qualifications and International Fire Service Accreditation congress (IFSAC) certification, and develop the knowledge, skills, and abilities needed to successfully perform the typical duties on a Fire Service Instructor.
May be taken concurrently with FISO 231 or 232. Students will earn one credit for every 50 hours of internship experience.

French (FREN)

FREN 101 Elementary French 5

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.

FREN 102 Elementary French 5

Continues development of a foundation for communication in French. Introduces past and future tenses.
Prerequisite: FREN 101 or one year of high school French.

FREN 103 Elementary French 5

Provides practice in pronunciation and translation of French. Listening and speaking are stressed.
Prerequisite: FREN 102 or two years of high school French

FREN 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 FREN 110 and FREN 114.

FREN 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.

FREN 201, 202, 203 Intermediate French 5

Reviews basic structure; expands conversation and reading skills. Thematic approach to contemporary French culture and literature.
Prerequisites:
For FREN 201—FREN 103, 3-4 years of high school French or

equivalent.
For FREN 202- FREN 201, 3-4 years of high school French or equivalent.
For FREN 203- 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.

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 to 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. ~~Prerequisite: GEOL 116, 117, 170, ERSI 104, 105, GEOG 105, or OCNG 140~~

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 behaviors and the benefits of healthy decision as it affects 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 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 106 Western Civilization to 1500 5

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 107 History of Western Civilization, 1500-1850 5

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 116 World ~~Civilization~~ History to 1500 5

Focuses on the origins, development, and cultural features of various ~~civilizations~~ societies up to c. 1500 C.E., including ~~Indian, Chinese, Olmec, Mesopotamian, Nubian and European~~ the peoples of Asia, Africa, Europe, the Americas, and Oceania. ~~Particular attention will be given to examining the material and ideological forces that cause or retard social change.~~ This course examines the political, social, and cultural contours of particular societies and the interactions and relationships among people of different cultures.

HIST 117 World ~~Civilizations and Cultures~~ History 1500 to 1800 5

Examines the dramatic changes ~~occurring in the city-based cultures of Europe and the effects these changes had on other cultures. While treating non-European cultures in their own terms, there will also be emphasis on the causes of the emergence in Europe of mercantile capitalism, the nation-state, new technologies, and ideologies of cultural and religious superiority, and the consequences of all this for cultures elsewhere.~~ 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 118 World ~~Civilizations and Cultures~~ History 1800 to Present 5

~~Continues themes explored in HIST 117, examining the changes wrought globally as a consequence of European commercial, military, political and cultural imperialism. Special attention will be given to two themes: 1) the emergence of modern, global capitalism and its political, social and cultural effects, and 2) the persistence of differences between cultures.~~ 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 156 U.S. History to ~~1860~~ 1865 5

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 157 U.S. History 1860 1865 to Present 5

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 26.**

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 26.**

Home and Family Life (HOFL)

HOFL 131, 132, 133 Parent/Child Lab ~~I, II, III~~ Experience ~~1-3~~ 3

Provides knowledge of early childhood development and parenting skills. Educational experiences may take place in early a cooperative parent/child learning environments such as the LCC Home and Family Life Early Learning Center and/or Head Start/ECEAP classrooms. Students participate in parent/child laboratories, attend lectures and parenting seminars, and complete individually assigned projects. 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 personal survival skills to mover from job loss or underemployment to the next step. May upgrade basic skills in reading, writing, and math, and introduces the use of computer.

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 & Life Planning 2, 3, or 5

Launches students into an investigation of interests, values, and careers, followed by decision-making and goal setting. Life planning component concentrates on self-esteem, self-exploration, emotions, relationships, and locus of control. The class may be offered for 2, 3 or 5 credits and emphasis in the content will vary 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

Targets effective tools to land a job. Students develop and finesse marketable job applications, resumes, employment letters, interviewing skills, and 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 Leadership and Student Government 1-3

Enhances students' ability to become effectual leaders in educational or work environment through situational leadership, teamwork, motivational techniques, ethical decision-making, budgeting, and various seminars. Students will represent student constituency through governmental process.

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 student's Individualized Academic Plan and personal needs will determine the class content for each student.

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 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 26. 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.

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 ~~Decimals~~ 1

Provides a review of basic concepts of mathematics. This course teaches addition, subtraction, multiplication, and division of fractions ~~decimal~~ numbers.

INDV 052 Review Math—Decimals ~~Fractions~~ 1

Provides a review of basic concepts of mathematics. This course teaches addition, subtraction, multiplication, and division of decimal numbers ~~fractions~~.

INDV 053 Review Math - Ratios, Proportions and Percents 2

Provides a review of basic concepts of mathematics. The course teaches ratios, proportions and percents.

INDV 065 Reading and Writing Basics 5

Provides an understanding of the reading and writing process including how to write clear sentences and paragraphs. Instruction in vocabulary development and effective reading are also covered. Students have opportunities to work individually as well as in collaboration with others.
Prerequisite: COMPASS score of 40-68 in reading.

INDV 069 Second Language Grammar and Writing ~~1-3~~ 1-5

Offers English as a Second Language students an opportunity for improvement in writing grammatically complete sentences, paragraphs, and short essays. Topics address writing process and grammar usage. This individualized course may be used to satisfy the high school English equivalency requirement.

INDV 072 Sentence and Paragraph Structure 1-2

Allows students to improve skills in writing complete and coherent sentences and paragraphs. Sentence patterns, paragraph development, and paragraph unity are also presented. This individualized course may be used to satisfy the high school English equivalency requirement.

INDV 073 The Three-Part Formal Essay 1-2

Presents an opportunity for improvement in short essay writing. Topics include introduction, body, conclusion, and transitions. This individualized course may be used to satisfy the high school English equivalency requirement.

INDV 075 Reading and Writing Improvement 5

Provides instruction in improving students' reading and writing. Students will be taught how to use steps of the writing process to achieve clear expression and, at the same time, taught how to improve literal and critical reading comprehension skills. Students needing additional remediation will complete individualized reading, spelling and/or grammar punctuation modules in the learning lab.
Prerequisite: COMPASS scores of 69-80 in reading or completion of INDV 065 with a grade of C or better.

INDV 085 College Readiness 2

Students enrolled in INDV 085 will attend a series of lectures that will help prepare them for academic and personal success at the community college. The course also provides hands on workshops in campus resources such as the computer labs, the library, the Career Center, and the Tutoring Center.
Prerequisite: This course is mandatory for all first quarter students testing into INDV 065 or INDV 075.

INDV 091 Basic Spelling 1

Provides a review of basic spelling patterns including consonant and vowel sounds, blends, plurals, and common confusing words. An initial diagnostic test will determine the individual student's placement.

INDV 092 Advanced Spelling 1

Provides a review of more advanced spelling patterns to include silent letters, plurals, possessives, doubling consonants, and the "i before e" rule. An initial diagnostic test will determine the individual student's needs.

INDV 093 Test Taking 1

Offers strategies to help students improve test-taking abilities such as scheduling time, preparing for exams, finding exam cues, writing essay responses, and answering objective questions.

INDV 094 Note Taking 1

Prepares students to effectively take lecture notes. Techniques include active listening, looking for main ideas, using signal words, and organizing notes.

INDV 095 General Vocabulary Building 1

Improves general speaking and writing vocabulary. ~~Additionally students are acquainted with~~ word attack skills that may be applied to help determine the meaning of any unfamiliar word are developed.

INDV 096 Textbook Reading Techniques 1

Provides techniques that improve the ability to read and comprehend college textbooks. Skills include pre-reading, skimming, scanning, marking, highlighting, and annotating.

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.

INDV 098 Spanish Grammar for Beginners: Agreement of Nouns and Modifiers 2

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.

INDV 099 Learning Center Lab Practicum 1-3

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.

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 ~~Grammar/Punctuation~~ 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, semicolon, colon and dash.

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

INDV 109 is a 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.

Industrial Maintenance Technology (IMT) ~~Instrumentation (IMIN)~~

(was IMEL, IMIN, and MAMT)

IMT 100 (was IMT 101/IMT 102/IMT 104 and MAMT 101) Maintenance Fundamentals 3

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 (was IMT 111/IMT 112/IMT 113 and MAMT 105/MAMT 109/MAMT 209) Rigging, Lifting, and Rigging Inspection 3

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 107 (was IMT 117 and MAMT 115) Mechanical Seals 1

Covers the function, operation and repair of common mechanical seals. Failure analysis and identification seal removal and disassembly/re-assembly are included.

IMT 108 (was IMT 118 and MAMT 120) Bearings-Reducing Failure Rate 1

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 (was IMT 120 and MAMT 125) Rotating Equipment Predictive Maintenance & Alignment 4

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 (was IMEL 100) Electrical Safety 1

Covers the principles of basic electrical safety as well as how to perform lockout and tagout procedures in accordance with OSHA requirements.

IMT 131 Electrical Fundamentals D.C. Circuits 4

An introduction to the nature and principles of electricity, interpretation of electrical and schematic diagrams, ohms 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 4

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 or ELEC 102.

IMT 134 (was IMT 139 and IMEL 110) Electrical/Electronic Test Instruments 2

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 (was IMT 136 and IMEL 102) Electrical Print Reading 1

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 (was IMT 135 and IMEL 120) Conduit Bending and Installation 1

Provides instructions and interaction concerning general conduit bending and installation in accordance with the National Electric Code (NEC).

IMT 139 (was IMT 137 and IMEL 103) National Electric Code 3

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 (was IMIN 100) Fundamentals of Industrial Measurement 2

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 (was IMIN 105) Industrial Process Control 1

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 145 (was IMIN 110) Survey of Data Communications 3

Offers an introduction to the fundamental concepts of telecommunications. Students will study various types of communication networks, transmission, software, and application.

IMT 200 (was MAMT 204) Centrifugal Pump Repair 1

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 (was MAMT 205) Air Compressor Repair 1

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 (was MAMT 210) Valve Repair 1

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 (was MAMT 215) Pipefitting 2

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 (was IMEL 201) Electrical Control Equipment 3

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 (was IMEL 202) Electric Motors 2

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 201 or Instructor permission.

IMT 233 (was IMEL 203) Electrical Switchgear 2

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 (was IMEL 215) Digital Electronic Theory 2

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 or ELEC 101.

IMT 239 (was IMEL 220) 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 (was IMIN 205) Instrument Calibration 3

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 & 105, ~~IMEL 110~~ IMT 138, and MATH 106 or ~~equivalent experience are recommended~~ Instructor permission.

IMT 245 (was IMIN 210) Digital Instrumentation 1

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: ~~IMIN 100 and 105, IMEL 100,~~ IMT 134, 140, 144 and MATH 092 or equivalent experience are highly recommended

IMT 249 (was IMIN 220) Troubleshooting Control Systems 3

Introduces a systematic approach to troubleshooting all control systems, be they single/multiple box, or distributive. Enhances logical thinking.
Prerequisite: ~~IMIN 100, 105, and 205,~~ IMT 140, 144, 244 and MATH 092 or equivalent experience are highly recommended.

IMT 264 (was MAMT 265) Applied Mechanical Maintenance Techniques 3

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 (was IMEL 265) Applied Electrical Maintenance Techniques 3

Offers instruction in application of a wide variety of electrical skills with emphasis on problem solving.
Prerequisite: Completion of all 100 and 200 level Electrical & 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: ELEC 101 or instructor's 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's 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, ELEC 103, or instructor's 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's permission.

INTC 225 Programmable Logic Controllers, Sensors and Communications 6

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: ELEC 101, INTC 102 or instructor's permission.

Journalism (JOURN)

JOURN 110, 120, 130, 210, 220, 230 Editing/Newspaper Production 1-3

Provides hands-on experience in news writing, photography, editing, design and layout in production of the Logos, Lower Columbia College's student newspaper.
Prerequisite: ENGL 101, high school journalism or newspaper experience, or instructor's permission.

JOURN 200 Basic News Writing 5

~~Covers the basics of researching, organizing, and writing news for publication. Covers hard news, features, sports, and editorials. Practice in good writing using the structure and style of effective news articles. Instruction on theories, techniques and legal issues involved with professional journalism are offered. The course is also designed to develop interviewing and word processing skills~~. 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 26**.
Prerequisite: ENGL 101 with a grade of C or better or instructor's permission.

Library (LIBR)

LIBR 101 Introduction to Library & Information Research 2

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 101 Machine Theory I 5

Covers construction, care, and safety of machine tools. Turning, boring, facing, and chucking operations in the engine lathe, as well as grinding single-point cutting tools, use of bench and layout tools, micrometers, and other measuring instruments are studied.

MASP 102 Machine Theory II 5

Designed to teach the advanced student using the Machinery's Handbook to solve complicated machine shop problems. Milling machine operations and tool and cutter grinding processes will also be covered. Inspection of tools and their proper use and care will also be included.
Prerequisite: MASP 101

MASP 105 Basic Machine Shop Theory 4

This course will expose students to four basic types of machine tools as well as general shop safety, layout, cutting tool geometry, and precision measuring. The four areas of focus will be hole operations such as drilling, reaming, and tapping, engine lathe operations turning, facing, and boring, the basic operation of the vertical milling machine and its accessories, and precision grinding.

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 210 Fundamentals of Computer Numerical Control 3

This course introduces students to the history, theory, and workings of computer numerically controlled equipment. It 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: CIS 110, MASP 113 and MASP 210

MASP 222 Advanced Computer Numerical Control: Machine Shop 2-10

Furthers the student in hands-on applications of CNC operations.
Prerequisite: MASP 221 or instructor's permission.

Maintenance Multi-Craft Technology (MAMT)

Please see Industrial Maintenance Technology (IMT)

MAMT 100 Hand Tools and Measuring Instruments 1

Introduces and demonstrates the proper use of a variety of hand tools and measuring instruments. Tools covered include vises, C-clamps, non-adjustable wrenches, socket wrenches, torque wrenches, etc. Measuring instruments include dial calipers, outside micrometers, depth micrometers, telescopic gauges, thickness gauges and dial indicators.

MAMT 101 Maintenance Fundamentals I 6

Introduces the student to the essential elements of the industrial millwright role. Topics include measurement and layout techniques, safe operation of hand and power tools, framing and scaffolding, basic metal fabrication, and torque materials fasteners. Focus is on both theory and application.
Prerequisite: MATH 091(suggested) or instructor's permission.

MAMT 105 Rigging and Lifting 2

Offers training on preparing for and carrying out a lift using hand-operated equipment, forklifts, and mobile cranes. Equipment inspection, safety and efficient operation are also covered.

MAMT 108 Industrial Hydraulic Power 3

Covers hydraulic system components, reading schematics, and understanding the conditions necessary for proper operation of a hydraulic system. Hydraulic pumps, pumping principles, accumulators, pressure control valves, direction and flow control valves, actuators, and the applications of these components are studied.

MAMT 109 Rigging Gear Inspection 2

Introduces the 5 classifications of rigging gear. Students will learn to identify characteristics and capacities of all 5 classifications, as well as the removal criteria for each using OSHA and ASME standards.

MAMT 110 Industrial Lubrication 1

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.

MAMT 115 Mechanical Seals 1

Covers the function, operation and repair of common mechanical seals. Failure analysis and identification seal removal and disassembly/re-assembly are included.

MAMT 120 Bearings-Reducing Failure Rate 1

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.

MAMT 125 Rotating Equipment Predictive Maintenance & Alignment 4

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.

MAMT 204 Centrifugal Pump Repair 1

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.

MAMT 205 Air Compressor Repair 1

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.
Recommended prerequisites: Completion of all 100-level MAMT courses.

MAMT 209 Journeyman Rigging 3

Introduces 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: MAMT 109

MAMT 210 Valve Repair 1

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 MAMT courses, recommended

MAMT 215 Pipefitting 2

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.

MAMT 265 Applied Electrical Maintenance Techniques 6

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: All 100-level MAMT courses or equivalent industrial experience with permission. of the instructor

MAMT 270 Maintenance Fundamentals 3

Introduces students to the essential elements of the industrial millwright/electrician trade. Topics include lockout/tag out of electrical/mechanical equipment, sketching using ANSI standards, layout and machinery installation, pump, gearbox, cylinder rebuild and repair, and troubleshooting techniques.

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

~~Manufacturing Processes is~~ A compressive study of the processing of materials, industry standards, and the manufacturing techniques ~~used in industry~~ 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 Industrial 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 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

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 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 086 Applied Mathematics 5

~~A five credit bridge course for vocational/technology students only. MATH 086 is designed to bring students with nominal math skills up to the prerequisite MATH 106 college level in one quarter. MATH 086 presents a "hands-on" experiential approach~~

~~that makes connections between past daily experiences and new knowledge. Includes a review of arithmetic operations, ratio and proportion, percents, measurement and geometry, logic, equations, and data analysis.~~
~~Prerequisite: Five credits of MATH 070 with a C or better. within the last year or by math placement assessment.~~

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 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 086 or MATH 091 with a C or better or Instructor permission.

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 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 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 130 The Practical Art of Mathematics 5

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 140 Essentials of Calculus 5

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 and Analytic Geometry 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 ~~or placement assessment.~~

MATH 152 Calculus and Analytic Geometry 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 and Analytic Geometry 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 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 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/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 26.
Prerequisite: MATH 210 or BSAD 206 with a grade of C or better or concurrent enrollment in MATH 210 or 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 26.
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 222, MATH 105, 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 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: MEDA 120 or BIOL 221 and 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 222; 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 121 and 122, 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.

Mechanical Engineering Technoloyg (METC)

METC 171 Industrial Hydraulics 4

Covers basic problems of hydraulics, fluids, power, hydraulics actuators, controls, pressures and circuits, and principles of industrial applications.
Prerequisite: MATH 091 or MATH 106 or instructor's permission.

METC 172 Advanced Hydraulics 4

Provides a review of fundamentals, schematic symbols, systems, hydraulic circuits, circuit design, and troubleshooting.
Prerequisite: METC 171 or instructor's permission.

METC 181 Statics 4

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's permission.

METC 182 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: METC 181

METC 183 Dynamics 3

Introduces design and analysis of mechanical systems in motion. Topics include kinetics, kinematics, curvilinear motion, work, energy, impulse, momentum, impact, rotation, absolute and relative motion, and steady flow.
Prerequisite: METC 181 and METC 182 or instructor's permission.

METC 201, 202 Machine Design 4

Sequence covers machine elements and calculations in determining size and shape of machine parts, including factors which influence selection of materials to be used, such as prototypes, elementary kinematics of mechanisms, and machine elements, including clutches, gears, belt and chain drives, shafts, bearings, couplings, springs, cams, lubrication, translation screws and fasteners.
Prerequisite:
201—METC 181, METC 182, and METC 183, or instructor's permission.
202—METC 181, METC 182, METC 183, and METC 201, or instructor's permission.

METC 207 Fluid Mechanics 4

Covers fluid properties, laws of fluid statics and fluid dynamics, measurement of flow, viscous flow, laminar and turbulent flow, open channel and duct flow, forces due to fluid motion and fluid machinery.
Prerequisite: METC 181 and 183 or instructor's permission.

Metals (METL)

METL 170 Metallurgy 5

Covers the properties of metals, semiconductors and alternate materials, their physical and chemical makeup, behavior under load, stress, strain and torsion, and qualities of materials other than strength. Students in the lab section study metals in action.

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; nonharmonic 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 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 110 Music Appreciation **2, 3 or 5**

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 111, 112, 113
Computer Assisted Theory Laboratory **1**

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 116, 216 Musicum Practicum **1**

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 Music Cultures of the World **2–5**

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 American Music **5**

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 Applied Music **1**

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's permission.

MUSC 130 Jazz ~~Wind~~ Ensemble **2**

~~Explores various styles of music literature, including jazz, rock, pop, and standard wind instrument repertoire. This course is open to all who play a wind or percussion instrument.~~ 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.
~~A-Pep Band; C-Stage Band; D-Jazz/Rock Ensemble.~~
Prerequisite: Audition or approval by instructor.

MUSC 134 Chamber Ensemble **2-5**

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's permission.

MUSC 135 Orchestra **1**

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's permission.

MUSC 140 Concert Choir **2**

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's permission.

MUSC 144 Vocal Ensemble **2**

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's permission.

MUSC 145 Beginning Voice 1

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 Concert 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's 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.
Prerequisites: 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

The course introduces students to music theory and musicianship as related to popular (American) music. Included is basic ear training in musical intervals, triads, seventh chords, rhythm and meter. Introduction to arranging and timbre of non-transposing popular music instruments.
Prerequisites: Music 100.

MUSC 182 The Music and Math Connection 5

The course integrates music theory and musicianship with mathematics. This course continues the development of musicianship and applications from MUSC 181, studies mathematical aspects of music and also covers Math 092-Elementary Algebra. This course will only be offered as Integrative Studies and students must also enroll in Math 092 for a total of 10 credits.
Prerequisites: MUSC 181 and placement in MATH 092 or completion of MATH 091 with a grade of C or better.

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.

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 26. 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 course work. Includes melodic, harmonic, and rhythmic dictation drills at advanced levels.
Prerequisite: MUSC 111, 112, and 113

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.
Prerequisites: MUSC 163

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.
Prerequisites: MUSC 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.
Prerequisites: MUSC 262, Co-requisites: MUSC 284.

MUSC 281 Contemporary Musicianship and Applications III 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 and MUSC 182. 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.
Prerequisites: MUSC 182 (Integrative Studies).

MUSC 282 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 281. Included are song-writing, harmonic progressions, rhythm dictation, and trends in popular music since the 1970's.
Prerequisites: MUSC 281.

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.
Prerequisites: 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 6

Students will demonstrate mastery of competencies required to assist in giving basic nursing care to residents/clients under supervision of a licensed nurse.

NURS 101 Nursing Foundations 5

~~This course introduces concepts of adaptation and wellness within the context of the patient's perceived health by promoting physiologic and psychosocial integrity. Using the framework of the nursing process, the student will describe basic nursing care of adult patients at the nursing assistant/introductory practical nurse level. Special emphasis is placed on care of the geriatric patient~~. 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 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 with neurological, endocrine, respiratory, gastrointestinal, and musculoskeletal disorders.
Prerequisite: NURS 101 and NURS 111, and concurrent enrollment or prior completion of 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 cardiac, shock, burns, hematology, lymphatic, immune, genitourinary, acid-base, fluid and electrolyte, cancer, eye, ear and mental health disorders.
Prerequisite: Nursing 102 and 112; concurrent enrollment or prior completion of 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 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 (was NURS 211)
Advanced Comprehensive Nursing I 5

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 110 or equivalent and AH 230 or equivalent or HOC core. Completion of or concurrent enrollment in CHEM 111.

NURS 202 (was NURS 212 and NURS 213)
Advanced Comprehensive Nursing II 5

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 SOCY 110 or ANTH 207.

NURS 203 (was NURS 214)
Advanced Comprehensive Nursing III

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 Process 1

Offers an overview to current nursing emphasizing nursing assessment and the development of nursing care plans utilizing the nursing process. Review of selected nursing skills and introduction of general policies of the LCC Nursing Department will be included.

~~**NURS 211 Advanced Comprehensive Nursing I 4**~~

~~Expands knowledge base and critical thinking abilities acquired at the Practical Nurse level. The student will explore, at the Registered Nurse level, care of patients who have selected respiratory, cardiac, vascular, renal and gastrointestinal disorders. This course must be taken concurrently with NURS 221.
Prerequisite: Completion of the LPN program. Completion of, or concurrent enrollment in CHEM 111~~

~~**NURS 212 Advanced Comprehensive Nursing II—High Risk Perinatal Nursing 3**~~

~~Expands the knowledge base and critical thinking abilities acquired in previous nursing courses focusing on the role of the Registered Nurse. Special emphasis is on the high-risk Perinatal family and prevention of complications. This course must be taken concurrently with NURS 222.
Prerequisite: NURS 211 and 221, completion of, or concurrent enrollment in SOCY 110 or ANTH 207~~

~~**NURS 213 Advanced Comprehensive Nursing II—Psychosocial Nursing 3**~~

~~Emphasizes concepts of adaptation and wellness within the context of the client's perceived health. The student will describe nursing care at the registered nursing level for adults and families~~

who have selected mental health disorders and/or chemical dependency disorders. This course must be taken concurrently with NURS 223.
Prerequisite: NURS 211

NURS 214 Advanced Comprehensive Nursing III 4

Expands knowledge base and critical thinking demonstrated in previous nursing courses focusing on the role of the Registered Nurse. Special emphasis is on adaptation and wellness and nursing care for clients with disturbances in musculoskeletal, rheumatic, immune, endocrine, special senses, integumentary, reproductive, and neurological systems. This course must be taken concurrently with NURS 224.
Prerequisite: NURS 212, 222, 213, 223, AH 230

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 110 or equivalent and AH 230 or equivalent or HOC core. 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.
Prerequisites: 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.
Prerequisites: NURS 202 and 222.

NURS 224 Preceptorship in Advanced Comprehensive—Nursing III 6

Provides learning opportunities to develop and to refine skills in application of nursing theory at the Registered Nurse level. Emphasis is on critical thinking, work ethic, team building, and leadership.
Prerequisites: NURS 202, 222, 223, AH 230.

NURS 225 Advanced Comprehensive Nursing III—Review 2

Provides additional learning opportunities for the student in preparation for the NCLEX-RN exam. Course is optional. May be taken concurrently with NURS 203.

NURS 231 Advanced Comprehensive Nursing I—Review 2

Provides additional learning opportunities to enhance the knowledge and skills presented in NURS 201 and NURS 221.

NURS 232 Advanced Comprehensive Nursing II–Review 2

Provides additional learning opportunities to enhance the knowledge and skills presented in NURS 202 and NURS 222.

NURS 233 (was NURS 225)
Advanced Comprehensive Nursing III–Review 2

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-Entry RN (LERN) 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 http://lcc.ctc.edu/faculty/kkearcher/lern. Each of the nursing classes below is open only to admitted LERN students.

Cluster A—Management of Care

Provides an introduction to registered nurse practice. Concepts of leadership and management will be included. Nursing delivery systems and standards of care will be described. Culminates with an in-depth application of the nursing process. Includes:
NURS 240 - Keys to Success (0.1 credit)
NURS 241 - Introduction to Registered Nurse Practice (0.4 credits)
NURS 242 - Environments for Nursing Practice (0.3 credits)
NURS 243 - Nursing Leadership and Management Skills (0.4 credits)
NURS 244 - Management of Patient Care (0.4 credits)
NURS 245 - Nursing Process (0.4 credits)

NURS 240 (combines cluster A courses) Management of Care 3

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.

Cluster B—Safe Effective Care Environment

Addresses the nurse's ability 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. Includes:
NURS 246 - Health Promotion (0.3 credits)
NURS 247 - Culture and Ethnicity (0.2 credits)
NURS 248 - Nutrition (0.3 credits)
NURS 249 - Teaching and Learning (0.3 credits)
NURS 251 - Health Assessment (0.4 credits)
NURS 252 - Concepts of Pharmacology (0.3 credits)
NURS 253 - Pain (0.4 credits)
NURS 254 - Perioperative Nursing (0.4 credits)
NURS 255 - Safety and Infection Control (0.4 credits)

NURS 241 (combines cluster B courses) Safe, Effective Care Environment 3

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: Admission to the LERN program.

Cluster C—Health Throughout the Lifespan

Provides the student with knowledge to direct nursing care that incorporates the understanding of expected growth and development principles, prevention and/or early detection of health problems, and strategies to achieve optimal health. Includes:
NURS 256 - Family Systems (0.2 credits)
NURS 257 - Human Sexuality (0.3 credits)
NURS 258 - Nursing Care of the Antepartum Patient (0.4 credits)
NURS 259 - Nursing Care of the Intrapartum Patient (0.4 credits)
NURS 260 - Nursing Care of the Postpartum Patient (0.4 credits)
NURS 261 - Nursing Care of the Newborn (0.4 credits)
NURS 262 - Developmental Concepts (0.3 credits)
NURS 263 - Nursing Care of the Hospitalized Child (0.4 credits)
NURS 264 - Nursing Care in Community-Based Settings (0.2 credits)
NURS 265 - Nursing Care of the Aging Adult (0.4 credits)

NURS 242 (combines cluster C courses) Health Throughout the Lifespan 3

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: Admission to the LERN program.

Cluster D—Behavioral Health

Provides the student with knowledge to direct nursing care that promotes and supports the emotional, mental, and social wellbeing of the patients and their families. Includes:
NURS 266 - Promoting Health Psychosocial Responses (0.2 credits)
NURS 267 - Psychosocial Nursing (0.2 credits)
NURS 268 - The Nurse Patient Relationship (0.4 credits)
NURS 269 - Nursing Care of the Patient with an Anxiety-Related Disorder (0.4 credits)
NURS 270 - Nursing Care of the Patient with a Mood Disorder (0.4 credits)
NURS 271 - Nursing Care of the Patient with Schizophrenia (0.4 credits)
NURS 272 - Nursing Care of the Patient with a Personality Disorder (0.4 credits)
NURS 273 - Nursing Care of the Patient with Chemical Dependency (0.4 credits)
NURS 274 - Nursing Care of Victims of Abuse (0.4 credits)
NURS 275 - Developmental Concepts in Behavioral Health (0.3 credits)

NURS 243 (combines cluster D courses) Behavioral Health 3

Provides the student with knowledge to direct nursing care that promotes and supports the emotional, mental, and social well-being of the patient and their families. Fourth in 9 part course sequence.
Prerequisites: Admission to the LERN program.

Cluster E—Physiologic Health

Prepares the student to promote physical health and wellness throughout the lifespan by providing nursing care and comfort, reducing risk potential, and managing health problems. Includes:
NURS 276 - Nursing Care of the Patient with a Respiratory Disorder (0.4 credits)
NURS 278 - Nursing Care of the Patient with a Cardiovascular Disorder (0.4 credits)
NURS 279 - Nursing Care of the Patient with a Vascular Disorder (0.4 credits)
NURS 280 - Nursing Care of the Patient with a Fluid and Electrolyte Balance Disorder (0.4 credits)
NURS 281 - Nursing Care of the Patient with a Neurological

~~Disorder (0.4 credits)~~
~~NURS 282 - Nursing Care of the Patient with a Renal Disorder (0.4 credits)~~
~~NURS 283 - Nursing Care of the Patient with a Hepatobiliary/ Pancreatic Disorder (0.4 credits)~~
~~NURS 284 - Nursing Care of the Patient with a Digestive/ Gastrointestinal Disorder (0.4 credits)~~
~~NURS 285 - Nursing Care of the Patient with a Musculoskeletal Disorder (0.4 credits)~~
~~NURS 286 - Nursing Care of the Patient with a Dermatologic Disorder (0.4 credits)~~
~~NURS 287 - Nursing Care of the Patient with an Immunologic Disorder (0.4 credits)~~
~~NURS 290 - Nursing Care of the Patient with an Alteration in Cellular Growth (0.4 credits)~~
~~NURS 291 - Nursing Care of the Patient with a Metabolic/ Endocrine Disorder (0.4 credits)~~
~~NURS 292 - Nursing Care of the Patient with a Hematologic Disorder (0.4 credits)~~
~~NURS 293 - Nursing Care of the Patient with a Reproductive Disorder (0.4 credits)~~
~~NURS 294 - Nursing Care of the Patient with an Alteration in Sensory Function (0.4 credits)~~

NURS 244 (combines NURS 276 through 284 from cluster E) Physiological Health I 3

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: Admission to LERN program.

NURS 245 (combines NURS 285 through 294 from cluster E) Physiologic Health II 3

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.
Prerequisite: Admission to LERN program.

~~Cluster F—Application to Practice~~

~~Provides the student with opportunities to apply theoretical principles of nursing to practice. Includes:~~
~~NURS 295 - Nursing Skills Lab (0.5 credits)~~
~~NURS 296 - Clinical Practicum (9.8 credits)~~
~~NURS 297 - Clinical Preceptorship (3.6 credits)~~

NURS 246 (was NURS 295 from cluster F) Skills Laboratory 2

Provides the student with practice opportunities in the skills laboratory. Seventh in 9 part course sequence.
Prerequisites: Admission to LERN program.

NURS 247 (was NURS 296 from cluster F) Clinical Practicum 10

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.
Prerequisites: Admission to LERN program.

NURS 248 (was NURS 297 from cluster F) Advanced Clinical Practicum 5

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 focuses on moving students toward autonomous professional nursing practice within a consistent clinical setting. Ninth in 9 part course sequence.
Prerequisites: Admission to LERN program.

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 120 Critical Reasoning 5

Examines techniques in reasoning and analysis, with particular attention to ways one's social, cultural, religious, economic or other type of situation in the world can influence how one reasons. The subjects to be discussed include induction, deduction, statistics, argument diagrams, causality, syllogisms, validity, inference, fallacies, language, facts, and truth.
Prerequisite: ENGL 101

PHIL 200 Introduction to Philosophy 5

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 26.
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 26.
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 26.
Prerequisite: ENGL 101

Physical Education (PHED)

PHED 110, 210 Circuit Training 2

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 126, 226 Aerobic Exercise 1-2

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

PHED 128, 228 Weight Training 1-2

Improves strength, physical conditioning, and performance through correct use of universal equipment, free weights and cardiorespiratory equipment. Emphasis will be on health and fitness education. Each student will design a program specific to his or her goals for the quarter.

PHED 130, 230 Swimming 1

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.

PHED 135 Fitness Walking 1-2

Utilizes walking in developing the health-related components of physical fitness. Emphasis will be placed on cardiorespiratory endurance through low-impact, moderate intensity exercise.

PHED 140, 240 Basketball—Men 1

Provides opportunity for students to learn basketball skills, strategies, rules of play and to participate in a basketball conditioning program.

PHED 141, 241 Basketball—Women 1

Provides an opportunity for the students to learn basketball skills, strategies, rules of play and to participate in a basketball conditioning program.

PHED 145 Softball Coaching Theory 3

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.

PHED 146, 246 Fastpitch Softball—Women 1

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.

PHED 147, 247 Applied Fastpitch Softball—Women 2

Provides students the opportunity to demonstrate fastpitch softball skills, strategies, rules of play and participation in a softball-conditioning program.
Prerequisite: Instructor's permission.

PHED 149, 249 Applied Soccer—Women 2

Provides students the opportunity to demonstrate soccer skills, stratagies, rules of play, and to participate in a conditioning program.
Prerequisite: Instructor's permission.

PHED 152, 252 Personalized Fitness 1-2

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.

PHED 153 Fitness For Life 3

Designed to promote change to a healthier lifestyle. Students are encouraged to learn how to choose activities that meet their needs, assess and monitor cardiovascular efficiency and determine proper body weight.

PHED 160, 260 Baseball 1

Enables students the opportunity to learn basic baseball skills, strategies and rules of play. A strict baseball-conditioning program will be emphasized. Fall quarter.

PHED 162, 262 Applied Baseball 2

Provides students the opportunity to demonstrate baseball skills, strategies, rules of play and to participate in a baseball conditioning program.
Prerequisite: Instructor's permission.

PHED 164, 264 Applied Basketball—Men 2

Gives students the opportunity to demonstrate basketball skills, strategies, rules of play and to participate in a basketball conditioning program.
Prerequisite: Instructor's permission.

PHED 165, 265 Applied Basketball—Women 2

Gives students the opportunity to demonstrate basketball skills, strategies, rules of play and to participate in a basketball conditioning program.
Prerequisite: Instructor's permission.

PHED 167, 267 Applied Volleyball 2

Gives students an opportunity to demonstrate volleyball skills, strategies, and rules of play and to participate in a volleyball-conditioning program.
Prerequisite: Instructor's permission.

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 172 Advanced Principles of Athletic Training 3

Provides advanced study of techniques for prevention, recognition, evaluation, care and treatment of emergency and non-emergency athletic injuries. Advanced anatomy, physiology, medical terminology, evaluation, treatment, and rehabilitation methods will be included, as will advanced taping and wrapping techniques. Information regarding therapeutic exercise, modalities, ergogenic aids, pharmacology, infection control, and psychology as they relate to sports will be included. Principles of strength training, conditioning, and fitness will be introduced.
Prerequisite: BIOL 120 and PHED 171, or Vocational Education Tech Prep equivalency course (Health Professions and Sports Medicine) or instructor's permission.

PHED 184 Athletic Training Experience 1

Provides various learning opportunities to apply athletic training skills in the prevention, evaluation, care, treatment, and rehabilitation of the injured athlete.
Prerequisite: PHED 171

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 wining 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 Concepts of Physics 5

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's 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's 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's 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 ENVS 210 and ENGR 210. This may be offered as a Capstone course. See Capstone prerequisites on Page 26.
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 increases during the term.
Prerequisite: High school or college level physics course, completion of, or concurrent enrollment in ENGR 121, MATH 151, or instructor's 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's 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's permission.

Political Science (POLS)

POLS 106 American Political Institutions 5

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 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 108 International Relations 5

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 111 Introduction to General Psychology 5

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 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 26.
Prerequisite: PSYC 111 or instructor's permission.

PSYC 205 Developmental Psychology 5

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 26.
Prerequisite: PSYC 111 or instructor's 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 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 26.
Prerequisite: PSYC 111 or instructor's permission.

PSYC 220 Abnormal Psychology 5

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 26.
Prerequisite: PSYC 111 or instructor's 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 (replaces PULP 106) Introduction to Pulp & Paper Technology 3 or 5

Current pulping and bleaching processes utilized included 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 (replaces PULP 107) Paper Processing 3 or 5

Explores current paper making 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 paper making 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).
Prerequisites: PULP 101.

~~PULP 106 Survey of Pulping and Bleaching 3~~

~~Provides a general overview of current pulping and bleaching processes utilized during the production of various types of paper products. Basic forestry practices, wood properties, and pre-pulping operations are also explored, as well as variations in the preparation of pulp needed for different paper and paperboard products.~~

~~PULP 107 Survey of Paper Making 3~~

~~Provides a general overview of current paper making 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 paper making to the pulping and bleaching and paper conversion stages of the manufacturing process are also explored.~~

PULP 104 (was PULP 108)
Survey of Paper Conversion Techniques 3

Provides a general overview of the processes used to convert paper into various types of paper and paperboard products. Techniques use 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 paper making 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.

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, waste water treatment systems, air filtering systems, solid waste systems and organizations and operations of EPA and its significance to the pulp and paper industry.

Sociology (SOCY)

SOCY 110 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.

SOCY 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 26. Meets the associate's degree cultural diversity requirement.
Prerequisite: SOCY 110 or instructor's permission.

SOCY 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 26.

Spanish (SPAN)

SPAN 101 Elementary Spanish 5

Introduces Spanish, emphasizing basic vocabulary and points of language used in contemporary Spanish-speaking cultures. Meets the associate's degree cultural diversity requirement.

SPAN 102 Elementary Spanish 5

Provides continuation of basic principles offered in SPAN 101. Accumulates vocabulary, reinforces basic grammar, and increases fluency. Meets the associate's degree cultural diversity requirement.
Prerequisite: Spanish 101 with a grade of C or better or two years of high school Spanish.

SPAN 103 Elementary Spanish 5

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 102 with a grade of C or better or three years of high school Spanish.

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 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 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 one level to the next in sequence (SPAN 105, 106, and 107).
Prerequisite: SPAN 105 or equivalent

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

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 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 201 Intermediate Spanish 5

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: ~~SPAN 103, two years of high school Spanish, or equivalent~~ For enrollment in second year Spanish courses, students must complete first-year college level Spanish.

SPAN 202 Intermediate Spanish 5

Continues to build communication skills, accumulate vocabulary, and increase fluency, with added emphasis on literacy.
Prerequisite: SPAN 201 or equivalent

SPAN 203 Intermediate Spanish 5

Continues to build communication skills, accumulate vocabulary, and increase fluency, with added emphasis on literacy.
Prerequisite: SPAN 202 or equivalent

Speech (SPCH)

SPCH 101 Introduction to Speech Communication 3

Provides an overview of interpersonal and small group communication and public speaking. Includes fundamental communication concepts while exploring communication through interpersonal activities, a small group project, and public speeches.

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 105 Group Communication 2

Explores how communication in groups results in effective problem solving, decision-making and productivity. Students discover how to develop and apply skills in project planning, participation, and leadership. Includes analysis and evaluation of project-based small group work.

SPCH 109 Intercultural Communication 5

Examines the intercultural aspects of the communication process. Emphasizes the significance of communicating across 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 Introduction 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 Competitive Public Speaking 2

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 Intercollegiate Debate 2

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 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 principals 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's 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's 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's 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's 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's 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's 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's permission.