# Degree and Certificate Information & Requirements

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Education That Works

Clackamas Community College

## Graduation Requirements

Requirements for degrees, certificates and diplomas are subject to approval by the Oregon Department of Education. Students are encouraged to submit a Petition for Graduation TWO TERMS prior to their anticipated term of completion. Petitions submitted before the sixth week of each term will be reviewed during the term submitted. Petitions submitted after the sixth week will be handled in date order and may be processed for the current term as time allows. Forms are available at *www.clackamas.edu.*

### General Requirements

(apply to all degrees, certificates and diplomas)

You will be evaluated for degree and/or certificate requirements under the current catalog unless a request for a prior catalog year is indicated on your Petition for Graduation form. You must meet the following conditions to request an exception:

- You must complete 25% of your degree and/or certificate requirements at CCC.
- You must petition for graduation within one calendar year from the date you completed requirements for the degree and/or certificate.
- The prior catalog cannot be more than five years old (e.g. in 2017-18, the oldest catalog that can be used is 2012-13).
- For the catalog selected, you must have earned at least one credit in that calendar year.

The awarding of the credential becomes official only when graduation information has been posted to your transcript.

## Multiple Degrees/ Certificates of Completion

Students may earn multiple different degrees. Student must meet all the requirements for each degree of certificate.

Please note that a separate Petition for Graduation form must be filed for each individual associate degree and/or certificate of completion that you are attempting to earn.

## To Successfully Graduate

You will be more likely to graduate if you do the following:

- Send all transcripts to Graduation Services as soon as possible
- Have coursework from other colleges evaluated early
- Talk with an Academic Advisor early and often
- Complete all pre-requisites for required courses
- If you change your mind about what you are studying, notify Enrollment Services as soon as possible
- If you plan to transfer to a four-year university or college, contact that institution to inquire about articulation agreements in your field of study
- Be sure to submit a Petition for Graduation form two terms before you think you will be finished with classes so CCC can confirm you have met all of your degree or certificate graduation requirements

## Graduation Ceremony

Formal graduation activities are held at the end of Spring term. Students who complete degree or certificate requirements during preceding terms are invited to participate in the Spring term commencement ceremony. Two ceremonies are planned, the first for High School Diploma and GED graduates, and a second for certificate and degree program graduates.

Honors status is granted to students achieving a cumulative GPA of 3.5 on total credits earned at Clackamas. The honors status of Spring term graduates is determined by cumulative GPA through the preceding Winter term.

# Degree Programs

The following chart lists CCC degrees and certificates, comprised of related programs, which provide context for academic, technical, and career learning. See page 84 for an alphabetical listing of the following Career Technical programs.

| DEGREES | Career Pathway | less than one year | one year | AAS | AS |
|---|---|---|---|---|---|
| Accounting AAS | | | | p. 85 | |
| Accounting Clerk Certificate | | | p. 86 | | |
| Administrative Office Professional AAS | | | | p. 86 | |
| Administrative Office Assistant Certificate | | | p. 87 | | |
| Administrative Office Assistant Training Certificate | | p. 88 | | | |
| Landscape Management, Arboriculture Option | | | | p. 131 | |
| Auto Body/Collision Repair and Refinishing Technology AAS | | | | p. 90 | |
| Auto Body/Collision Repair and Refinishing Technology Certificate | p. 91 | | | | |
| Automotive Service Technology AAS | | | | p. 92 | |
| Under Car Technician – Automatic Transmission Certificate | p. 93 | | | | |
| Under Car Technician – Manual Transmission Certificate | p. 94 | | | | |
| Under Hood Technician Certificate | p. 94 | | | | |
| Biology AS | | | | | p. 58 |
| Business AAS | | | | p. 95 | |
| Business Management Certificate | | | p. 96 | | |
| Management Fundamentals Certificate | p. 97 | | | | |
| Human Resource Management Certificate | | | p. 97 | | |
| Human Resource Management Essentials Certificate | p. 98 | | | | |
| Marketing Certificate | | | p. 98 | | |
| Integrated Marketing & Promotion Certificate | p. 99 | | | | |
| Clinical Laboratory Assistant Certificate (limited entry) | | | p. 99 | | |
| Computer-Aided Manufacturing AAS | | | | p. 101 | |
| Computer & Network Administrator AAS | | | | p. 102 | |
| Computer & Network Administrator Certificate | | | p. 102 | | |
| Computer Application Support AAS | | | | p. 104 | |
| Computer Application Support Certificate | | | p. 104 | | |
| Computer Science AS | | | | | p. 59 |
| Construction Trades, General Apprenticeship AAS (limited entry) | | | | p. 89 | |
| Construction Trades, General Apprenticeship Certificate (limited entry) | | | p. 89 | | |
| Manual Trades Apprenticeship Certificate (limited entry) | | p. 88 | | | |
| Corrections AAS | | | | p. 105 | |
| Juvenile Corrections Certificate | | | p. 106 | | |
| Criminal Justice AAS | | | | p. 107 | |
| Dental Assistant Certificate (limited entry) | | | p. 108 | | |
| Digital Media Communications AAS | | | | p. 109 | |
| Entry Level Multimedia Journalist Certificate | p. 111 | | | | |
| Video Production Technician Certificate | p. 112 | | | | |
| Early Childhood Education & Family Studies AAS | | | | p. 113 | |
| Early Childhood Education & Family Studies Certificate | | | p. 113 | | |
| Electrician Apprenticeship Technologies AAS (limited entry) | | | | p. 89 | |
| Electrician Apprenticeship Technologies Certificate (limited entry) | | | p. 89 | | |
| Limited Electrician Apprenticeship Technologies Certificate (limited entry) | | p. 90 | | | |
| Electronics Engineering Technology AAS | | | | p. 114 | |
| Electronics Engineering Technology Certificate | | | p. 114 | | |
| Emergency Management AAS | | | | p. 116 | |

*continued…*

| DEGREES | Career Pathway | less than one year | one year | AAS | AS |
|---|---|---|---|---|---|
| Emergency Medical Technology Certificate | | | p. 117 | | |
| Employment Skills Training Certificate | | p. 117 | | | |
| Engineering AS | | | | | p. 61 |
| English AS | | | | | p. 68 |
| Fire Science (Wildland) Certificate | | | p. 118 | | |
| Wildland Fire Forestry Certificate | p. 119 | | | | |
| Wildland Fire Fighter 1 Certificate | p. 119 | | | | |
| Fitness Technology Certificate | | | p. 119 | | |
| Geographic Information Systems (GIS) Technology Certificate | | | p. 120 | | |
| Geology AS | | | | | p. 73 |
| Gerontology Certificate | | | p. 121 | | |
| Gerontology for Health Care Professional Certificate | p. 122 | | | | |
| Nursing Assistant - Gerontology Specialist Certificate | p. 122 | | | | |
| Horticulture AS | | | | | p. 72 |
| Horticulture AAS | | | | p. 123 | |
| Horticulture Certificate | | | p. 123 | | |
| Irrigation Technician Certificate | p. 125 | | | | |
| Plant Health Management Certificate | p. 125 | | | | |
| Human Services Generalist AAS | | | | p. 126 | |
| Human Services Generalist Certificate | | | p. 126 | | |
| Alcohol & Drug Counselor Certificate | p. 127 | | | | |
| Industrial Maintenance Technology AAS | | | | p. 128 | |
| Industrial Maintenance Technology Certificate | | | p. 128 | | |
| Mechanical Maintenance Certificate | | | p. 129 | | |
| Landscape Management AAS | | | | p. 130 | |
| Landscape Practices Certificate | | | p. 133 | | |
| Manufacturing Technology AAS | | | | p. 133 | |
| Manufacturing Technology Certificate | | | p. 133 | | |
| CNC Machining Technician Certificate | p. 135 | | | | |
| Mastercam Certificate | | p. 135 | | | |
| Medical Assistant Certificate (limited entry) | | | p. 136 | | |
| Microelectronics Systems Technology AAS | | | | p. 137 | |
| Microelectronics Systems Technology Certificate | | | p. 137 | | |
| Music AS | | | | | p. 74 |
| Music Performance & Technology | | | | p. 139 | |
| Music Technology Certificate | | | p. 141 | | |
| Nursing AAS (limited entry) | | | | p. 142 | |
| Occupational Skills Training Certificate | | p. 146 | | | |
| Paraeducator Certificate | | | p. 146 | | |
| Professional Truck Driver Certificate | | p. 147 | | | |
| Project Management AAS | | | | p. 147 | |
| Project Management Certificate | | p. 148 | | | |
| Project Management Leadership & Communication Certificate | p. 149 | | | | |
| Project Management Tools & Techniques Certificate | p. 149 | | | | |
| Renewable Energy Technology AAS | | | | p. 150 | |
| Energy Systems Maintenance Technician Certificate | p. 151 | | | | |
| Renewable Energy Technology Certificate | | | p. 150 | | |
| Retail Management Expanded Certificate | | | p. 151 | | |
| First-Line Supervisor Fundamentals Certificate | p. 153 | | | | |
| Retail Management Certificate | | p. 152 | | | |
| Organic Farming Certificate | | | p. 153 | | |
| Water & Environmental Technology AAS | | | | p. 154 | |
| Water & Environmental Technology Certificate | | | p. 154 | | |
| High Purity Water Certificate | | p. 156 | | | |
| Web Design & Development AAS | | | | p. 156 | |
| Web Design Certificate | | | p. 157 | | |
| Welding Technology AAS | | | | p. 158 | |
| Welding Technology Certificate | | | p. 158 | | |
| Entry Level Welding Technician Certificate | p. 160 | | | | |

# Degrees

## Associate of Arts Oregon Transfer (AAOT)

The AAOT is a two-year degree that has been designed for the student intending to transfer to a four-year college or university and pursuing upper division baccalaureate courses. CCC students who have earned an AAOT degree will be eligible for junior standing for the purposes of registration at any of the schools currently part of the Oregon University System (OUS).

## Associate of Science Oregon Transfer – Business (ASOT)

The ASOT–Business degree is a two-year degree designed for the student intending to transfer to a four-year college or university within the Oregon University System (OUS) and pursuing upper division baccalaureate courses in Business. CCC students who have earned the ASOT–Business degree and have met the transfer institution's lower-division general education degree requirements will be eligible for junior standing for the purposes of registration.

## Associate of Science Oregon Transfer – Computer Science (ASOT)

The ASOT–Computer Science degree is a two year degree designed for the student intending to transfer to a four-year college or university within the Oregon University System (OUS) and pursuing upper division baccalaureate courses in Computer Science. CCC students who have earned the ASOT– Computer Science degree and have met the transfer institution's lower-division general education degree requirements will be eligible for junior standing for the purposes of registration.

## AAOT/ASOT Student Learning Outcomes

The AAOT/ASOT transfer degrees at Clackamas Community College are designed to prepare students to succeed after transferring to Oregon University System schools and to attain GPAs comparable to students who begin their education at those institutions. Students who attain these degrees will possess a wide range of knowledge and skills, as described in the categories below.

As a result of completing the AAOT, students should be able to:

### ARTS & LETTERS*

- Interpret and engage in the Arts & Letters, making use of the creative process to enrich the quality of life; and
- Critically analyze values and ethics within a range of human experience and expression to engage more fully in local and global issues.

* "Arts & Letters" refers to works of art, whether written, crafted, designed, or performed and documents of historical or cultural significance.

### CULTURAL LITERACY

- Identify and analyze complex practices, values, and beliefs and the culturally and historically defined meanings of difference.

### MATHEMATICS

- Use appropriate mathematics to solve problems; and
- Recognize which mathematical concepts are applicable to a scenario, apply appropriate mathematics and technology in its analysis, and then accurately interpret, validate, and communicate the results.

### SCIENCE OR COMPUTER SCIENCE

- Gather, comprehend, and communicate scientific and technical information in order to explore ideas, models, and solutions and generate further questions;
- Apply scientific and technical modes of inquiry, individually, and collaboratively, to critically evaluate existing or alternative explanations, solve problems, and make evidence-based decisions in an ethical manner; and
- Assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment.

### SOCIAL SCIENCE

- Apply analytical skills to social phenomena in order to understand human behavior; and
- Apply knowledge and experience to foster personal growth and better appreciate the diverse social world in which we live.

### SPEECH/ORAL COMMUNICATION

- Engage in ethical communication processes that accomplish goals;
- Respond to the needs of diverse audiences and contexts; and
- Build and manage relationships.

### WRITING

- Read actively, think critically, and write purposefully and capably for academic and, in some cases, professional audiences;
- Locate, evaluate, and ethically utilize information to communicate effectively; and
- Demonstrate appropriate reasoning in response to complex issues.

### INFORMATION LITERACY*

- Formulate a problem statement;
- Determine the nature and extent of the information needed to address the problem;
- Access relevant information effectively and efficiency;
- Evaluate information and its source critically; and
- Understand many of the economic, legal, and social issues surrounding the use of information.

*Information Literacy outcomes and criteria will be embedded in the Writing Foundational Requirements courses. At Clackamas, WR-121 and WR-122 meet that requirement.

ASOT students will also be able to:

- Understand and apply micro- and macroeconomic theories and models to individual, group, and societal behavior and choices;
- Recognize and apply business statistical methods and explain how they affect business decision making;
- Prepare letters, reports and memos related to business topics using technology.

## Associate of Science (AS)

The Associate of Science degree is designed for students who wish to take the first two years of their coursework at Clackamas Community College, then transfer to a particular four-year institution to complete a degree in the designated discipline. The Associate of Science degree has both general education and discipline specific requirements. In addition, this degree is institution specific, and the courses listed have been agreed on by the receiving institution as acceptable towards the four-year degree. Completing the Associate of Science degree does not guarantee acceptance into schools or departments that have special admissions requirements. It is important for the student to meet with an advisor to ensure that s/he fully understands the degree requirements.

## Associate of General Studies (AGS)

The Associate of General Studies is a two-year foundational degree designed to provide flexibility and uses a variety of college-level course work to meet degree requirements. Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year college or university upon completion of the AGS degree.

Program outcomes for the AGS degree include a two-year college degree experience that supports individual student needs and interests.

## Oregon Transfer Module (OTM)

The OTM represents approximately half of an associate's degree (45 credits). The OTM is designed for students who wish to transfer to an Oregon University System (OUS) school or another Oregon community college. Completion of the OTM can help those students taking courses at multiple post-secondary institutions by ensuring transferability of coursework. This is not a degree or certificate but is documentation on a student's transcript that they have met a subset of common general education requirements. Please refer to page 78 for Student Guide information. Students interested in the OTM should meet with an academic advisor in Student Services, see page 18-19.

## Associate of Applied Science (AAS)

Associate of Applied Science degrees are career technical in nature and are intended primarily to lead students directly to employment in a specific career. Occupational licensure, career advancement and further study at a four-year college or university are additional opportunities for students earning an AAS degree. Associate of Applied Science degrees are awarded to students who complete the requirements of a specified, two-year career and technical program and are offered in a number of interest areas (see page 45-46).

## Certificates of Completion (CC)

Certificates of Completion are career technical in nature and are designed to prepare students for entry into the workforce. Occupational licensure, career advancement and further study at a four-year college or university are additional possible opportunities for students earning Certificates of Completion at CCC. Certificates of Completion can be a one-year program or a less-than-one year program.

## Career Pathway Certificates

Career Pathway Certificates of Completion programs are designed to acknowledge a proficiency in a particular technical skill grouping with occupational program outcomes. Please refer to the specific AAS or certificate program for certificate/degree requirements.

## General AAS and CC Requirements

General requirements for obtaining an AAS or CC include:

- Complete a minimum of 90 credits for an AAS degree
- Establish a cumulative 2.0 GPA at CCC
- Establish residency by earning a minimum of 25% of the degree or certificate credits at CCC
- See page 44 for additional general requirements for all degrees and certificates
- Specific discipline requirements are listed on pages 81-160.

# Diplomas

## Adult High School Diploma (AHSD)

Clackamas Community College is authorized by the State Board of Education to award the Adult High School Diploma (AHSD). Students who enter the college's high school diploma program may transfer credits from accredited high schools. AHSD students may also enroll in college credit classes and may receive dual credit.

Students who are under 18 years old, whose K-12 cohort has not yet completed four years of high school, must provide the AHSD program with one of the following:

- A Release from Compulsory Attendance from their boundary high school to be kept on file. A release must be obtained before commencing participation in the program. Instructors will not provide necessary signatures for a student to register for Adult Secondary Education courses until a Release from Compulsory Attendance is provided, *or*
- A contractual referral from their boundary high school which allows students to participate in the AHSD program while earning credits to transfer back to and graduate from their boundary high school.

### REQUIREMENTS FOR ADULT HIGH SCHOOL DIPLOMA

Complete a minimum of 24 high school units:

| Subject | Units |
|---|---|
| Language Arts | 4 |
| (Shall include the equivalent of one unit in written composition.) | |
| Mathematics | 3 |
| Science | 3 |
| US History | 1 |
| Global Studies | 1 |
| Government & Civics | 1 |
| Health Education | 1 |
| Physical Education | 1 |
| Career & Technical Education, the Arts, and/or Second Language (any one area or in combination) | 3 |
| Electives | 6 |
| Total: | 24 |

Additionally, students earning their AHSD are required to take the COMPASS college placement test as an exit activity the term prior to their expected graduation as part of their transition plan and as a way to show competency in Reading, Writing and Math.

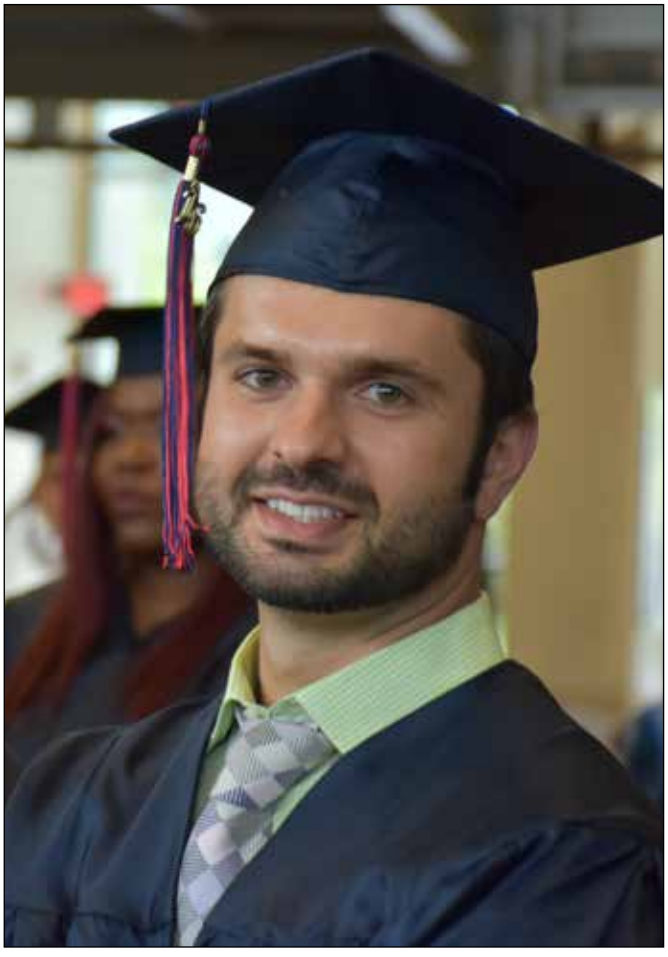
COMPASS scores allowing admittance to MTH-060, WRD-090, and WRD-098 or equivalent are required. Students must demonstrate proficiency in essential skills for reading, writing, math, and create a personalized learning plan.

Students must successfully complete at least 12 college credits or two high school units through CCC.

## General Education Development (GED)

Students may earn a high school equivalency certificate by passing the General Education Development (GED) test. Students must be at least 16 years old; those under 18 are admitted only with a referral or a letter of release from compulsory attendance obtained from the high school principal or counselor. A fee is charged each term. Spanish GED is also available. Refer to the current *Class Schedule* for local GED options.

Registration for GED preparation classes takes place in the Dye Learning Center.



*Student Guide 2017-2018*

# Associate of Arts Oregon Transfer Degree (AAOT)

Note: For the most current list of General Education courses, go to: *www.clackamas.edu/curriculum/*

| Requirements | Courses<br>*Choose from the following courses to meet degree requirements. All courses must be passed with a C or better.* |
|---|---|
| **Writing** - 8 credits, information literacy will be included in the Writing Requirement. | WR-121 and either 122, or 227 |
| **Oral Communication** - 1 course | COMM-111, 112 |
| **Mathematics** - 1 course | MTH-105, 111, 112, 211, 212, 213, 243, 244, 251, 252, 253, 254, 256, 261 |
| **Health & Physical Education**<br>1 or more courses totaling at least 3 credits. | **PE**-185, 194, 207, 240, 260, 270, 294, 294A; **HE**-151, 152, 201, 202, 204, 205, 207, 223, 249, 250, 252, 255, 261, 277; **HPE**-295 |
| GENERAL EDUCATION DISTRIBUTION AREA<br>**Arts & Letters**<br>3 courses from 2 or more disciplines. Each course must be at least 3 credits. | Choose from the following:<br>**ART**-*101, *102, *103, 115, 116, 117, 131, 132, 133, 194, 195, *204, *205, *206, *225, *226, *227, 250, 251, 252, 253, 254, 255, 257, 281, 282, 283, 284, 285, 286, 291, 292, 293; **ASL**-*201, *202, *203; **BA**-130; **COMM**-*105, *126, *140, 212, *218, *219, 227; **DMC**-195; **ENG**-100, 104, 105, 106, *107, *108, *109, 116, 121, 130, 195, 201, 202, 203, 204, 205, *213, 214, 216, 218, 226, *240, *241, *242,*250, *251, *252, 253, 254, *266, 270, 275; **FR**-*201, *202, *203; **HUM**-*160, *170, 180, 181, 182, *231,*235, *240, *241, *242; **J**-211; **MUS**-105, 111, 112, 113, 205, 206, 211, 212, 213; **PHL**-*101, *102, *103, *205, *210, *213, *215; **R**-*101, *102, *103, *204, *210, *211, *212, *214; **SPN**-*201, *202, *203; **TA**-101, 102, 103, 141, 142, 143; **WR**-220, *241, 242, 243, *244, 245, 247, 248, 262, 263, 265, 270 |
| GENERAL EDUCATION DISTRIBUTION AREA<br>**Social Science** - 4 courses from 2 or more disciplines. Each course must be at least 3 credits. | Choose from the following list:<br>**ANT**-*101, *102, *103, *231, *232; **CJA**-101, 201; **EC**-115, 200, 201, 202; **GEO**-*100, *110, *121, *122, *130, *208, *230; **HST**-*101, *102, *103, *130, *131, *132, *136, *137, *138, *201, *202, *203, *210, *220; **PS**-*200, 201, 203, 204, 205, 206, 225, 297; **PSY**-200, *205, *214, 215, *219, *221, *231; **SOC**-*204, *205, *206, *210, *225; **SSC**-*160, *170, *231,*235, *240, *241, *242; **WS**-101* |
| GENERAL EDUCATION DISTRIBUTION AREA<br>**Science/Math/Computer Science** -<br>4 courses from at least 2 disciplines including at least 3 laboratory courses in biological and/or physical science. | Choose from the following courses:<br>**ASC**-175, 176, 177; **BI**-101, 102, 103, 112, 160 & 160L, 165C & 165CL, 165D, 165T, 175, 176, 177, 204, 211, 212, 213, 231, 232, 233, 234; **CH**-104, 105, 106, 112, 114, 221, 222, 223; **ESR**-171, 172, 173; **G**-101, 102, 103, 145, 148, 201, 202, 203; **GS**-104, 105, 106, 107; **MTH**-105, 111, 212, 213, 243, 244, 252, 253, 254, 256, 261; **PH**-104, 121, 122, 123, 201, 202, 203, 211, 212, 213; **Z**-201, 202, 203 |
| **Cultural Literacy** - 1 course | Courses meeting the Cultural Literacy requirement are noted with an asterisk. |
| **Elective Courses**<br>Any college-level course that would bring total credits to 90 credits. | Other courses numbered 100 or above may be used in this area, which may include up to 12 credits of career technical courses. Please refer to the Career Technical Programs, pages 81-160, for a listing of courses that may may be included in the 12 credits mentioned above. |

** Course meets Cultural Literacy requirement.*

*Note: Placement in RD-115 and/or WR-121 is recommended for courses on this page and in some cases, placement in MTH-105 or MTH-111 may also be recommended. See course descriptions, pages 161-258.*

*Note: No course may be used to satisfy more than one requirement or distribution area.*

*Student Planner Worksheet 2017-2018*

# Associate of Arts Oregon Transfer Degree (AAOT)

This guide is to be used for educational planning/advising purposes only.

| Requirements | Credits/ Courses Required | CCC Courses Completed | Transferred Courses | Credits/ Courses Earned | Credits/ Courses Needed |
|---|---|---|---|---|---|
| **Writing** | *8 credits* | | | | |
| **Oral Communication*** | *1 course* | | | | |
| **Mathematics** | *1 course* | | | | |
| **Health & Physical Education** | *1 or more courses totaling at least 3 credits* | | | | |
| **Arts & Letters*** Select 3 courses from 2 or more disciplines. | *3 courses* | | | | |
| **Social Science*** Select 4 courses from 2 or more disciplines. | *4 courses* | | | | |
| **Science/Math/Computer Science*** Select 4 courses from at least 2 disciplines including 3 laboratory courses in biological or physical sciences. | *4 courses* | | | | |
| **Elective Courses** Any college-level course. May include up to 12 credits of career technical courses. | *will vary* | | | | |
| | **TOTALS** | | | | |

(Total minimum of 90 credits required.)

### Additional Graduation Requirements

- ☐ All courses must be passed with a grade of C or better
- ☐ Complete a minimum of 90 credits
- ☐ Complete at least 23 credits at CCC
- ☐ Establish cumulative GPA of 2.0 or above

Submit a Petition for Graduation form to Graduation Services two terms prior to when you expect to graduate.

*No course may be used to satisfy more than one requirement or distribution area.*

**Courses used in these areas must be at least three credits. See list on page 50 for approved courses.*

*See page 44 for additional information on general requirements for graduation.*

**Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year institution upon completion of these programs. Call 503-594-3475 or email:** *advising@clackamas.edu* **for more information.**

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# Associate of Science Oregon Transfer Degree–Business (ASOT–Business)

Note: For the most current list of General Education courses, go to: *www.clackamas.edu/curriculum*

| Requirements | Courses<br>*Choose from the following courses to meet degree requirements. All courses must be passed with a C or better.* |
|---|---|
| **Writing** - minimum 8 credits | WR-121 and either 122 or 227 |
| **Oral Communication** - 1 course | COMM-111 or COMM-112 |
| **Mathematics** - minimum of 3 courses, including one course of statistics | MTH-111 or higher, 4 credits of statistics (MTH-243 or MTH-244) are required |
| **Cultural Literacy** - 1 course<br>Courses in this area must be at least 3 credits | Courses meeting the Cultural Literacy requirement are noted with an asterisk. |
| GENERAL EDUCATION DISTRIBUTION AREA<br>**Arts & Letters**<br>3 courses chosen from 2 or more disciplines. Courses used in this area must be at least 3 credits. | Choose from the following:<br>**ART**-*101, *102, *103, 115, 116, 117, 131, 132, 133, 194, 195, *204, *205, *206, *225, *226, *227, 250, 251, 252, 253, 254, 255, 257, 281, 282, 283, 284, 285, 286, 291, 292, 293; **ASL**-*201, *202, *203; **BA**-130; **COMM**-*105, *126, *140, 212, *218, *219, 227; **DMC**-195; **ENG**-100, 104, 105, 106, *107, *108, *109, 116, 121, 130, 195, 201, 202, 203, 204, 205, *213, 214, 216, 218, 226, *240, *241, *242, *250, *251, *252, 253, 254, *266, 270, 275; **FR**-*201, *202, *203; **HUM**-*160, *170, 180, 181, 182, *231, *235, *240, *241, *242; **J**-211; **MUS**-105, 111, 112, 113, 205, 206, 211, 212, 213; **PHL**-*101, *102, *103, *205, *210, *213, *215; **R**-*101, *102, *103, *204, *210, *211, *212, *214; **SPN**-*201, *202, *203; **TA**-101, 102, 103, 141, 142, 143; **WR**-220, *241, 242, 243, *244, 245, 247, 248, 262, 263, 265, 270 |
| GENERAL EDUCATION DISTRIBUTION AREA<br>**Social Science**<br>4 courses from 2 or more disciplines, including EC-201 and EC-202 completed with a grade of C- or better. Courses used in this area must be at least 3 credits.. | **EC-201** and **EC-202** and courses from the following list:<br>**ANT**-*101, *102, *103, *231, *232 ; **CJA**-101, 201; **EC**-200,; **GEO**-*100, *110, *121, *122, *130, *208, *230; **HST**-*101, *102, *103, *130, *131, *132, *136, *137, *138, *201, *202, *203, *210, *220; **PS**-*200, 201, 203, 204, 205, 206, 225, 297; **PSY**-200, *205, *214, 215, *219, *221, *231; **SOC**-*204, *205, *206, *210, *225; **SSC**-*160, *170, *231, *235, *240, *241, *242; **WS**-101* |
| GENERAL EDUCATION DISTRIBUTION AREA<br>**Science**<br>4 courses from at least 2 disciplines including at least 3 laboratory courses in biological and/or physical science. Minimum of 12 credits of laboratory science required. Courses used in this area must be at least 3 credits. | Choose from the following courses:<br>**ASC**-175, 176, 177; **BI**-101, 102, 103, 112, 160 & 160L, 165C & 165CL, 165D, 165T, 175, 176, 177, 204, 211, 212, 213, 231, 232, 233, 234; **CH**-104, 105, 106, 112, 114, 221, 222, 223; **ESR**-171, 172, 173; **G**-101, 102, 103, 145, 148, 201, 202, 203; **GS**-104, 105, 106, 107; **PH**-104, 121, 122, 123, 201, 202, 203, 211, 212, 213; **Z**-201, 202, 203 |
| **Business Specific** - minimum 20 credits | BA-101, 131, 211, 213 and 226 required |
| **Elective and/or University Specific Requirements**<br>. | Determined by choice of transfer institution. Please contact your transfer advisor for assistance.<br>Other courses numbered 100 or above may be used in this area, which may include up to 12 credits of career technical courses. Please refer to the Career Technical Programs, pages 81-160, for a listing of courses that may be included in the 12 credits mentioned above. |

** Course meets Cultural Literacy requirement.*

*Note: Placement in RD-115 and/or WR-121 is recommended for courses on this page and in some cases, placement in MTH-105 or MTH-111 may also be recommended. See course descriptions, pages 161-258.*

*Note: No course may be used to satisfy more than one requirement or distribution area.*

*Student Planner Worksheet 2017-2018*

# Associate of Science Oregon Transfer Degree–Business (ASOT–Business)

This guide is to be used for educational planning/advising purposes only.

| Requirements | CCC Courses Completed | Transferred Courses | Credits Earned | Credits Needed |
|---|---|---|---|---|
| **Writing**<br>WR-121, 122 or 227, minimum 8 credits | | | | |
| **Oral Communications**<br>COMM-111 or COMM-112 | | | | |
| **Mathematics**<br>3 courses of MTH-111 or higher, 4 credits of statistics (MTH-243 or MTH-244) are required. Courses in this area must be at least 3 credits. | | | | |
| **Cultural Literacy** - 1 course<br>Courses in this area must be at least 3 credits. | | | | |
| **Arts & Letters***<br>3 courses chosen from 2 or more disciplines. Courses used in this area must be at least 3 credits. | | | | |
| **Social Science***<br>4 courses chosen from at least 2 disciplines, including **EC-201** and **EC-202**. Courses in this area must be at least 3 credits. | | | | |
| **Science***<br>4 courses from at least two disciplines including at least three laboratory courses in biological and/or physical science. Courses in this area must be at least 3 credits. | | | | |
| **Business Specific** - minimum 20 credits<br>BA-101, 131, 211, 213 and 226 required | | | | |
| **Elective Courses and/or University Specific Requirements**- up to 13 credits<br>(Refer to your transfer school for specific university requirements. Up to 12 credits of career technical courses may be used.) | | | | |
| | **TOTALS** | | | |

(Total minimum of 90 credits required.)

### Additional Graduation Requirements

- ☐ All courses must be passed with a grade of C or better
- ☐ Complete a minimum of 90 credits
- ☐ Complete at least 23 credits at CCC
- ☐ Establish cumulative GPA of 2.0 or above

Submit a Petition for Graduation form to Graduation Services two terms prior to when you expect to graduate.

*No course may be used to satisfy more than one requirement or distribution area.*
*Courses used in these areas must be at least three credits. See list on page 52 for approved courses.*
*See page 44 for additional information on general requirements for graduation.*

**Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year institution upon completion of these programs. Call 503-594-3475 or email:** *advising@clackamas.edu* **for more information.**

*Student Guide 2017-2018*

# Associate of Science Oregon Transfer Degree – Computer Science (ASOT–Computer Science)

Note: For the most current list of General Education courses, go to: *www.clackamas.edu/curriculum*

| Requirements | Courses<br>*Choose from the following courses to meet degree requirements. All courses must be passed with a C or better.* |
|---|---|
| **Writing** - minimum 8 credits | WR-121, and either 122 or 227 |
| **Oral Communication** - 1 course | COMM-111 or COMM-112 |
| **Mathematics** - 2 courses | MTH-251 and MTH-252 are required. |
| **Health/Wellness/Fitness**<br>1 or more HE, HPE or PE courses totaling at least 3 credits. | **PE**-185, 194, 207, 240, 260, 270, 294, 294A; **HE**-151, 152, 201, 202, 204, 205, 207, 223, 249, 250, 252, 255, 261, 277; **HPE**-295 |
| GENERAL EDUCATION DISTRIBUTION AREA<br>**Arts & Letters**<br>3 courses chosen from 2 or more disciplines. Courses used in this area must be at least 3 credits. | Choose from the following:<br>**ART**-*101, *102, *103, 115, 116, 117, 131, 132, 133, 194, 195, *204, *205, *206, *225, *226,*227, 250, 251, 252, 253, 254, 255, 257, 281, 282, 283, 284, 285, 286, 291, 292, 293; **ASL**-*201, *202, *203; **BA**-130; **COMM**-*105, *126, *140, 212, *218, *219, 227; **DMC**-195; **ENG**-100, 104, 105, 106, *107, *108, *109, 116, 121, 130, 195, 201, 202, 203, 204, 205,*213, 214, 216, 218, 226, *240, *241, *242, *250, *251, *252, 253, 254, *266, 270, 275; **FR**-*201, *202, *203; **HUM**-*160, *170, 180, 181, 182, *231, *235, *240, *241, *242; J-211; **MUS**-105, 111, 112, 113, 205, 206, 211, 212, 213; **PHL**-*101, *102, *103, *205, *210, *213, *215; **R**-*101, *102, *103, *204, *210, *211, *212, *214; **SPN**-*201, *202, *203; **TA**-101, 102, 103, 141, 142, 143; **WR**-220, *241, 242, 243, *244, 245, 247, 248, 262, 263, 265, 270 |
| GENERAL EDUCATION DISTRIBUTION AREA<br>**Social Science**<br>4 courses chosen from 2 or more disciplines. Courses used in this area must be at least 3 credits. | **ANT**-*101, *102, *103, *231, *232; **CJA**-101, 201; **EC**-115, 200, 201, 202; **GEO**-*100, *110, *121, *122, *130, *208, *230; **HST**-*101, *102, *103, *130, *131, *132, *136, *137, *138, *201, *202, *203, *210, *220; **PS**-*200, 201, 203, 204, 205, 206, 225, 297; **PSY**-200, *205, *214, 215, *219, *221, *231 SOC-*204, *205, *206, *210, *225; **SSC**-*160, *170, *231, *235, *240, *241, *242; **WS**-101* |
| GENERAL EDUCATION DISTRIBUTION AREA<br>**Science/Math/Computer Science**<br>4 courses from at least 2 disciplines, including at least 3 lab courses in biological or physical science. Courses used in this area must be at least 3 credits. | Choose from the following courses:<br>**ASC**-175, 176, 177; **BI**-101, 102, 103, 112, 160 & 160L, 165C & 165CL, 165D, 165T, 175, 176, 177, 204, 211, 212, 213, 231, 232, 233, 234; **CH**-104, 105, 106, 112, 114, 221, 222, 223; **ESR**-171, 172, 173; **G**-101, 102, 103, 145, 148, 201, 202, 203; **GS**-104, 105, 106, 107; **MTH**-105, 111, 112, 211, 212, 213, 243, 244, 252, 253, 254, 256, 261; **PH**-104, 121, 122, 123, 201, 202, 203, 211, 212, 213; **Z**-201, 202, 203 |
| **Cultural Literacy**<br>Students must select 1 course from any of the disciplines that is designated as meeting the statewide criteria for cultural literacy. Courses in this area must be at least 3 credits. | Courses meeting the Cultural Literacy requirement are noted with an asterisk. |
| **Computer Science Specific Requirements**<br>A minimum of 16 credits in Computer Science consisting of these courses. Each course in this section must be completed with a grade of C or better. Each course must be at least 3 credits. | CS-160, CS-161, CS-162, CS-260 |
| **Elective and/or University Specific Requirements** | Determined by choice of transfer institution. Please contact your transfer advisor for assistance.<br>Other courses numbered 100 or above may be used in this area, which may include up to 12 credits of career technical courses. Please refer to the Career Technical Programs, pages 81-160, for a listing of courses that may be included in the 12 credits mentioned above. |

*Note: Placement in RD-115 and/or WR-121 is recommended for courses on this page and in some cases, placement in MTH-105 or MTH-111 may also be recommended. See course descriptions, pages 161-258.*

*Note: No course may be used to satisfy more than one requirement or distribution area.*

*Student Planner Worksheet 2017-2018*

# Associate of Science Oregon Transfer Degree – Computer Science (ASOT–Computer Science)

This guide is to be used for educational planning/advising purposes only.

| Requirements | CCC Courses Completed | Transferred Courses | Credits Earned | Credits Needed |
|---|---|---|---|---|
| **Writing**<br>WR-121, 122 or 227, minimum 8 credits | | | | |
| **Oral Communications**<br>COMM-111 or COMM-112 | | | | |
| **Mathematics**<br>2 courses, MTH-251 and MTH-252 are required. | | | | |
| **Health/Wellness/Fitness**<br>1 or more HE, HPE or PE courses totaling at least 3 credits. | | | | |
| **Arts & Letters***<br>Select a minimum of 3 courses from at least 2 disciplines. Each course must be a minimum of 3 credits. | | | | |
| **Social Science***<br>Select a minimum of 4 courses from at least 2 disciplines. Each course must be a minimum of 3 credits. | | | | |
| **Science/Math/Computer Science**<br>Select a minimum of 4 courses from at least 2 disciplines including at least 3 laboratory courses in biological and/or physical science. Each course must be a minimum of 3 credits. | | | | |
| **Cultural Literacy**<br>Students must select 1 course from any of the discipline studies that is designated as meeting the statewide criteria for cultural literacy. Each course must be a minimum of 3 credits. | | | | |
| **Computer Science Specific Requirements**<br>Students must take a minimum of 16 credits. CS-160, CS-161, CS-162, and CS-260 are required. Each course in this area must be at least 3 credits. | | | | |
| **Elective Courses and/or University Specific Requirements**<br>Complete additional courses to bring the total number of credits to at least 90. Refer to your transfer school for specific university requirements. Up to 12 credits of career technical courses may be used. | | | | |
| | **TOTALS** | | | |

Total minimum of 90 credits required.

**Additional Graduation Requirements**

- ☐ All courses must be passed with a grade of C or better
- ☐ Complete a minimum of 90 credits
- ☐ Complete at least 23 credits at CCC
- ☐ Establish cumulative GPA of 2.0 or above

Submit a Petition for Graduation form to Graduation Services two terms prior to when you expect to graduate.

*No course may be used to satisfy more than one requirement or distribution area.*
*Courses used in these areas must be at least three credits. See list on page 54 for approved courses.*
*See page 44 for additional information on general requirements for graduation.*

**Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year institution upon completion of these programs. Call 503-594-3475 or email:** *advising@clackamas.edu* **for more information.**

*Student Guide 2017-2018*

# Associate of Science Degree (AS)

Clackamas Community College

| | Requirements | Courses |
|---|---|---|
| **Foundational Skills** | **Writing** - 2 courses | WR-121 and 122 or 227 |
| | **Mathematics** - 1 course | MTH-105, 111, 112, 251, 252 |
| **General Education Education Distribution Areas** | **Arts & Letters and Social Sciences**<br>3-4 courses with at least 1 course in Arts & Letters and 1 course in Social Sciences | See specific degree and institution for list of approved courses. |
| | **Science/Math/Computer Science**<br>2-3 courses totaling at least 7 credits | See specific degree and institution for list of approved courses. |
| **Additional Requirements** | **University Specific Requirements** | See specific degree and institution for list of approved courses. |
| **Electives** | **University Specific Requirements** | Will vary. See specific degree and institution for list of course electives. |

Total minimum of 90 credits required.

**Notes:**

1. All courses must be 100 level or higher.
2. All courses must be at least three credits.
3. All courses must be passed with a grade of C or better.
4. Students must establish a cumulative GPA of 2.0 or above
5. No course may be used to satisfy more than one requirement or distribution area.
6. Submit a Petition for Graduation form to Graduation Services two terms prior to when you expect to graduate.

*Student Planner Worksheet 2017-2018*

# Associate of Science Degree (AS)

This guide is to be used for educational planning/advising purposes only.

| Requirements | Credits/Courses Required | CCC Courses Taken/ Completed | Credits Transferred | Credits/Courses Needed |
|---|---|---|---|---|
| **Writing** | *2 courses* | | | |
| **Mathematics** | *1 course* | | | |
| **Arts & Letters** | *1-3 courses* | | | |
| **Social Science** | *1-3 courses* | | | |
| **Science/Math/ Computer Science** | *1 course* | | | |
| **University-Specific Requirements** | *See specific degree and institution for list of approved courses.* | | | |
| **Electives** | *See specific degree and institution for list of approved courses.* | | | |
| **TOTALS** | **90 credits minimum** | | | |

**Notes:**

1. All courses must be 100 level or higher.
2. All courses must be at least three credits.
3. All courses must be passed with a grade of C or better.
4. Students must establish a cumulative GPA of 2.0 or above
5. No course may be used to satisfy more than one requirement or distribution area.
6. Submit a Petition for Graduation form to Graduation Services two terms prior to when you expect to graduate.

**Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year institution upon completion of these programs. Call 503-594-3475 or email:** *advising@clackamas.edu* **for more information.**

# Associate of Science Degrees

## Biology

### *Associate of Science Transfer Degrees in Biology*

Students receiving an Associates of Science degree with an emphasis in Biology will be prepared to transfer into upper division courses to complete a Bachelor of Science degree in Biology. Courses establish the foundations in understanding cellular processes, evolution, ecology, plant and animal physiology and population studies.

#### CAREERS

Career pathways include pre-pharmacy, pre-medical, pre-veterinarian, biological and zoology research fields, wildlife and fisheries management, and a wide range of related fields.

#### PROGRAM OUTCOMES

Upon successful completion of this program, students should be able to:

- communicate complex ideas by demonstrating an ability to gather and analyze data, construct evidence-based arguments and critically evaluate information;
- be able to apply critical thinking to address biological phenomena using scientific processes,
- demonstrate an understanding of the complexity and diversity of life,
- analyze and construct relationships between human activities and the environment,
- recognize the contributions of scientific knowledge in contributing to technological advances and advancing the human condition.

For information contact Tory Blackwell, 503-594-3646 or *toryb@clackamas.edu*, Lilly Mayer, 503-594-3356 or *lillym@clackamas.edu*, or Polly Schulz, 503-594-3358 or *pollys@clackamas.edu*

### *Associate of Science with an emphasis in Biology with Oregon State University*

#### PROGRAM REQUIREMENTS – FIRST YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| BI-211 | General Biology for Science Majors (Cellular Biology) | 5 |
| CH-221 | General Chemistry | 5 |
| PE-185 | PE Activity Course | 1 |
| WR-121 | English Composition | 4 |
| **WINTER TERM** | | |
| BI-212 | General Biology for Science Majors (Animal Biology) | 5 |
| CH-222 | General Chemistry | 5 |
| MTH-251 | Calculus I | 5 |
| **SPRING TERM** | | |
| BI-213 | General Biology for Science Majors (Plant Biology & Ecology) | 5 |
| COMM-111 | Public Speaking | |
| or COMM-112 | Persuasive Speaking | |
| or COMM-218 | Interpersonal Communication | 4 |
| CH-223 | General Chemistry | 5 |

#### PROGRAM REQUIREMENTS – SECOND YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| CH-241* | Organic Chemistry I | 5 |
| PH-201 | General Physics | |
| or PH-211 | General Physics with Calculus | 5 |
| WR-122 | English Composition | |
| or WR-227 | Technical Report Writing | 4 |
| — — | Core electives | 3 |
| **WINTER TERM** | | |
| CH-242* | Organic Chemistry II | 5 |
| MTH-252 | Calculus II | 5 |
| PH-202 | General Physics | |
| or PH-212 | General Physics with Calculus | 5 |
| **SPRING TERM** | | |
| CH-243* | Organic Chemistry III | 5 |
| HPE-295 | Health & Fitness for Life | 3 |
| PH-203 | General Physics | |
| or PH-213 | General Physics with Calculus | 5 |
| — — | Core electives | 3 |
| *Credits required for degree* | | *92* |

*Organic Chemistry —satisfies degree requirement but does not transfer at 300 level credits unless student passes the ACS organic exam. OSU highly recommends taking the ACS organic exam. Transfers as a combination of CH-331, 332 & 337.

#### CORE ELECTIVES

**ANT**-101, 102, 103, 231, 232; **ART**-101, 102, 103, 204, 205, 206 ; **ASC**-175, 176, 177; **BI**-101, 102, 103, 175, 176, 177, 204, 211, 212, 213, 234; **CH**-104, 105, 114, 221, 222, 223; **DMC**-194; **EC**-201, 202, 215, 230; **ENG**-104, 105, 106, 107, 108, 109, 201, 202, 203, 204, 205, 213, 240, 241, 242, 250, 251, 252, 253, 254, 255; **ESR**-171, 172, 173; **G**-101, 102, 103, 201, 202, 203; **GEO**-100, 110, 121, 122, 130, 208, 230; **GS**-104, 105, 106, 107; **HST**-101, 102, 103, 201, 202, 203; **MUS**-206; **PH**-104, 121, 122, 123, 201, 202, 203, 211, 212, 213; **PHL**-102, 215; **PS**-200, 201, 203, 204, 205, 206, 225; **PSY**-110, 200, 205, 219, 231; **R**-101, 102, 103, 210, 204; **SOC**-204, 205, 206, 225; **Z**-201, 202, 203

### *Associate of Science with an emphasis in Biology with Portland State University*

#### PROGRAM REQUIREMENTS – FIRST YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| BI-211 | General Biology for Science Majors (Cellular Biology) | 5 |
| CH-221 | General Chemistry | 5 |
| WR-121 | English Composition | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| BI-212 | General Biology for Science Majors (Animal Biology) | 5 |
| CH-222 | General Chemistry | 5 |
| WR-122 | English Composition | |
| or WR-123 | English Composition | |
| or WR-227 | Technical Report Writing | 3-4 |
| — — | Core elective | 4 |

**SPRING TERM**

| | | |
|---|---|---|
| BI-213 | General Biology for Science Majors (Plant Biology & Ecology) | 5 |
| CH-223 | General Chemistry | 5 |
| COMM-111 | Public Speaking | |
| or COMM-140 | Introduction to Intercultural Communication | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| CH-241 | Organic Chemistry I or Science elective | 4-5 |
| MTH-243 | Statistics I | |
| or MTH-251 | Calculus I | 5 |
| PH-201 | General Physics | 5 |
| — — | Core elective | 3 |
| **WINTER TERM** | | |
| CH-242 | Organic Chemistry II or Science elective | 4-5 |
| MTH-244 | Statistics II | |
| or MTH-252 | Calculus II | 5 |
| — — | Core elective | 3 |
| **SPRING TERM** | | |
| CH-243 | Organic Chemistry III or Science elective | 6-7 |
| — — | General Education Science elective | 4-5 |
| — — | Core elective | 6 |
| *Credits required for degree* | | *90-95* |

**CORE ELECTIVE**

Any General Education course in the respective distribution areas of Arts & Letters or Social Sciences listed on page 50 of this catalog.

**SCIENCE ELECTIVE**

Minimum 14 science elective credits in G-201, G-202, G-203, PH-202 & PH-203. Recommended: CH-242 & CH-243

**GENERAL EDUCATION SCIENCE ELECTIVE**

Any general education science course in ASC, BI, CH, ESR, G, GS, PH, Z

## *Associate of Science with an emphasis in Biology with University of Oregon*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| BI-211 | General Biology for Science Majors (Cellular Biology) | 5 |
| CH-221 | General Chemistry | 5 |
| WR-121 | English Composition | 4 |
| **WINTER TERM** | | |
| BI-212 | General Biology for Science Majors (Animal Biology) | 5 |
| CH-222 | General Chemistry | 5 |
| WR-122 | English Composition | |
| or WR-123 | English Composition | 3-4 |
| **SPRING TERM** | | |
| BI-213 | General Biology for Science Majors (Plant Biology & Ecology) | 5 |
| CH-223 | General Chemistry | 5 |
| CS-120 | Survey of Computing | |
| or MTH-243 | Statistics I (recommended) | 4 |
| — — | Core electives | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| CH-241 | Organic Chemistry I | 5 |
| MTH-251 | Calculus I | 5 |
| PH-201 | General Physics | 5 |
| — — | Core electives | 3 |
| **WINTER TERM** | | |
| CH-242 | Organic Chemistry II | 5 |
| MTH-252 | Calculus II | 5 |
| PH-202 | General Physics | 5 |
| **SPRING TERM** | | |
| CH-243 | Organic Chemistry III | 5 |
| PH-203 | General Physics | 5 |
| — — | Core electives | 3 |
| *Credits required for degree* | | *91* |

**CORE ELECTIVES**

Any General Education course in the respective distribution areas of Arts & Letters or Social Sciences listed on page 50 of this catalog.

# Computer Science

An Associate of Science with an emphasis in Computer Science is a transfer degree intended to provide students with an overwhelming majority of the first two years' coursework required for a Bachelor of Science in Computer Science. A degree in Computer Science is a degree is programming: creating new software applications. This is a high-demand, high-paying field that offers job security and ongoing growth as the number of computing devices and demand for sophisticated operating systems, web and productivity applications, and game increases. We encourage all students interested in this program to pursue a co-enrollment option with the university. For information contact Jen Miller, 503-594-3138 or *jen.miller@clackamas.edu*, or Richard Albers, 503-594-3166 or *richa@clackamas.edu*

**CAREERS**

AS degrees are not designed to be direct-to-work credentials. Students completing a Bachelor of Science in Computer Science, depending upon internships and focused electives, would be qualified for a career in computer programming with possible job titles including, but not limited to:

- application developer
- game developer
- web developer

*Continued*

*Computer Science continued…*

### PROGRAM OUTCOMES

Upon successful completion of this program, students should be able to:

- explain the software development lifecycle and the specific tools and processes used to create software,
- describe the components, purposes, and benefits of both structured and object-oriented programming paradigms and demonstrate the development of software using them in a high-level language;
- explain and demonstrate various ways information is stored and manipulated, at both a low and high level, in computer systems and software,
- employ mathematics and computing techniques in a system and rigorous manner to solve technical problems,
- exhibit good teamwork skills and serve as effective members of project teams,

## *Associate of Science with an emphasis in Computer Science with Portland State University*

### PREREQUISITES

Students entering the Associate of Science degree are expected to have the following courses complete, or to place at a level higher than the courses indicated:

- CS-120 Survey of Computing
- WR-095 Paragraph to Essay
- MTH-112 Trigonometry/Pre-Calculus

### PROGRAM REQUIREMENTS – FIRST YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| BI-211 | General Biology for Science Majors (Cellular Biology) | |
| or CH-221 | General Chemistry | |
| or PH-211 | Physics with Calculus | 5 |
| CS-161 | Computer Science I | 4 |
| MTH-251 | Calculus I | 5 |
| **WINTER TERM** | | |
| BI-212 | General Biology for Science Majors (Animal Biology) | |
| or CH-222 | General Chemistry | |
| or PH-212 | Physics with Calculus | 5 |
| CS-162 | Computer Science II | 4 |
| MTH-252 | Calculus II | 5 |
| **SPRING TERM** | | |
| BI-213 | General Biology for Science Majors (Plant Biology & Ecology) | |
| or CH-223 | General Chemistry | |
| or PH-213 | Physics with Calculus | 5 |
| CS-260 | Data Structures | 4 |
| MTH-253 | Calculus III | 5 |
| — — | Arts & Letters or Social Science electives | 3-4 |
| **SUMMER TERM** | | |
| COMM-111 | Public Speaking | 4 |
| WR-121 | English Composition | 4 |
| — — | Arts & Letters or Social Science electives | 3-4 |
| — — | Arts & Letters or Social Science electives | 3-4 |

### PROGRAM REQUIREMENTS – SECOND YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| CS-201 | Computer Systems II | 4 |
| — — | Computer Science recommended electives | 3-4 |
| — — | Science electives | 4 |
| **WINTER TERM** | | |
| CS-202 | Program Structures | 4 |
| CS-250 | Discrete Structures I | 4 |
| WR-227 | Technical Report Writing | 4 |
| — — | Computer Science recommended electives | 3-4 |
| **SPRING TERM** | | |
| CS-251 | Discrete Structures II | 4 |
| — — | Computer Science recommended electives | 3-4 |
| — — | Computer Science recommended electives | 3-4 |
| — — | Arts & Letters or Social Science electives | 3-4 |
| *Credits required for degree* | | *90-106* |

### ARTS & LETTERS OR SOCIAL SCIENCE ELECTIVES

Any 100 level or above Arts & Letters or Social Science course in the prefixes of:

#### ARTS & LETTERS

ART, ASL, BA, COMM, ENG, FR, GER, HUM, J, MUS, MUP, PHL, R, SPN, TA, WR

#### SOCIAL SCIENCE

ANT, EC, GEO, HST, PS, PSY, SOC, SSC, WS

### COMPUTER SCIENCE RECOMMENDED ELECTIVES

Students must choose 12-16 credits from the following two categories. Students do not need to complete all of the electives within any one category.

- **OPERATING SYSTEMS**

  Transfer students will be expected to be fluent with UNIX/Linux systems used in university labs. These courses, CS-140 and CS-240L, will help students with no Linux experience build the necessary competencies.

- **ADDITIONAL LANGUAGES**

  These courses, CS-125H, CS-133S, CS-234J, and CS-234P, will help students expand their language repertoire to enhance their marketability and job opportunities.

### SCIENCE ELECTIVES

Any General Education science course listed under prefixes: BI, CH, ESR, G, and PH on page 50 of this catalog.

# Engineering

The Associate of Science with an emphasis in Engineering is for students interested in transferring a bachelor's degree to Portland State University, Oregon State University, Oregon Tech (Oregon Institute of Technology) or George Fox University.

### PROGRAM OUTCOMES

Upon successful completion of this program, students should be able to:

- identify the broad context of engineering problems, including describing the problem conditions, identifying possible contributing factors, and generating alternative solution strategies;
- identify the fundamental elements of engineering design, including associated safety, quality, schedule and cost considerations;
- employ mathematics, science, and computing techniques in a systematic and rigorous manner to support the study and solution of engineering problems;
- conduct and document laboratory experiments in the sciences and engineering, effectively communicating determined quantitative relationships using both graphs and equations;
- exhibit good teamwork skills and serve as effective members of laboratory and project teams,
- articulate and justify technical solutions to an audience through oral, written, and graphical communication;
- communicate the importance of professional and ethical responsibilities of engineers, and be aware of codes and other sources of guidance for professionally ethical decision making.

For information contact Eric Lee, 503-594-6163 or *elee@clackamas.edu*

## *Associate of Science with an emphasis in Engineering with Portland State University*

### PROGRAM REQUIREMENTS – FIRST YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| CH-221 | General Chemistry | 5 |
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| WR-121 | English Composition | 4 |
| **WINTER TERM** | | |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |
| WR-122 | English Composition | |
| or WR-227 | Technical Report Writing | 4 |
| — — | Track Requirement | 3-5 |
| **SPRING TERM** | | |
| MTH-261 | Linear Algebra | 4 |
| — — | Track Requirement | 3-5 |
| — — | Track Requirement | 3-5 |
| — — | Arts & Letters elective | 4 |

### PROGRAM REQUIREMENTS – SECOND YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| PH-211 | General Physics with Calculus | 5 |
| — — | Track Requirement | 3-5 |
| — — | Track Requirement | 3-5 |
| — — | Track Requirement | 3-5 |
| **WINTER TERM** | | |
| COMM-111 | Public Speaking | 4 |
| MTH-256 | Differential Equations | 4 |
| PH-212 | General Physics with Calculus | 5 |
| — — | Track Requirement | 3-5 |
| **SPRING TERM** | | |
| PH-213 | General Physics with Calculus | 5 |
| — — | Track Requirement | 3-5 |
| — — | Social Science elective | 4 |
| — — | Arts & Letters or Social Science elective | 4 |
| *Credits required for degree* | | *96-101* |

*Note: Mechanical Engineers should take WR-122. All other tracks should take WR-227

### ARTS & LETTERS OR SOCIAL SCIENCE ELECTIVES

#### ARTS & LETTERS

**ART**-101, 102, 103, 204, 205, 206; **ASL**-101, 102, 103, 201, 202, 203, 211; **COMM**-100, 105, 112, 126, 129, 140, 150, 167, 212, 218, 219, 227, 267; **ENG**-100, 104, 105, 106, 107, 108, 109, 116, 121, 130, 194, 195, 201, 202, 204, 205, 213, 214, 217, 218, 225, 226, 230, 240, 241, 242, 250, 251, 252, 253, 254, 255, 261, 266, 270, 295, 296; **FR**-101, 102, 103, 201, 202, 203, 211, 212, 213; **GER**-101, 102, 103, 201, 202, 203, 211, 212, 213; **HUM**-160, 170, 180, 181, 182, 233, 235, 240, 241, 242; **MUS**-105, 140, 141, 205, 206, 230, ; **PHL**-101, 102, 103, 205, 210, 213, 215; **SPN**-101, 102, 103, 201, 202, 203, 211, 212, 213; **WR**-123, 140, 146, 200, 220, 222, 239, 240, 241, 242, 243, 244, 245, 246, 249, 262, 263, 270, 279

#### SOCIAL SCIENCE

**ANT**-101, 102, 103, 231, 232; **EC**-200, 201, 202; **GEO**-100, 110, 121, 122, 130, 230; **HST**-101, 102, 103, 130, 131, 132, 136, 137, 138, 201, 202, 203, 210, 220, 239; **PS**-200, 201, 203, 204, 205, 206, 225, 297; **PSY**-101, 110, 200, 205, 214, 215, 219, 221, 231, 240; **SSC**-160, 170, 180, 181, 182, 233, 235, 240, 241, 242; **SOC**-204, 205, 206, 210, 225; **WS**-101

### TRACK REQUIREMENTS

#### CIVIL ENGINEERING

| | | |
|---|---|---|
| CDT-103 | Computer-Aided Drafting I | 3 credits |
| CH-222 | General Chemistry | 5 credits |
| ENGR-211 | Statics | 4 credits |
| ENGR-212 | Dynamics | 4 credits |
| ENGR-213 | Strength of Materials | 4 credits |
| GIS-201 | Introduction to Geographic Information System | 3 credits |
| MTH-254 | Vector Calculus | 5 credits |

Recommended: One additional Arts & Letters or Social Science elective, Plane Surveying (CE211) at PSU.

*96 total credits at CCC.*

*Continued*

*Engineering continued…*

**COMPUTER ENGINEERING**

| | | |
|---|---|---|
| CS-161 | Computer Science I | 4 credits |
| CS-162 | Computer Science II | 4 credits |
| CS-260 | Data Structures | 4 credits |
| ENGR-171 | Digital Logic | 4 credits |
| ENGR-221 | Electrical Circuit Analysis | 4 credits |
| ENGR-222 | Electrical Circuit Analysis | 4 credits |
| ENGR-271 | Digital Systems | 4 credits |

*96 total credits at CCC.*

**ELECTRICAL ENGINEERING**

| | | |
|---|---|---|
| CS-161 | Computer Science I | 4 credits |
| CS-162 | Computer Science II | 4 credits |
| ENGR-171 | Digital Logic | 4 credits |
| ENGR-221 | Electrical Circuit Analysis | 4 credits |
| ENGR-222 | Electrical Circuit Analysis | 4 credits |
| ENGR-223 | Electrical Circuit Analysis | 4 credits |
| ENGR-271 | Digital Systems | 4 credits |
| MTH-254 | Vector Calculus | 5 credits |

*101 total credits at CCC.*

**ENVIRONMENTAL ENGINEERING**

| | | |
|---|---|---|
| BI-204 | Elementary Microbiology | 4 credits |
| CDT-103 | Computer-Aided Drafting | 3 credits |
| CH-222 | General Chemistry | 5 credits |
| ENGR-211 | Statics | 4 credits |
| ENGR-212 | Dynamics | 4 credits |
| ENGR-213 | Strength of Materials | 4 credits |
| GIS-201 | Introduction to Geographic Information System | 3 credits |
| MTH-254 | Vector Calculus | 5 credits |

*100 total credits at CCC.*

**MECHANICAL ENGINEERING**

| | | |
|---|---|---|
| CH-222 | General Chemistry | 5 credits |
| ENGR-115 | Engineering Graphics | 3 credits |
| ENGR-211 | Statics | 4 credits |
| ENGR-212 | Dynamics | 4 credits |
| ENGR-213 | Strength of Materials | 4 credits |
| ENGR-221 | Electrical Circuit Analysis | 4 credits |
| ENGR-231 | Properties of Materials | 4 credits |
| MTH-254 | Vector Calculus | 5 credits |

Recommended: One additional Arts & Letters/Social Science elective.

*101 total credits at CCC.*

## *Associate of Science with an emphasis in Engineering with Oregon State University*

## *Emphasis in Biological Engineering*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| COMM-111 | Public Speaking | 4 |
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| WR-121 | English Composition | 4 |
| **WINTER TERM** | | |
| BI-204 | Elementary Microbiology | 4 |
| CH-221 | General Chemistry | 5 |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |
| **SPRING TERM** | | |
| CH-222 | General Chemistry III | 5 |
| MTH-254 | Vector Calculus | 5 |
| WR-227 | Technical Report Writing | 4 |
| **SUMMER TERM** | | |
| CH-223 | General Chemistry | 5 |
| MTH-256 | Differential Equations | 4 |
| — — | Social Processes elective | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| CH-241 | Organic Chemistry I | 5 |
| ENGR-211 | Statics | 4 |
| PH-211 | General Physics with Calculus | 5 |
| **WINTER TERM** | | |
| CH-242 | Organic Chemistry II | 5 |
| MTH-253 | Calculus III | 5 |
| PH-212 | General Physics with Calculus | 5 |
| **SPRING TERM** | | |
| CH-243 | Organic Chemistry III | 5 |
| ENGR-221 | Electrical Circuit Analysis | 4 |
| PH-213 | General Physics with Calculus | 5 |
| — — | Western Culture elective | 4 |
| *Credits required for degree* | | *107* |

**SOCIAL PROCESSES ELECTIVE:**

**ANT**-103; **EC**-201, 202, 230; **HST**-101, 102, 103; **PS**-201, 202, 204, 205, 225; **PSY**-110, 200, 205, 219, 231; **SOC**-204, 205, 206

**WESTERN CULTURE ELECTIVE**

**ART**-204, 205, 206; **ENG**-107, 108, 109, 201, 202, 203, 204, 205, 250, 251, 253, 254, 255, 275; **GEO**-122, 208, 230; **HST**-101, 102, 103, 201, 202, 203; **PHL**-102, 215; **PS**-206; **R**-204

Optional: While not required for the AS degree, students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Oregon State University. The Bachelor of Science degree requires the completion of one course from each category below.

**CULTURAL DIVERSITY ELECTIVE**

**ANT**-230, 231, 232; **ENG**-210, 213, 252; **GEO**-110, 121, 230; **R**-101, 102, 103, 210

**LITERATURE AND THE ARTS ELECTIVE**

**ART**-101, 102, 103, 204, 205, 206, 211, 212, 213; **DMC**-194; **ENG**-104, 105, 106, 107, 108, 109, 194, 195, 201, 202, 203, 204, 205, 213, 250, 251, 252, 253, 254, 255, 260, 275; **MUS**-105, 205, 206

**DIFFERENCE, POWER, AND DISCRIMINATION ELECTIVE**

**HST**-201, 202, 203; **SOC**-225

**PHYSICAL EDUCATION ELECTIVE**

**HPE**-295

## *Emphasis in Chemical Engineering*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| COMM-111 | Public Speaking | 4 |
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| WR-121 | English Composition | 4 |

| WINTER TERM | | |
|---|---|---|
| CH-221 | General Chemistry | 5 |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |
| WR-227 | Technical Report Writing | 4 |
| **SPRING TERM** | | |
| CH-222 | General Chemistry | 5 |
| MTH-254 | Vector Calculus | 5 |
| — — | Social Processes elective | 4 |
| **SUMMER TERM** | | |
| CH-223 | General Chemistry | 5 |
| MTH-256 | Differential Equations | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| CH-241 | Organic Chemistry I | 5 |
| ENGR-211 | Statics | 4 |
| PH-211 | General Physics with Calculus | 5 |
| **WINTER TERM** | | |
| CH-242 | Organic Chemistry II | 5 |
| MTH-253 | Calculus III | 5 |
| PH-212 | General Physics with Calculus | 5 |
| **SPRING TERM** | | |
| CH-243 | Organic Chemistry III | 5 |
| ENGR-221 | Electrical Circuit Analysis | 4 |
| PH-213 | General Physics with Calculus | 5 |
| — — | Western Culture elective | 4 |
| *Credits required for degree* | | *103* |

**SOCIAL PROCESSES ELECTIVE**

**ANT**-103; **EC**-201, 202, 230; **HST**-101,102,103; **PS**-201, 202, 204, 205, 225; **PSY**-110, 200, 205, 219, 231; **SOC**-204, 205, 206

**WESTERN CULTURE ELECTIVE**

**ART**-204, 205, 206; **ENG**-107,108,109, 201, 202, 203, 204, 205, 250, 251, 253, 254, 255, 275; **GEO**-122, 208, 230; **HST**-101,102,103, 201, 202, 203; **PHL**-102, 215; **PS**-206; **R**-204

Optional: While not required for the AS degree, students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Oregon State University. The Bachelor of Science degree requires the completion of one course from each category below.

**CULTURAL DIVERSITY ELECTIVE**

**ANT**-230, 231, 232; **ENG**-210, 213, 252; **GEO**-110,121, 230; **R**-101,102, 103, 210

**LITERATURE AND THE ARTS ELECTIVE**

**ART**-101, 102, 103, 204, 205, 206, 211, 212, 213; **DMC**-194; **ENG**-104, 105, 106, 107, 108, 109, 194, 195, 201, 202, 203, 204, 205, 213, 250, 251, 252, 253, 254, 255, 260, 275; **MUS**-105, 205, 206

**DIFFERENCE, POWER, AND DISCRIMINATION ELECTIVE**

**HST**-201, 202, 203; **SOC**-225

**BIOLOGICAL SCIENCE ELECTIVE**

**ASC**-200, 201, 202; **BI**-101, 102, 103, 204, 211, 212, 213, 234; **ESR**-171, 172, 173; **Z**-201, 202, 203

**PHYSICAL EDUCATION ELECTIVE**

**HPE**-295

## *Emphasis in Civil Engineering*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| CH-221 | General Chemistry | 5 |
| EC-201 | Principles of Economics: MICRO | 4 |
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| **WINTER TERM** | | |
| CH-222 | General Chemistry | 5 |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |
| WR-121 | English Composition | 4 |
| **SPRING TERM** | | |
| COMM-111 | Public Speaking | 4 |
| ENGR-115 | Engineering Graphics | 3 |
| MTH-254 | Vector Calculus | 5 |
| WR-227 | Technical Report Writing | 4 |
| **SUMMER TERM** | | |
| GIS-201 | Introduction to Geographic Information System | 3 |
| MTH-256 | Differential Equations | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ENGR-211 | Statics | 4 |
| PH-211 | General Physics with Calculus | 5 |
| — — | Western Culture elective | 4 |
| **WINTER TERM** | | |
| ENGR-212 | Dynamics | 4 |
| MTH-253 | Calculus III | 5 |
| PH-212 | General Physics with Calculus | 5 |
| **SPRING TERM** | | |
| ENGR-213 | Strength of Materials | 4 |
| HPE-295 | Health and Fitness for Life | 3 |
| PH-213 | General Physics with Calculus | 5 |
| *Credits required for degree* | | *96* |

**WESTERN CULTURE ELECTIVE**

**ART**-204, 205, 206; **ENG**-107, 108, 109, 201, 202, 203, 204, 205, 250, 251, 253, 254, 255, 275; **GEO**-122, 208, 230; **HST**-101, 102, 103, 201, 202, 203; **PHL**-102, 215; **PS**-206; **R**-204

Optional: While not required for the AS degree, students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Oregon State University. The Bachelor of Science degree requires the completion of one course from each category below.

**CULTURAL DIVERSITY ELECTIVE**

**ANT**-230, 231, 232; **ENG** 210, 213, 252; **GEO**-110, 121, 230; **R**-101, 102, 103, 210

**LITERATURE AND THE ARTS ELECTIVE**

**ART**-101, 102, 103, 204, 205, 206, 211, 212, 213; **DMC**-194; **ENG**-104, 105, 106, 107, 108, 109, 194, 195, 201, 202, 203, 204, 205, 213, 250, 251, 252, 253, 254, 255, 260, 275; **MUS**-105, 205, 206

**DIFFERENCE, POWER, AND DISCRIMINATION ELECTIVE**

**HST**-201, 202, 203; **SOC**-225

**BIOLOGICAL SCIENCE ELECTIVE**

**ASC**-200, 201, 202; **BI**-101, 102, 103, 204, 211, 212, 213, 234; **ESR**-171, 172, 173; **Z**-201, 202, 203

*Continued*

*Engineering continued…*

## *Emphasis in Ecological Engineering*

### PROGRAM REQUIREMENTS – FIRST YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| COMM-111 | Public Speaking | 4 |
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| WR-121 | English Composition | 4 |
| **WINTER TERM** | | |
| CH-221 | General Chemistry | 5 |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |
| — — | Social Processes Elective | 4 |
| **SPRING TERM** | | |
| CH-222 | General Chemistry | 5 |
| MTH-254 | Vector Calculus | 5 |
| WR-227 | Technical Report Writing | 4 |
| **SUMMER TERM** | | |
| CH-223 | General Chemistry | 5 |
| MTH-256 | Differential Equations | 4 |

### PROGRAM REQUIREMENTS – SECOND YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| BI-211 | General Biology for Science Majors (Cellular Biology) | 5 |
| ENGR-211 | Statics | 4 |
| PH-211 | General Physics with Calculus | 5 |
| **WINTER TERM** | | |
| BI-212 | General Biology for Science Majors (Animal Biology) | 5 |
| MTH-253 | Calculus III | 5 |
| PH-212 | General Physics with Calculus | 5 |
| **SPRING TERM** | | |
| BI-213 | General Biology for Science Majors (Plant Biology & Ecology) | 5 |
| ENGR-213 | Strength of Materials | 4 |
| PH-213 | General Physics with Calculus | 5 |
| — — | Western Culture elective | 4 |
| *Credits required for degree* | | *103* |

#### SOCIAL PROCESSES ELECTIVE

**ANT**-103; **EC**-201, 202, 230; **HST**-101, 102, 103; **PS**-201, 202, 204, 205, 225; **PSY**-110, 200, 205, 219, 231; **SOC**-204, 205, 206

#### WESTERN CULTURE ELECTIVE

**ART**-204, 205, 206; **ENG**-107, 108, 109, 201, 202, 203, 204, 205, 250, 251, 253, 254, 255, 275; **GEO**-122, 208, 230; **HST**-101, 102, 103, 201, 202, 203; **PHL**-102, 215; **PS**-206; **R**-204

Optional: While not required for the AS degree, students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Oregon State University. The Bachelor of Science degree requires the completion of one course from each category below.

#### CULTURAL DIVERSITY ELECTIVE

**ANT**-230, 231, 232; **ENG**-210, 213, 252; **GEO**-110, 121, 230; **R**-101, 102, 103, 210

#### LITERATURE AND THE ARTS ELECTIVE

**ART**-101, 102, 103, 204, 205, 206, 211, 212, 213; **DMC**-194; **ENG**-104, 105, 106, 107, 108, 109, 194, 195, 201, 202, 203, 204, 205, 213, 250, 251, 252, 253, 254, 255, 260, 275; **MUS**-105, 205, 206

#### DIFFERENCE, POWER, AND DISCRIMINATION ELECTIVE

**HST**-201, 202, 203; **SOC**-225

#### BIOLOGICAL SCIENCE ELECTIVE

**ASC**-200, 201, 202; **BI**-101, 102, 103, 204, 211, 212, 213, 234; **ESR**-171, 172, 173; **Z**-201, 202, 203

#### PHYSICAL EDUCATION ELECTIVE

**HPE**-295

## *Emphasis in Electrical Engineering*

### PROGRAM REQUIREMENTS – FIRST YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| CS-161 | Computer Science I | 4 |
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| WR-121 | English Composition | 4 |
| **WINTER TERM** | | |
| CH-221 | General Chemistry | 5 |
| CS-162 | Computer Science II | 4 |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |
| **SPRING TERM** | | |
| CS-260 | Data Structures | 4 |
| MTH-253 | Calculus III | 5 |
| WR-227 | Technical Report Writing | 4 |
| — — | Social Processes elective | 4 |
| **SUMMER TERM** | | |
| COMM-111 | Public Speaking | 4 |
| MTH-256 | Differential Equations | 4 |

### PROGRAM REQUIREMENTS – SECOND YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| ENGR-221 | Electrical Circuit Analysis | 4 |
| MTH-254 | Vector Calculus | 5 |
| PH-211 | General Physics with Calculus | 5 |
| **WINTER TERM** | | |
| CS-250 | Discrete Structures | 4 |
| ENGR-171 | Digital Logic | 4 |
| ENGR-222 | Electrical Circuit Analysis II | 4 |
| PH-212 | General Physics with Calculus | 5 |
| **SPRING TERM** | | |
| ENGR-223 | Electrical Circuit Analysis III | 4 |
| PH-213 | General Physics with Calculus | 5 |
| — — | Western Culture elective | 4 |
| *Credits required for degree* | | *102* |

#### SOCIAL PROCESSES ELECTIVE

**ANT**-103; **EC**-201, 202, 230; **HST**-101, 102, 103; **PS**-201, 202, 204, 205, 225; **PSY**-110, 200, 205, 219, 231; **SOC**-204, 205, 206

#### WESTERN CULTURE ELECTIVE

**ART**-204, 205, 206; **ENG**-107, 108, 109, 201, 202, 203, 204, 205, 250, 251, 253, 254, 255, 275; **GEO**-122, 208, 230; **HST**-101, 102, 103, 201, 202, 203; **PHL**-102, 215; **PS**-206; **R**-204

Optional: While not required for the AS degree, students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Oregon State University. The Bachelor of Science degree requires the completion of one course from each category below.

**CULTURAL DIVERSITY ELECTIVE**

**ANT**-230, 231, 232; **ENG**-210, 213, 252; **GEO**-110, 121, 230; **R**-101, 102, 103, 210

**LITERATURE AND THE ARTS ELECTIVE**

**ART**-101, 102, 103, 204, 205, 206, 211, 212, 213; **DMC**-194; **ENG**-104, 105, 106, 107, 108, 109, 194, 195, 201, 202, 203, 204, 205, 213, 250, 251, 252, 253, 254, 255, 260, 275; **MUS**-105, 205, 206

**DIFFERENCE, POWER, AND DISCRIMINATION ELECTIVE**

**HST**-201, 202, 203; **SOC**-225

**BIOLFOGICAL SCIENCE ELECTIVE**

**ASC**-200, 201, 202; **BI**-101, 102, 103, 204, 211, 212, 213, 234; **ESR**-171, 172, 173; **Z**-201, 202, 203

**PHYSICAL EDUCATION ELECTIVE**

**HPE**-295

## *Emphasis in Energy Systems Engineering*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| CH-221 | General Chemistry | 5 |
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| WR-121 | English Composition | 4 |
| **WINTER TERM** | | |
| CH-222 | General Chemistry | 5 |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |
| **SPRING TERM** | | |
| COMM-111 | Public Speaking | 4 |
| EC-201 | Principles of Economics: MICRO | 4 |
| MTH-253 | Calculus III | 5 |
| WR-227 | Technical Report Writing | 4 |
| **SUMMER TERM** | | |
| MTH-256 | Differential Equations | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| BA-211 | Financial Accounting I | 4 |
| ENGR-211 | Statics | 4 |
| ENGR-221 | Electrical Circuit Analysis | 4 |
| PH-211 | General Physics with Calculus | 5 |
| **WINTER TERM** | | |
| ENGR-212 | Dynamics | 4 |
| ENGR-222 | Electrical Circuit Analysis II | 4 |
| PH-212 | General Physics with Calculus | 5 |
| **SPRING TERM** | | |
| MTH-254 | Vector Calculus | 5 |
| PH-213 | General Physics with Calculus | 5 |
| — — | Engineering elective | 3-4 |
| — — | Western Culture elective | 4 |
| *Credits required for degree* | | *98-99* |

**ENGINEERING ELECTIVE**

**ENGR**-115, 213, 223

**WESTERN CULTURE ELECTIVE**

**ART**-204, 205, 206; **ENG**-107, 108, 109, 201, 202, 203, 204, 205, 250, 251, 253, 254, 255, 275; **GEO**-122, 208, 230; **HST**-101, 102, 103, 201, 202, 203; **PHL**-102, 215; **PS**-206; **R**-204

Optional: While not required for the AS degree, students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Oregon State University. The Bachelor of Science degree requires the completion of one course from each category below.

**CULTURAL DIVERSITY ELECTIVE**

**ANT**-230, 231, 232; **ENG**-210, 213, 252; **GEO**-110, 121, 230; **R**-101, 102, 103, 210

**LITERATURE AND THE ARTS ELECTIVE**

**ART**-101, 102, 103, 204, 205, 206, 211, 212, 213; **DMC**-194; **ENG**-104, 105, 106, 107, 108, 109, 194, 195, 201, 202, 203, 204, 205, 213, 250, 251, 252, 253, 254, 255, 260, 275; **MUS**-105, 205, 206

**DIFFERENCE, POWER, AND DISCRIMINATION ELECTIVE**

**HST**-201, 202, 203; **SOC**-225

**BIOLOGICAL SCIENCE ELECTIVE**

**ASC**-200, 201, 202; **BI**-101, 102, 103, 204, 211, 212, 213, 234; **ESR**-171, 172, 173; **Z**-201, 202, 203

**PHYSICAL EDUCATION ELECTIVE**

**HPE**-295

## *Emphasis in Environmental Engineering*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| WR-121 | English Composition | 4 |
| — — | Social Processes elective | 4 |
| **WINTER TERM** | | |
| CH-221 | General Chemistry | 5 |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |
| WR-227 | Technical Report Writing | 4 |
| **SPRING TERM** | | |
| CH-222 | General Chemistry | 5 |
| ENGR-115 | Engineering Graphics | 3 |
| MTH-254 | Vector Calculus | 5 |
| — — | Western Culture elective | 4 |
| **SUMMER TERM** | | |
| CH-223 | General Chemistry | 5 |
| COMM-111 | Public Speaking | 4 |
| MTH-256 | Differential Equations | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| CH-241 | Organic Chemistry I | 5 |
| ENGR-211 | Statics | 4 |
| PH-211 | General Physics with Calculus | 5 |

*Continued*

*Engineering continued…*

**WINTER TERM**

| | | |
|---|---|---|
| CH-242 | Organic Chemistry II | 5 |
| ENGR-212 | Dynamics | 4 |
| PH-212 | General Physics with Calculus | 5 |

**SPRING TERM**

| | | |
|---|---|---|
| CH-243 | Organic Chemistry III | 5 |
| ENGR-213 | Strength of Materials | 4 |
| MTH-253 | Calculus III | 5 |
| PH-213 | General Physics with Calculus | 5 |
| *Credits required for degree* | | *110* |

**SOCIAL PROCESSES ELECTIVE**

**ANT**-103; **EC**-201, 202, 230; **HST**-101,102,103; **PS**-201, 202, 204, 205, 225; **PSY**-110, 200, 205, 219, 231; **SOC**-204, 205, 206

**WESTERN CULTURE ELECTIVE**

**ART**-204, 205, 206; **ENG**-107, 108,109, 201, 202, 203, 204, 205, 250, 251, 253, 254, 255, 275; **GEO**-122, 208, 230; **HST**-101, 102, 103, 201, 202, 203; **PHL**-102, 215; **PS**-206; **R**-204.

Optional: While not required for the AS degree, students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Oregon State University. The Bachelor of Science degree requires the completion of one course from each category below.

**CULTURAL DIVERSITY ELECTIVE**

**ANT**-230, 231, 232; **ENG**-210, 213, 252; **GEO**-110, 121, 230; **R**-101, 102, 103, 210

**LITERATURE AND THE ARTS ELECTIVE**

**ART**-101, 102, 103, 204, 205, 206, 211, 212, 213; **DMC**-194; **ENG**-104, 105, 106, 107, 108, 109, 194, 195, 201, 202, 203, 204, 205, 213, 250, 251, 252, 253, 254, 255, 260, 275; **MUS**-105, 205, 206

**DIFFERENCE, POWER, AND DISCRIMINATION ELECTIVE**

**HST**-201, 202, 203; **SOC**-225

**BIOLOGICAL SCIENCE ELECTIVE**

**ASC**-200, 201, 202; **BI**-101, 102, 103, 204, 211, 212, 213, 234; **ESR**-171, 172, 173; **Z**-201, 202, 203

**PHYSICAL EDUCATION ELECTIVE**

**HPE**-295

## *Emphasis in Industrial/Manufacturing Engineering*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| COMM-111 | Public Speaking | 4 |
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| WR-121 | English Composition | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| CH-221 | General Chemistry | 5 |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |

**SPRING TERM**

| | | |
|---|---|---|
| CH-222 | General Chemistry | 5 |
| ENGR-115 | Engineering Graphics | 3 |
| MTH-254 | Vector Calculus | 5 |
| WR-227 | Technical Report Writing | 4 |

**SUMMER TERM**

| | | |
|---|---|---|
| MTH-256 | Differential Equations | 4 |
| — — | Social Processes elective | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ENGR-211 | Statics | 4 |
| PH-211 | General Physics with Calculus | 5 |
| — — | Western Culture elective | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| ENGR-212 | Dynamics | 4 |
| MTH-253 | Calculus III | 5 |
| PH-212 | General Physics with Calculus | 5 |

**SPRING TERM**

| | | |
|---|---|---|
| ENGR-213 | Strength of Materials | 4 |
| ENGR-221 | Electrical Circuit Analysis | 4 |
| PH-213 | General Physics with Calculus | 5 |
| *Credits required for degree* | | *94* |

**SOCIAL PROCESSES ELECTIVE**

**ANT**-103; **EC**-201, 202, 230; **HST**-101, 102, 103; **PS**-201, 202, 204, 205, 225; **PSY**-110, 200, 205, 219, 231; **SOC**-204, 205, 206

**WESTERN CULTURE ELECTIVE**

**ART**-204, 205, 206; **ENG**-107, 108, 109, 201, 202, 203, 204, 205, 250, 251, 253, 254, 255, 275; **GEO**-122, 208, 230; **HST**-101, 102, 103, 201, 202, 203; **PHL**-102, 215; PS-206; **R**-204.

Optional: While not required for the AS degree, students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Oregon State University. The Bachelor of Science degree requires the completion of one course from each category below.

**CULTURAL DIVERSITY ELECTIVE**

**ANT**-230, 231, 232; **ENG**-210, 213, 252; **GEO**-110, 121, 230; **R**-101, 102, 103, 210

**LITERATURE AND THE ARTS ELECTIVE**

**ART**-101, 102, 103, 204, 205, 206, 211, 212, 213; **DMC**-194; **ENG**-104, 105, 106, 107, 108, 109, 194, 195, 201, 202, 203, 204, 205, 213, 250, 251, 252 , 253, 254, 255, 260, 275; **MUS**-105, 205, 206

**DIFFERENCE, POWER, AND DISCRIMINATION ELECTIVE**

**HST**-201, 202, 203; **SOC**-225

**BIOLOGICAL SCIENCE ELECTIVE**

**ASC**-200, 201, 202; **BI**-101, 102, 103, 204, 211, 212, 213, 234; **ESR**-171, 172, 173; **Z**-201, 202, 203

**PHYSICAL EDUCATION ELECTIVE**

**HPE**-295

## *Emphasis in Mechanical Engineering*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| COMM-111 | Public Speaking | 4 |
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| WR-121 | English Composition | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| CH-221 | General Chemistry | 5 |
| EC-201 | Principles of Economics: MICRO | |
| or EC-202 | Principles of Economics: MACRO | 4 |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |

**SPRING TERM**

| | | |
|---|---|---|
| CH-222 | General Chemistry | 5 |
| ENGR-115 | Engineering Graphics | 3 |
| MTH-254 | Vector Calculus | 5 |
| WR-227 | Technical Report Writing | 4 |

**SUMMER TERM**

| | | |
|---|---|---|
| MTH-256 | Differential Equations | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ENGR-211 | Statics | 4 |
| ENGR-221 | Electrical Circuit Analysis | 4 |
| PH-211 | General Physics with Calculus | 5 |
| — — | Western Culture Elective | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| ENGR-212 | Dynamics | 4 |
| ENGR-222 | Electrical Circuit Analysis II | 4 |
| PH-212 | General Physics with Calculus | 5 |

**SPRING TERM**

| | | |
|---|---|---|
| ENGR-213 | Strength of Materials | 4 |
| MTH-253 | Calculus III | 5 |
| PH-213 | General Physics with Calculus | 5 |
| *Credits required for degree* | | *98* |

**WESTERN CULTURE ELECTIVE**

**ART**-204, 205, 206; **ENG**-107, 108, 109, 201, 202, 203, 204, 205, 250, 251, 253, 254, 255, 275; **GEO**-122, 208, 230; **HST**-101, 102, 103, 201, 202, 203; **PHL**-102, 215; **PS**-206; **R**-204.

Optional: While not required for the AS degree, students may complete additional coursework at CCC that will meet requirements for the Bachelor of Science degree at Oregon State University. The Bachelor of Science degree requires the completion of one course from each category below.

**CULTURAL DIVERSITY ELECTIVE**

**ANT**-230, 231, 232; **ENG**-210, 213, 252; **GEO**-110, 121, 230; **R**-101, 102, 103, 210

**LITERATURE AND THE ARTS ELECTIVE**

**ART**-101, 102, 103, 204, 205, 206, 211, 212, 213; **DMC**-194; **ENG**-104, 105, 106, 107, 108, 109, 194, 195, 201, 202, 203, 204, 205, 213, 250, 251, 252, 253, 254, 255, 260, 275; **MUS**-105, 205, 206

**DIFFERENCE, POWER, AND DISCRIMINATION ELECTIVE**

**HST**-201, 202, 203; **SOC**-225

**BIOLOGICAL SCIENCE ELECTIVE**

**ASC**-200, 201, 202; **BI**-101, 102, 103, 204, 211, 212, 213, 234; **ESR**-171, 172, 173; **Z**-201, 202, 203

**PHYSICAL EDUCATION ELECTIVE**

**HPE**-295

## *Associate of Science with an emphasis in Engineering with Oregon Institute of Technology (Oregon Tech)*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| CH-221 | General Chemistry | 5 |
| COMM-111 | Public Speaking | 4 |
| MTH-251 | Calculus I | 5 |
| WR-121 | English Composition | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| COMM-219 | Small Group Communications | 4 |
| CH-222 | General Chemistry | 5 |
| MTH-252 | Calculus II | 5 |
| WR-122 | English Composition | 4 |

**SPRING TERM**

| | | |
|---|---|---|
| WR-227 | Technical Writing | 4 |
| — — | Social Science elective | 4 |
| — — | Track Requirement | 8 |

**SUMMER TERM**

| | | |
|---|---|---|
| — — | Track Requirement | 8 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ENGR-221 | Electrical Circuit Analysis | 4 |
| MTH-254 | Vector Calculus | 5 |
| PH-211 | General Physics with Calculus | 5 |

**WINTER TERM**

| | | |
|---|---|---|
| ENGR-222 | Electrical Circuit Analysis II | 4 |
| MTH-256 | Differential Equations | 4 |
| PH-212 | General Physics with Calculus | 5 |

**SPRING TERM**

| | | |
|---|---|---|
| ENGR-223 | Electrical Circuit Analysis III | 4 |
| MTH-261 | Linear Algebra | 4 |
| PH-213 | General Physics with Calculus | 5 |
| — — | Track Requirement | 4 |
| *Credits required for degree* | | *104* |

**TRACK REQUIREMENTS**

**ELECTRICAL**

| | | |
|---|---|---|
| CS-161 | Computer Science I | 4 |
| ENGR-171 | Digital Logic | 4 |
| ENGR-271 | Digital Systems | 4 |
| MTH-253 | Calculus III | 5 |

**RENEWABLE ENERGY**

| | | |
|---|---|---|
| EC-201 | Principles of Economics: MICRO | 4 |
| or EC-202 | Principles of Economics: MACRO | 4 |
| ENGR-211 | Statics | 4 |
| GIS-201 | Introduction to Geographic Information System | 3 |
| MTH-243 | Statistics I | 4 |
| MTH-244 | Statistics II | 4 |
| RET-200 | Renewable Energy Systems | 4 |

*Continued*

*Engineering continued…*

### SOCIAL SCIENCE ELECTIVES

**ANT**-101, 102, 103, 231, 232; **EC**-200, 201, 202; **GEO**-100, 110, 121, 122, 130, 230; **HST**-101, 102, 103, 130, 131, 132, 136, 137, 138, 201, 202, 203, 210, 220, 239; 200, 201, 203, 204, 205, 206, 225, 297; **PSY**-101, 110, 200, 205, 214, 215, 219, 221, 231, 240; **SSC**-160, 170, 171, 172, 180, 181, 182, 233, 235, 240, 241, 242; **SOC**-204, 205, 206, 210, 225; **WS**-101

Recommended: 2 additional Arts & Letters/Humanities electives

### ARTS & LETTERS/HUMANITIES

**ART**-101, 102, 103, 115, 116, 117, 131, 132, 133, 195, 204, 205, 206, 225, 226, 227, 250, 251, 252, 253, 254, 255, 281, 282, 283, 284, 285, 286, 291, 292, 293; **ASL**-201, 202, 203; **BA**-130; **COMM**-105, 126, 140, 212, 218, 219, 227; **DMC**-195; **ENG**-100, 104, 105, 106, 107, 108, 109, 116, 121, 130, 195, 201, 202, 204, 205, 213, 214, 218, 226, 240, 241, 242, 250, 251, 252, 253, 254, 266, 270, 275; **FR**-201, 202, 203, 211; **GER**-201, 202, 203; **HUM**-160, 170, 171, 172, 180, 181, 182, 233, 235, 240, 241, 242; **J**-211; **MUS**-105, 111, 112, 113, 205, 206, 211, 212, 213; **PHL**-101, 102, 103, 205, 210, 213, 215; **SPN**-201, 202, 203; **TA**-101, 102, 103, 141, 142, 143; **WR**-220, 241, 242, 243, 244, 245, 248, 262, 263, 265, 270

## *Associate of Science with an emphasis in Engineering with George Fox University*

### PROGRAM REQUIREMENTS – FIRST YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| CH-221 | General Chemistry | 5 |
| ENGR-111 | Introduction to Engineering | 3 |
| MTH-251 | Calculus I | 5 |
| **WINTER TERM** | | |
| CH-222 | General Chemistry | 5 |
| CS-162 | Introduction to Computer Science II | 4 |
| ENGR-112 | Engineering Programming | 3 |
| MTH-252 | Calculus II | 5 |
| — — | Engineering Elective | 4 |
| **SPRING TERM** | | |
| ENGR-115 | Engineering Graphics | 3 |
| MTH-243 | Statistics I | 4 |
| MTH-253 | Calculus III | 5 |
| WR-121 | English Composition | 4 |
| **SUMMER TERM** | | |
| EC-201 or EC-202 | Principles of Economics: MICRO or Principles of Economics: MACRO | 4 |
| WR-122 | English Composition | 4 |

### PROGRAMMING REQUIREMENTS – SECOND YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| ENGR-221 | Electrical Circuit Analysis | 4 |
| MTH-254 | Vector Calculus | 5 |
| PH-211 | General Physics with Calculus | 5 |
| ----- | Engineering Elective | 4 |
| **WINTER TERM** | | |
| COMM-111 | Public Speaking | 4 |
| ENGR-222 | Electrical Circuit Analysis II | 4 |
| MTH-256 | Differential Equations | 4 |
| PH-212 | General Physics with Calculus | 5 |
| **SPRING TERM** | | |
| HPE-295 | Health & Fitness for Life | 3 |
| MTH-261 | Linear Algebra | 4 |
| PH-213 | General Physics with Calculus | 5 |
| — — | Social Science elective | 4 |
| *Credits required for degree* | | *105* |

### ELECTIVES

The Engineering degree general education requirements differ from the general education requirements for other students (fewer credits are required.) An engineering major must complete the following before graduation.

- 6 credits Social Science (note that the EC-201 or 202 counts toward this requirement.) Also, one of the following is required for engineering majors: PS-200, PSY-110, SOC-204.
- 8-9 credits Humanities/Arts & Letters. Each course must be in a different area of the Humanities/Arts & Letters.
- 3 credits Global and Cultural Understanding.
- 6 credits in Communications (note that WR-121, WR-122 and COMM-111 are already listed above and together meet the requirement.)

A student may transfer a maximum of 64 semester credits to George Fox University.

# English

The Associate of Science degree with an emphasis in English is for students interested in transferring a bachelor's degree to Marylhurst University, Oregon State University, Portland State University, or University of Oregon with an emphasis in Literature, Creative Writing, Comics, or Publishing.

Reading and writing skills have never been as central to our lives as they are today. Within the course of one day or one hour, we are bombarded with information on our televisions, computer screens, and telephones. We write socially, creatively, professionally, and/or academically, and we do so on a phone, a tablet, a desktop, or a physical piece of paper. An AS degree in English offers an array of opportunities. We offer four focus areas, including studies in English Literature, Creative Writing, Comics, and Publishing to prepare students to navigate the world of images and words.

Where can a degree in English take you? The possible answers to that question lie in the skills that you gain through focusing on reading and writing, thinking and words. English majors graduate with the ability to analyze the words of others, think both critically and creatively, research ideas and argue important positions, and organize their own thoughts into effective and articulate forms from web content to grant applications, business proposals to novels. Because of these skills, the National Association of Colleges and Employers has ranked English as one of the top-paying liberal arts majors, with average starting salaries above $40,000, and often rising much higher in the ten years after graduating.

The employment opportunities that accompany an English major are myriad. One obvious example is the field of publishing. But English majors rarely stop at the obvious. Their skills apply equally well to the fields of public relations, marketing, advertising, and copywriting. In a business setting, English majors often find success as communications managers, web developers, researchers, project leaders, or administrators. If you want your words to reach the lives of others, English might guide you to the areas of law, government, and public policy. For those who truly love filling a blank page, English can lead into creative writing, speech writing, professional blogging, or technical writing. And the careers of professional writer, librarian, and teacher are ideal if you find that your love of English is uncontainable and must be shared.

### PROGRAM OUTCOMES

Upon successful completion of this program, students should be able to:

- identify research methods appropriate for specific topics,
- interpret and analyze a variety of texts based on close reading and analysis,
- construct sound academic arguments that prove an understanding of rhetorical conventions and diverse audiences,
- rewrite and edit work after reflection upon peer and instructor feedback,
- collaborate with peers on writing projects and presentations.
- Creative writing and publishing students will additionally be able to:
- complete a short play, screenplay, series of poems, collection of creative nonfiction pieces, compilation of short stories, and/or text for a graphic novel,
- demonstrate an understanding of independent publishing and production,
- discover and/or create opportunities for professional publishing and production.

## *Associate of Science with an emphasis in English with Marylhurst University*

### PROGRAM REQUIREMENTS – FIRST YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| ENG-204 | Survey of English Literature, Part 1 | |
| or ENG-107 | World Literature, Ancient | |
| or ENG — | One course from Program Electives: ENG prefix | 4 |
| MTH-105 | Introduction to Contemporary Math or higher | 4 |
| WR-121 | English Composition | 4 |
| WR-140 | Introduction to Creative Writing | 4 |

| WINTER TERM | | |
|---|---|---|
| ENG-205 | Survey of English Literature, Part 2 | |
| or ENG-108 | World Literature: Medieval through Enlightenment | |
| or ENG — | One course from Program Electives: ENG prefix | 4 |
| — — | One course from Sustainability & Science options | 4 |
| WR-122 | English Composition | 4 |
| — — | One course from Community & Global Engagement options | 4 |

| SPRING TERM | | |
|---|---|---|
| COMM-111 | Public Speaking | 4 |
| ENG-270* | Introduction to Literary Criticism | 4 |
| — — | One course from Sustainability & Science options | 4 |
| WR-222 | Research Writing | 4 |

### PROGRAM REQUIREMENTS – SECOND YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| ENG-201 | Shakespeare, Part 1 | |
| or ENG — | One course from Program Electives: ENG prefix | 4 |
| — — | One course from Creating the Arts Option | 4 |
| — — | Track Requirement | 8 |

| WINTER TERM | | |
|---|---|---|
| ENG-253 | American Literature, Part 2 | |
| or ENG-202 | Shakespeare, Part 2 | |
| or ENG — | One course from Program Electives: ENG prefix | 4 |
| — — | English Program Elective | 4 |
| ENG-213 | Latino Literature | |
| or ENG-260 | Women's Literature | |
| or SSC-231 | Engendered Identities | |
| or HUM-231 | Engendered Identities | |
| or WS-101 | Introduction to Women's Studies | 4 |
| — — | Track Requirement | 4 |

| SPRING TERM | | |
|---|---|---|
| ENG or WR | English Program Elective | 4 |
| ENG or WR | Track Requirement | 4 |
| ENG-297 | AS Degree Portfolio | 1 |
| — — | One course from Values & Beliefs Options | 4 |
| *Credits required for degree* | | *93* |

### ENGLISH PROGRAM ELECTIVES

8 credits from the following list: **ENG**-116, 121, 130, 194, 195, 213, 214, 216, 217, 218, 225, 226, 240, 241, 242, 250, 251, 252, 255, 260, 261, 266, 295, 296, **WR**-220, 227, 240, 241, 242, 243, 244, 245, 246, 262, 263

### TRACK REQUIREMENTS

#### LITERATURE

12 credits from the following: **ENG**-116, 121, 130, 194, 195, 213, 214, 216, 217, 218, 225, 226, 240, 241, 242, 250, 251, 252, 255, 260, 261, 266, 295, 296

#### CREATIVE WRITING

**WR**-246 and 8 credits from the following: **WR**-220, 240, 241, 242, 243, 244, 245, 262, 263, 265, 270

#### PUBLISHING

**WR**-246 and 8 credits from the following: **ART**-115,131, 132, 133; **WR**-220, 240, 241, 242, 243, 244, 245, 248, 250, 262, 263, 265, 270

*Continued*

*English continued…*

**SUSTAINABILITY & SCIENCE REQUIREMENTS**

One course from **ESR**-171, 172, 173; **GEO**-130, **CH**-104,105, 106, 221, 222, 223, 241, 242, 243; **PH**-201, 202, 203, 211, 212, 213

**COMMUNITY & GLOBAL ENGAGEMENT REQUIREMENTS**

One course from **HST**-138; **PS**-205, 225; **PSY**-110, 200, 205, 214, 215, 219, 221, 231, 240; **SOC**-210; **SSC**-170, 242

**CREATING THE ARTS REQUIREMENTS**

One course from **ART**-106, 107, 108, 115, 116, 117, 131, 132, 133, 161, 162, 163, 194, 195, 221, 222, 225, 226, 227, 250, 251, 252, 253, 254, 255, 262, 281, 282, 283, 284, 285, 286, 291, 292, 294; **CS**-125H, 135I; **DMC**-104, 205, 230, 250, 264, 265; **MUP**-105, 205; **MUS**-111, 112, 113, 122, 221, 212, 213, 222, 247; **TA**-111, 112, 113, 141, 142, 143, 153, 195, 211, 212, 213, 241, 242, 243, 253, 295; **WR**-268

**VALUES & BELIEFS REQUIREMENTS**

One course from **CJA**-223; **PHL**-102, 205, 210; **R**-101, 102, 103, 204, 210, 211, 212; **SSC**-160

## *Associate of Science with an emphasis in English with Oregon State University*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ASL-101 | First-Year American Sign Language I | |
| or FR-101 | First-Year French I | |
| or SPN-101 | First-Year Spanish I | 4 |
| HPE-295 | Health and Fitness for Life | 3 |
| WR-121 | English Composition | 4 |
| — — | Biological Science elective | 4 |
| **WINTER TERM** | | |
| ASL-102 | First-Year Sign Language II | |
| or FR-102 | First-Year French II | |
| or SPN-102 | First-Year Spanish III | 4 |
| MTH-105 | Introduction to Contemporary Math | 4 |
| WR-122 | English Composition | 4 |
| — — | 200-level English elective | 4 |
| **SPRING TERM** | | |
| ART-204 | History of Western Art | |
| or ART-205 | History of Western Art | |
| or ART-206 | History of Western Art | |
| or MUS-105 | Music Appreciation | 3-4 |
| ASL-103 | First-Year American Sign Language III | |
| or FR-103 | First-Year French III | |
| or SPN-103 | First-Year Spanish III | 4 |
| — — | 200-level English elective | 4 |
| — — | Physical Science elective | 4-5 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ASL-201 | Second-Year American Sign Language I | |
| or FR-201 | Second-Year French I | |
| or SPN-201 | Second-Year Spanish I | 4 |
| — — | 200-Level English sequence | |
| or | 200-Level English elective | 4 |
| — — | Biological Science | |
| or | Physical Science | 4-5 |
| — — | Speech Elective | 4 |
| **WINTER TERM** | | |
| ASL-202 | Second-Year American Sign Language II | |
| or FR-202 | Second-Year French II | |
| or SPN-202 | Second-Year Spanish II | 4 |
| — — | 200-Level English sequence | 4 |
| — — | Cultural Diversity elective | 4 |
| — — | Social Processes/Institutions elective | 4 |
| **SPRING TERM** | | |
| ASL-203 | Second-Year American Sign Language III | |
| or FR-203 | Second-Year French III | |
| or SPN-203 | Second-Year Spanish III | 4 |
| HST-201 | History of the United States | |
| or HST-202 | History of the United States | |
| or HST-203 | History of the United States | |
| or SOC-225 | Social Problems | 4 |
| — — | 200-Level sequence | |
| or | 200-Level English elective | 4 |
| — — | Western Culture electives | 4 |
| *Credits required for degree* | | *94-97* |

Note: Prerequisites for second year world languages: Either two years of high school world languages, OR, one year of college 100-level courses ASL, FR, or SPN-101, 102, 103.

**BIOLOGICAL SCIENCE ELECTIVES**

**BI**-102, 103, 104, 204, 211, 212, 213, 234

**200-LEVEL ENGLISH ELECTIVES**

**ENG**-201, 202, 204, 205, 253, 254

**PHYSICAL SCIENCE ELECTIVES**

**G**-101, 102, 103, 201, 202, 203; **GS**-107; **PH**-121, 122, 123, 201, 202, 203, 211, 212, 213; **CH**-221, 222, 223

**ENGLISH SEQUENCE OPTIONS**

**ENG**-204 and **ENG**-205 or **ENG**-253 and **ENG**-254

**SPEECH ELECTIVES**

**COMM**-111, 112, 218; **WR**-241, 242, 243

**CULTURAL DIVERSITY ELECTIVES**

**GEO**-121; **R**-101, 102, 103, 210

**SOCIAL PROCESSES/ INSTITUTIONS ELECTIVES**

**ANT**-103; **EC**-201, 202; **HST**-101, 102, 103; **PS**-201, 204, 205; **PSY**-200, 205; **SOC**-204, 205

**WESTERN CULTURE ELECTIVES**

**ART**-204, 205, 206; **GEO**-122, 208; **HST**-101, 102, 103, 201, 202, 203; **PHL**-102; **PS**-203

## *Associate of Science with an emphasis in English with Portland State University*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ASL-101 | First-Year American Sign Language I | |
| or FR-101 | First-Year French I | |
| or SPN-101 | First-Year Spanish I | 4 |
| ENG-201 | Shakespeare, Part 1 | |
| or ENG-204 | Survey of English Literature, Part 1 | 4 |
| MTH-105 | Introduction to Contemporary Math | 4 |
| WR-121 | English Composition | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| ASL-102 | First-Year American Sign Language I | |
| or FR-102 | First-Year French I | |
| or SPN-102 | First-Year Spanish I | 4 |
| ENG-202 | Shakespeare, Part 2 | |
| or ENG-205 | Survey of English Literature, Part 2 | |
| or ENG-253 | Survey of American Literature, Part 1 | 4 |
| — — | Social Science elective | 4 |
| WR-122 | English Composition | 4 |

**SPRING TERM**

| | | |
|---|---|---|
| ASL-103 | First-Year American Sign Language I | |
| or FR-103 | First-Year French I | |
| or SPN-103 | First-Year Spanish I | 4 |
| — — | Science elective | 4 |
| WR-222 | Research Writing | |
| or WR-140 | Introduction to Writing Creatively | |
| ENG-270 | Introduction to Literary Criticism | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ASL-201 | Second-Year American Sign Language I | |
| or FR-201 | Second-Year French I | |
| or SPN-201 | Second-Year Spanish I | 4 |
| — — | Social Science elective | 4 |
| WR-248 | Self-Publishing Manuscripts | 4 |
| WR — | 200-level Creative Writing Course | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| ASL-202 | Second-Year American Sign Language II | |
| or FR-202 | Second-Year French II | |
| or SPN-202 | Second-Year Spanish II | 4 |
| WR-246 | Advanced Creative Writing: Editing & Publishing | 4 |
| WR-265 | Digital Story-Telling | 4 |
| WR-244 | Advanced Fiction Writing | |
| or WR-245 | Advanced Poetry Writing | |
| or WR-263 | Advanced Screen Writing | 4 |

**SPRING TERM**

| | | |
|---|---|---|
| ASL-203 | Second-Year American Sign Language III | |
| or FR-203 | Second-Year French III | |
| or SPN-203 | Second-Year Spanish III | 4 |
| — — | English Program elective | 8 |
| HD-186 | A Digital You-Building an e-Portfolio | 3 |
| *Credits required for degree* | | *95* |

Note: Prerequisites for second year world languages: Either two years of high school world languages, OR, one year of college 100-level courses **ASL**, **FR**, or **SPN**-101, 102, 103.

**SOCIAL SCIENCE ELECTIVES**

4 credits from the following list:

**ANT**-102; **EC**-201, 202; **GEO**-230; **HST**-101, 102, 103, 201, 202, 203, **PS**-200, 203, 204, 205; **PSY**-101, 205; **SOC**-204; **WS**-101

**SCIENCE ELECTIVES**

4 credits from the following list:

**BI**-101, 102, 103, 112, 234; **CH**-104, 105, 106, 150, 221, 222, 223; **ESR**-171, 172, 173; **G**-201, 202, 203; **PH**-121, 122, 123, 201, 202, 203, 211, 212, 213

**ENGLISH PROGRAM ELECTIVES**

4 credits from the following list if not used already in AS to satisfy the degree requirements:

**ENG**-104, 105, 106, 107, 108, 109, 116, 121, 130, 194, 195, 213, 214, 217, 218, 225, 226, 230, 250, 251, 252, 255, 260, 261, 266, 295, 296; **WR**-200, 270

**200-LEVEL CREATIVE WRITING ELECTIVES**

4 credits from the following list if not used already in AS to satisfy the degree requirements:

**WR**-220, 240, 241, 243, 262

## *Associate of Science with an emphasis in English with University of Oregon*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ASL-101 | First-Year American Sign Language I | |
| or FR-101 | First-Year French I | |
| or SPN-101 | First-Year Spanish I | 4 |
| ENG-107 | World Literature: Ancient | |
| or ENG-201 | Shakespeare I | 4 |
| MTH-105 | Introduction to Contemporary Math | 4 |
| WR-121 | English Composition | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| ASL-102 | First-Year American Sign Language I | |
| or FR-102 | First-Year French I | |
| or SPN-102 | First-Year Spanish I | 4 |
| ENG-208 | World Literature II | |
| or ENG-202 | Shakespeare II | |
| or SS elective | Social Science elective | 4 |
| WR-122 | English Composition | 4 |

**SPRING TERM**

| | | |
|---|---|---|
| ASL-103 | First-Year American Sign Language I | |
| or FR-103 | First-Year French I | |
| or SPN-103 | First-Year Spanish I | 4 |
| SS elective | Social Science elective | 8 |
| WR-200 | Writing About Literature | |
| or WR-140 | Introduction to Writing Creatively | |
| or ENG-270 | Introduction to Literary Criticism | 4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| ASL-201 | Second-Year American Sign Language I | |
| or FR-201 | Second-Year French I | |
| or SPN-201 | Second-Year Spanish I | 4 |
| BI-101 | General Biology; Cellular Biology | |
| or elective | Other Science elective | 4-5 |
| ENG-204 | Survey of English Literature, Part 1 | 4 |
| — — | Track Requirement | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| ASL-202 | Second-Year American Sign Language II | |
| or FR-202 | Second-Year French II | |
| or SPN-202 | Second-Year Spanish II | 4 |
| ENG-253 | American Literature, Part 1 | 4 |
| ENG-205 | British Literature, Part 2 | 4 |
| — — | Track Requirement | 4 |

**SPRING TERM**

| | | |
|---|---|---|
| ASL-203 | Second-Year American Sign Language III | |
| or FR-203 | Second-Year French III | |
| or SPN-203 | Second-Year Spanish III | 4 |
| ENG-254 | American Literature, Part 2 | 4 |
| HD-186 | A Digital You-Building an e-Portfolio | 3 |
| — — | English Program elective | 4 |
| *Credits required for degree* | | *90-93* |

Note: Prerequisites for second year world languages: Either two years of high school world languages, OR, one year of college 100-level courses **ASL**, **FR**, **GER** or **SPN**-101, 102, 103.

*Continued*

*English continued…*

### SOCIAL SCIENCE ELECTIVES

**ANT**-101, 102, 103, 231, 232; **EC**-200, 201, 202; **GEO**-100, 110, 121, 122, 130, 230; **HST**-101, 102, 103, 130, 131, 132, 136, 137, 138, 201, 202, 203, 210, 220, 239; **PS**-200, 201, 203, 204, 205, 206, 225, 297; **PSY**-101, 110, 200, 205, 214, 215, 219, 221, 231, 240; **SSC**-160, 170, 171, 172, 180, 181, 182, 233, 235, 240, 241, 242; **SOC**-204, 205, 206, 210, 225; **WS**-101

### OTHER SCIENCE ELECTIVES

**BI**-102, 103, 112, 160 & 160L, 165C & 165CL, 165D, 165T, 175, 176, 177, 204, 211, 212, 213, 231, 232, 233, 234; **CH**-104, 105, 106, 112, 114, 221, 222, 223

### ENGLISH PROGRAM ELECTIVES

4 credits from the following list if not used already in AS to satisfy the degree requirements:

**ENG**-107, 108, 109, 116, 121, 125, 130, 194, 195, 201, 202, 214, 215, 217, 218, 225, 226, 240, 241, 242, 250, 251, 252, 255, 261, 266, 270, 295, 296; **WR**-227, 244, 245, 246, 263, 270

### TRACK REQUIREMENTS

#### LITERATURE

**ENG**-270 and 8 credits from the following: **ENG**-116, 121, 125, 130, 194, 195, 210, 213, 214, 216, 225, 226, 240, 241, 242, 250, 251, 252, 260, 261, 266, 275, 295, 296

#### CREATIVE WRITING

**WR**-246 and 8 credits from the following: **WR**-220, 240, 241, 242, 243, 244, 245, 262, 263, 265

#### PUBLISHING

4 credits from the following: **ART**-115, 131, 132, 133; **WR**-246 and 4 credits from the following: **ENG**-194, 195, 295, 296; **WR**-265

# Horticulture

Students receiving an Associate of Science with an emphasis in horticulture will be prepared to transfer into upper division courses to complete a Bachelor of Science degree in General Horticulture to Oregon State University. Courses establish a foundation in chemistry, biology and horticulture science/practices.

### PROGRAM OUTCOMES

Upon successful completion of this program, students should be able to:

- communicate complex ideas by demonstrating an ability to gather and analyze data, construct evidence-based arguments and critically evaluate information,
- demonstrate an understanding of how horticulture integrates with contemporary social and environmental issues,
- apply critical thinking to assess a horticulture system: diagnose problems and recommend solutions,
- identify common woody and herbaceous plants in the landscape.

For information contact April Chastain, Horticulture Advisor, 503-594-3055 or *april.chastain@clackamas.edu*

## *Associate of Science with an emphasis in General Horticulture with Oregon State University*

### PROGRAM REQUIREMENTS – FIRST YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| CH-221 | General Chemistry | 5 |
| HOR-226* | Plant Identiication/Fall | 4 |
| WR-121 | English Composition | 4 |
| — — | Horticulture Production & Management electives | 3 |
| **WINTER TERM** | | |
| CH-222 | General Chemistry | 5 |
| WR-122 | English Composition | |
| or WR-227 | Technical Report Writing | 4 |
| — — | Horticulture Production & Management electives | 3 |
| — — | Choose one from the following list: | 3-4 |
| BA-177 | Payroll Accounting (3) | |
| or BA-223 | Principles of Marketing (4) | |
| or BA-250 | Small Business Management (3) | |
| or BA-251 | Supervisory Management (3) | |
| **SPRING TERM** | | |
| CH-223 | General Chemistry | 5 |
| HOR-112 | Horticulture Career Exploration | 2 |
| HOR-228* | Plant Identification/Spring | 4 |
| HPE-295 | Health & Fitness for Life | 3 |
| — — | Horticulture Production & Management electives | 3 |

### PROGRAM REQUIREMENTS – SECOND YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| BI-211 | General Biology for Science Majors (Cellular Biology) | 5 |
| SPN-101 | First-Year Spanish I | 4 |
| — — | Choose one from the following list: | 3-4 |
| ART-204 | History of Western Art (4) | |
| or ART-205 | History of Western Art (4) | |
| or ART-206 | History of Western Art (4) | |
| or ENG-104 | Introduction to Literature: Fiction (4) | |
| or ENG-105 | Introduction to Literature: Drama (4) | |
| or ENG-106 | Introduction to Literature: Poetry (4) | |
| or MUS-105 | Music Appreciation (3) | |
| — — | Choose one from the following list: | 4 |
| HST-201 | History of the United States (4) | |
| or HST-202 | History of the United States (4) | |
| or HST-203 | History of the United States (4) | |
| or SOC-225 | Social Problems (4) | |
| **WINTER TERM** | | |
| BI-212 | General Biology for Science Majors (Animal Biology) | 5 |
| MTH-112 | Trigonometry/Pre-Calculus | 5 |
| — — | Choose one from the following list: | 4 |
| ANT-231 | Indians of the Pacific Northwest (4) | |
| or GEO-110 | Cultural & Human Geography (4) | |
| or R-101 | Comparative Religions (4) | |
| or R-102 | Comparative Religions (4) | |
| or R-103 | Comparative Religions (4) | |
| — — | Choose one from the following list: | 4 |
| EC-201 | Principles of Economics: MICRO (4) | |
| or PS-201 | American Government & Politics (4) | |
| or SOC-206 | Institutions & Social Change (4) | |

**SPRING TERM**

| | | |
|---|---|---|
| BI-213 | General Biology for Science Majors (Plant Biology & Ecology) | 5 |
| COMM-111 or COMM-218 | Public Speaking Interpersonal Communication | 4 |
| HOR-215 | Herbaceous Perennials | 3 |
| HST-103 or PHL-102 | History of Western Civilization Ethics | 4 |
| *Credits required for degree* | | *98-100* |

* HOR-227 may be substituted for HOR-226 or HOR-228. See Horticulture advisor for other possible substitutions

**HORTICULTURE PRODUCTION & MANAGEMENT ELECTIVES**

HOR-122, 123, 124, 131, 220, 224, 225, 231, 236, 237, 240, 246

# Geology

The Associate of Science with an emphasis in Geology prepares students to complete a Bachelor of Science degree in Geology. Courses establish the foundations in understanding of plate tectonics, geologic time, rock and mineral systems, rock and mineral identification, seismology, fossil formation, surface processes, map reading and geologic structures.

## CAREERS

Career pathways include hydrogeology, geological research, geologic hazards, mineral resources, and a wide range of related fields.

## PROGRAM OUTCOMES

Upon successful completion of this program, students should be able to:

- assess geological environments and explain human impact on the environment, hazards associated with them and how these hazards affect society;
- use geologic tools to gather, asses, interpret and explain data relative to a geologic setting, tools include: rocks and minerals, maps, fossils compasses and GPS;
- communicate complex ideas by demonstrating an ability to gather and analyze data, construct evidence-based arguments and critically evaluate information;
- demonstrate an understanding of the basic principles that guide the science of geology, these include: plate tectonics, Earth's structure, seismology, rock and mineral formation, rock and mineral identification, fossil formation, geologic time and dating, surface processes, and Earth's history.

## *Associate of Science degree with an emphasis in Geology with Portland State University*

**PROGRAM REQUIREMENTS – FIRST YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| G-201 & G-201L | General Geology General Geology Lab | 4 |
| MTH-111 | College Algebra | 5 |
| WR-121 | English Composition | 4 |
| **WINTER TERM** | | |
| G-202 & G-202L | General Geology General Geology Lab | 4 |
| MTH-112 | Trigonometry/Pre-Calculus | 5 |
| WR-122 | English Composition | 4 |
| — — | General electives | 3-4 |
| **SPRING TERM** | | |
| COMM-111 | Public Speaking | 4 |
| G-203 & G-203L | General Geology General Geology Lab | 4 |
| MTH-251 | Calculus I | 5 |
| — — | General elective | 3-4 |

**PROGRAM REQUIREMENTS – SECOND YEAR**

| FALL TERM | | CREDITS |
|---|---|---|
| CH-221 | General Chemistry | 5 |
| MTH-252 | Calculus II | 5 |
| — — | Social Science General Education elective | 4 |
| — — | General elective | 3 |
| **WINTER TERM** | | |
| CH-222 | General Chemistry | 5 |
| MTH-261 | Linear Algebra | 4 |
| — — | Social Science General Education elective | 4 |
| — — | General elective | 3 |
| **SPRING TERM** | | |
| CH-223 | General Chemistry | 5 |
| COMM-140 | Introduction to Intercultural Communication | 4 |
| MTH-254 | Vector Calculus | 5 |
| *Credits required for degree* | | *92-94* |

Courses are not always offered during the terms indicated. MTH-254 can be taken in fall and MTH-261 can be taken in spring.

**GENERAL ELECTIVES**

General electives for this requirement can be any college-level course 100 level or above.

Recommended courses that would compliment upper division courses at Portland State University include:

Computer Science (CS-120, 161, or 162)
Math (MTH-253 or 256)
World Languages (SPN, FR, GER, ASL)
Geographic Information Systems (GIS)
Geology (G-145 or 148)
Time permitting also recommended: PH-201, 202, 203, 211, 212 or 213.

**SOCIAL SCIENCE ELECTIVES**

Electives for this requirement can be any Social Science General Education course as listed on page 50 of this catalog.

# Music

The Associate of Science with an emphasis in music is for students interested in transferring into a bachelor's degree program at Portland State University. Students will be prepared to transfer into upper division courses to complete a bachelor of music degree. Courses establish the foundations in understanding of music theory, aural skills, keyboard skills, ensemble playing, music performance and music technology.

### CAREERS

Career pathways include music performance, composition, music education, jazz studies, and a wide range of related fields.

### PROGRAM OUTCOMES

Upon successful completion of this program, students should be able to:

- communicate understanding of the inner workings of musical compositions, relating to theory, form, range, and emotional impact;
- demonstrate proficiency with performance of musical instrument, utilizing standard performance practice of multiple eras and styles;
- use industry software to notate musical examples;
- demonstrate an understanding of the basic principles that guide music, these include: recognition of musical building blocks (pitch, rhythm, intervals, scales, etc.), basic level of keyboard proficiency, four-part composition, analysis of musical examples.

For information contact Lars Campbell, 503-594-3384 or *lars.campbell@clackamas.edu*

## *Associate of Science with an emphasis in Music with Portland State University*

### PROGRAM REQUIREMENTS – FIRST YEAR

| FALL TERM | | CREDITS |
|---|---|---|
| MUP-102 | Wind Ensemble | |
| or MUP-105 | Jazz Ensemble | |
| or MUP-122 | Chamber Choir | |
| or MUP-141 | College Orchestra | 1-2 |
| MUP-171-191 | Individual Lessons | |
| or MUP-171-191J | Individual Lessons/Jazz | 2 |
| MUS-111 | Music Theory I | 3 |
| MUS-111L | Music Notation Software I | 1 |
| MUS-114 | Aural Skills I | 2 |
| MUS-127 | Keyboard Skills I | 2 |
| MUS-189 | Performance & Repertoire | 1 |
| WR-121 | English Composition | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| MUP-102 | Wind Ensemble | |
| or MUP-105 | Jazz Ensemble | |
| or MUP-122 | Chamber Choir | |
| or MUP-141 | College Orchestra | 1-2 |
| MUP-171-191 | Individual Lessons | |
| or MUP-171-191J | Individual Lessons/Jazz | 2 |
| MUS-112 | Music Theory I | 3 |
| MUS-112L | Music Notation Software I | 1 |
| MUS-115 | Aural Skills I | 2 |
| MUS-128 | Keyboard Skills I | 2 |
| MUS-189 | Performance & Repertoire | 1 |
| — — | Math requirement, choose one from the following: | 4-5 |
| MTH-105 | Introduction to Contemporary Math | |
| or MTH-111 | College Algebra | |
| or MTH-112 | Trigonometry/Pre-Calculus | |
| or MTH-251 | Calculus I | |
| or MTH-252 | Calculus II | |

**SPRING TERM**

| | | |
|---|---|---|
| MUP-102 | Wind Ensemble | |
| or MUP-105 | Jazz Ensemble | |
| or MUP-122 | Chamber Choir | |
| or MUP-141 | College Orchestra | 1-2 |
| MUP-171-191 | Individual Lessons | |
| or MUP-171-191J | Individual Lessons/Jazz | 2 |
| MUS-113 | Music Theory | 3 |
| MUS-113L | Music Notation Software I | 1 |
| MUS-116 | Aural Skills I | 2 |
| MUS-129 | Keyboard Skills I | 2 |
| MUS-189 | Performance & Repertoire | 1 |
| WR-122 | English Composition | 4 |

### PROGRAM REQUIREMENTS – SECOND YEAR

**FALL TERM**

| | | |
|---|---|---|
| MUP-202 | Wind Ensemble | |
| or MUP-205 | Jazz Ensemble | |
| or MUP-222 | Chamber Choir | |
| or MUP-241 | College Orchestra | 1-2 |
| MUP-271-291 | Individual Lessons | |
| or MUP-271-291J | Individual Lessons/Jazz | 2 |
| MUS-189 | Performance & Repertoire | 1 |
| MUS-211 | Music Theory II | 3 |
| MUS-211L | Music Notation Software II | 1 |
| MUS-214 | Keyboard Skills II | 2 |
| MUS-224 | Aural Skills II | 2 |
| — — | Arts & Letters General Education elective | 4 |

**WINTER TERM**

| | | |
|---|---|---|
| MUP-202 | Wind Ensemble | |
| or MUP-205 | Jazz Ensemble | |
| or MUP-222 | Chamber Choir | |
| or MUP-241 | College Orchestra | 1-2 |
| MUP-271-291 | Individual Lessons | |
| or MUP-271-291J | Individual Lessons/Jazz | 2 |
| MUS-189 | Performance & Repertoire | 1 |
| MUS-212 | Music Theory II | 3 |
| MUS-212L | Music Notation Software II | 1 |
| MUS-215 | Keyboard Skills II | 2 |
| MUS-225 | Aural skills II | 2 |
| — — | Social Science General Education elective | 4 |
| — — | Science/Math/Computer Science General Education elective | 3 |

**SPRING TERM**

| | | |
|---|---|---|
| MUP-202 | Wind Ensemble | |
| or MUP-205 | Jazz Ensemble | |
| or MUP-222 | Chamber Choir | |
| or MUP-241 | College Orchestra | 1-2 |
| MUP-271-291 | Individual Lessons | |
| or MUP-271-291J | Individual Lessons/Jazz | 2 |
| MUS-189 | Performance & Repertoire | 1 |
| MUS-213 | Music Theory II | 3 |
| MUS-213L | Music Notation Software II | 1 |
| MUS-216 | Keyboard Skills II | 2 |
| MUS-226 | Aural Skills II | 2 |
| — — | Arts & Letters General Education elective | 4 |
| — — | Science/Math/Computer Science General Education elective | 4 |
| *Credits required for degree* | | *103-110* |

Note: For students pursuing a jazz degree, MUP-104 Jazz Combo may be substituted for MUS-189.

**ARTS & LETTERS, SOCIAL SCIENCE, OR SCIENCE/MATH/ COMPUTER SCIENCE GENERAL EDUCATION ELECTIVES**

**ARTS & LETTERS**

**ART**-101, 102, 103, 115, 116, 117, 131, 132, 133. 195, 204, 205, 206, 225, 226, 227, 250, 251, 252, 253, 254, 255, 281, 282, 283, 284, 285, 286, 291, 292, 293; **ASL**-201, 202, 203; **BA**-130; **COMM**-105, 126, 140, 212, 218, 219, 227; **DMC**-195; **ENG**-100, 104, 105, 106, 107, 108, 109, 116, 121, 130, 195, 201, 202, 204, 205, 213, 214, 218, 226, 240, 241, 242, 250, 251, 252, 253, 254, 266, 270, 275; **FR**-201, 202, 203, 211; **HUM**-160, 170,180, 181, 182, 231, 235, 240, 241, 242; **J**-211; **MUS**-105, 111, 112, 113, 205, 206, 211, 212, 213; **PHL**-101, 102, 103, 205, 210, 213, 215; **SPN**-201, 202, 203; **TA**-101, 102, 103, 141, 142, 143; **WR**-220, 241, 242, 243, 244, 245, 248, 262, 263, 265, 270

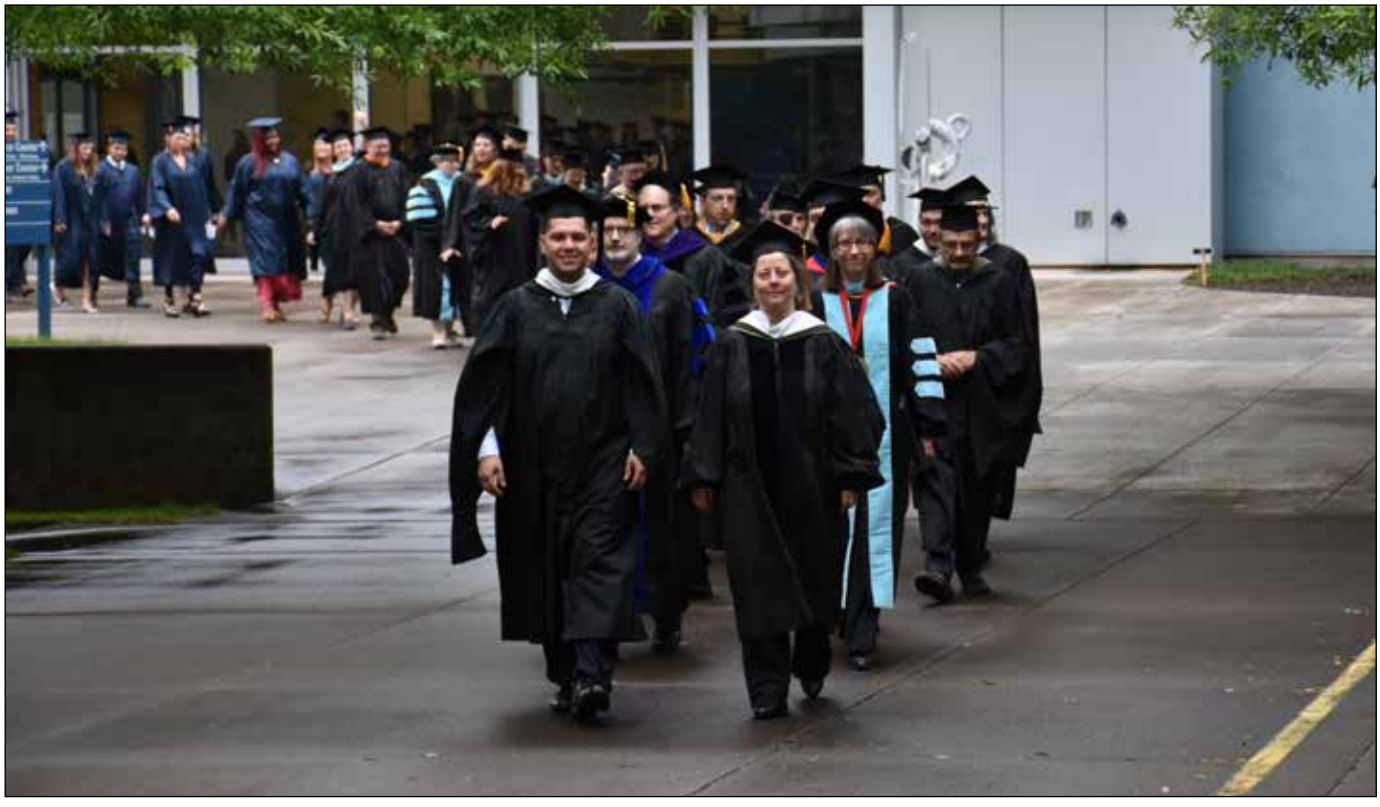
**SOCIAL SCIENCE**

**ANT**-101, 102, 103, 231, 232; **CJA**-101; **EC**-115, 200, 201, 202; **GEO**-100, 110, 121, 122, 130, 208, 230; **HST**-101, 102, 103, 130, 131, 132, 136, 137, 138, 201, 202, 203, 210, 220; **PS**-200, 201, 203, 204, 205, 206, 225, 297; **PSY**-200, 205, 214, 215, 219, 221, 231; **SOC**-204, 205, 206, 210, 225; **SSC**-160, 170,180, 181, 182, 231, 235, 240, 241, 242; **WS**-101

**SCIENCE/MATH/COMPUTER SCIENCE**

**ASC**-175, 176, 177; **BI**-101, 102, 103, 112, 160 & 160L, 165C & 165CL, 165D, 165T, 175, 176, 177, 204, 211, 212, 213, 231, 232, 233, 234; **CH**-104, 105, 106, 112, 114, 221, 222, 223; **ESR**-171, 172, 173; **G**-101, 102, 103, 145, 148, 201, 202, 203; **GS**-104, 105, 106, 107; **MTH**-211, 212, 213, 243, 244, 252*, 253, 254, 256, 261; **PH**-104, 121, 122, 123, 201, 202, 203, 211, 212, 213; **Z**-201, 202, 203

*MTH-252 may be used as an elective requirement in this category if it has not already used for the mathematics requirement in this AS degree.



*Student Guide Worksheet 2017-2018*

# Associate of General Studies Degree (AGS)

| Requirements | Credit/Courses Required |
|---|---|
| **Writing** - 1 course | WR-121 |
| **Communication** - 1 course | COMM-111 or COMM-112 |
| **Mathematics** - 1 course | MTH-065, 080, 095, 098, 105 or higher |
| **Health & Physical Education** - 1 course | Any 100-level course or above with an HE, HPE or PE prefix or MFG-107 |
| **Arts & Letters** - 4 credits | **ART**-101, 102, 103, 115, 116, 117, 131, 132, 133, 194, 195, 204, 205, 206, 225, 226, 227, 250, 251, 252, 253, 254, 255, 281, 282, 283, 284, 285, 286, 291, 292, 293; **ASL**-201, 202, 203 ; **BA**-130 ; **COMM**-105, 126, 140, 212, 218, 219, 227; **DMC**-195; **ENG**-100, 104, 105, 106, 107, 108, 109, 116, 121, 130, 170, 195, 201, 202, 204, 205, 206, 213, 214, 218, 226, 240, 241, 242, 250, 251, 252, 253, 254, 266, 275 ; **FR**-201, 202, 203; **HUM**-160, 170, 180, 181, 182, 231, 235, 240, 241, 242; **J**-211 ; **MUS**-105, 111, 112, 113, 205, 206, 211, 212, 213 ; **PHL**-101, 102, 103, 205, 210, 213, 215 ; **R**-101, 102, 103, 204, 210, 211, 212, 214 ; **SPN**-201, 202, 203; **TA**-101, 102, 103, 141, 142, 143 ; **WR**-220, 241, 242, 243, 244, 245, 248, 262, 265, 263, 270 |
| **Social Science** - 4 credits | **ANT**-101, 102, 103, 230, 231, 232; **CJA**-101, 201; **EC**-200, 201, 202; **GEO**-100, 110, 121, 122, 130, 208, 230; **HST**-101, 102, 103, 136, 137, 138, 201, 202, 203, 210, 220; **PS**-200, 201, 203, 204, 205, 206, 225, 297; **PSY**-200, 205, 214, 215, 219, 221, 231; **SOC**-204, 205, 206, 210, 225; **SSC**-160, 170, 231, 235, 240, 241, 242; **WS**-101 |
| **Science/Math/Computer Science** - 4 credits | **ASC**-175, 176, 177**; BI**-101, 102, 103, 112, 113, 160 & 160L, 165C & 165CL, 165D, 165T, 175, 176, 177, 204, 211, 212, 213, 231, 232, 233, 234; **CH**-104, 105, 106, 112, 114, 221, 222, 223; **ESR**-171, 172, 173; **G**-101, 102, 103, 145, 148, 201, 202, 203; **GS**-104, 105, 106, 107; **MTH**-111, 112, 212, 213, 243, 244, 251, 252, 253, 254, 256, 261; **PH**-104, 121, 122, 123, 201, 202, 203, 211, 212, 213; **Z**-201, 202, 203 |
| **Computer Competency** - 1 course | **CS**-120, **BA**-131 or **MFG**-109 |
| **Other College-level Courses** - Any course numbered 100 or above that would bring total credits to 90. | Additional college-level coursework (100 number or above) not already used to satisfy any of the above requirements, to reach total minimum of 90 credits |
| **TOTALS** | **90 credits** |

- ☐ complete a minimum of 90 credits
- ☐ establish cumulative GPA of 2.0 or above
- ☐ complete at least 23 credits at CCC
- ☐ submit a petition for graduation form to Graduation Services two terms prior to when you expect to graduate.

See page 44 additional information on general requirements for graduation

*Student Planner Worksheet 2017-2018*

# Associate of General Studies Degree (AGS)

**This guide is to be used for educational planning/advising purposes only.**

| Requirements | Credits/Courses Required | CCC Courses Taken/ Completed | Credits Transferred | Credits/Courses Needed |
|---|---|---|---|---|
| **Writing** | *1 course* | | | |
| **Communication** | *1 course* | | | |
| **Mathematics** | *1 course* | | | |
| **Health & Physical Education** | *One course with an HE, HPE or PE prefix, or MFG-107* | | | |
| **Arts & Letters** | *1 course* | | | |
| **Social Science** | *1 course* | | | |
| **Science/Math/ Computer Science** | *1 course* | | | |
| **Computer Competency** | *1 course* | | | |
| **Other College-level Courses** (Any course numbered 100 or above that would bring total credits to 90) | *Additional college-level coursework (100 number or above) not already used to satisfy any of the above requirements, to reach total minimum of 90 credits* | | | |
| **TOTALS** | **90 credits minimum** | | | |

**Additional graduation requirements:**

- ☐ complete a minimum of 90 credits
- ☐ establish cumulative GPA of 2.0 or above
- ☐ complete at least 23 credits at CCC
- ☐ submit a petition for graduation form to Graduation Services two terms prior to when you expect to graduate.

See page 44 additional information on general requirements for graduation

*Student Guide 2017-2018*

# Oregon Transfer Module (OTM)

Clackamas Community College

**Note: For the most current list of General Education courses, go to:** *www.clackamas.edu/curriculum*

| | Requirements | Courses<br>*Choose from the following courses to meet requirements.* |
|---|---|---|
| **Foundational Skills** | **Writing** - 2 courses) | WR-121 and either 122, or 227 |
| **Introduction to Disciplines** | **Oral Communication** - 1 course | COMM-111, 112 |
| | **Mathematics** - 1 course | MTH-105, 111, 112, 211, 251 |
| | **Arts & Letters** - 3 courses | Choose from the following:<br>**ART**-101, 102, 103, 115, 116, 117, 131, 132, 133, 194, 195, 204, 205, 206, 225, 226, 227, 250, 251, 252, 253, 254, 255, 281, 282, 283, 284, 285, 286, 291, 292, 293; **ASL**-201, 202, 203; **BA**-130; **COMM**-105, 126, 140, 212, 218, 219, 227; **DMC**-195; **ENG**-100, 104, 105, 106, 107, 108, 109, 116, 121, 130, 201, 202, 204, 205, 213, 214, 216, 218, 226, 240, 241, 242, 250, 251, 252, 253, 254, 266, 270, 275; **FR**-201, 202, 203; **HUM**-160, 170, 180, 181, 182, 231, 235, 240, 241, 242; **J**-211; **MUS**-105, 111, 112, 113, 205, 206, 211, 212, 213; **PHL**-101, 102, 103, 205, 210, 213, 215; **R**-101, 102, 103, 204, 210, 211, 212, 214; **SPN**-201, 202, 203; **TA**-101, 102, 103, 141, 142, 143; **WR**-220, 241, 242, 243, 244, 245, 248, 262, 263, 265, 270 |
| | **Social Science** - 3 courses | Choose from the following list:<br>**ANT**-101, 102, 103, 230, 231, 232 ; **CJA**-101, 201; **EC**-200, 201, 202; **GEO**-100, 110, 121, 122, 130, 208, 230; **HST**-101, 102, 103, 130, 131, 132, 136, 137, 138, 201, 202, 203, 210, 220; **PS**-200, 201, 203, 204, 205, 206, 225, 297; **PSY**-200, 205, 214, 215, 219, 221, 231; **SOC**-204, 205, 206, 210, 225; **SSC**-160, 170, 231, 235, 240, 241, 242; **WS**-101 |
| | **Science/Math/Computer Science** - 3 courses | Choose from the following courses:<br>**ASC**-175, 176, 177; **BI**-101, 102, 103, 112, 113, 160 & 160L, 165C & 165CL, 165D, 165T, 175, 176, 177, 204, 211, 212, 213, 231, 232, 233, 234; **CH**-104, 105, 106, 112, 114, 221, 222, 223; **ESR**-171, 172, 173; **G**-101, 102, 103, 145, 148, 201, 202, 203; **GS**-104, 105, 106, 107; **MTH**-212, 213, 243, 244, 252, 253, 254, 256, 261; **PH**-104, 121, 122, 123, 201, 202, 203, 211, 212, 213; **Z**-201, 202, 203 |
| | **Elective Courses**<br>Combined with above must equal at least 45 credits. | Courses must be from Arts & Letters, Social Science, or Science/Math/ Computer Science disciplines above. |

**Notes:**

1. All courses must be 100 level or higher.
2. All courses must be at least 3 credits.
3. All courses must be passed with a grade of "C" or better.
4. Students must have a minimum cumulative GPA of 2.0 at the time the module is posted.
5. No course may be used to satisfy more than one requirement or distribution area.

*Student Planner Worksheet 2017-2018*

# Oregon Transfer Module (OTM)

**This guide is to be used for educational planning/advising purposes only.**

| Requirements | Courses Required | CCC Courses Completed | Transferred Courses | Courses/ Credits Earned | Courses Needed |
|---|---|---|---|---|---|
| **Writing**<br>WR-121, and either 122 or 227 | *2* | | | | |
| **Oral Communications**<br>COMM-111, 112 | *1* | | | | |
| **Mathematics**<br>MTH-105, 111, 112, 211, 251 | *1* | | | | |
| **Arts & Letters** | *3* | | | | |
| **Social Science** | *3* | | | | |
| **Science/Math/Computer Science**<br>Select 3 courses including at least 1 lab course in the biological or physical sciences. | *3* | | | | |
| **Elective Courses**<br>Courses must be from the introduction to Disciplines areas (Arts & Letters, Social Science, or Science/Math/Computer Science) | *will vary* | | | | |
| | **TOTALS** | | | | |

(Total minimum of 45 credits required.)

**Additional Requirements**

- ☐ Complete a minimum of 45 credits
- ☐ Complete at least 11 credits at CCC
- ☐ Establish cumulative GPA of 2.0 or above at the time the module is posted

*Note: All courses must be 100 level or higher. All courses must be at least three credits. All courses must be passed with a grade of "C" or better. No course may be used to satisfy more than one requirement or distribution area.*

*The OTM is not a certificate or degree, but is documentation that students have met a subset of common general education requirements.*

Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year institution upon completion of these programs. Call 503-594-3475 or email: *advising@clackamas.edu* for more information.

# Prerequisites for Reading, Writing and Math Courses

These charts regarding math, writing and reading prerequisites are designed to help you map out the courses you will take to complete your studies, or to meet prerequisites for other courses you wish to take. First, determine your academic or career goal on the Math Pathways Chart. Next, meet with a PASS advisor or take a placement test to determine which math and writing course you need to register for first.