

ECOLOGICAL ENGINEERING, ASSOCIATE OF SCIENCE

The Associate of Science (AS) in Ecological Engineering program will provide the first two years of the engineering core curriculum for students pursuing ecological engineering as a transfer degree. The coursework is foundational to the upper division biological and ecological engineering courses and provides the fundamental concepts needed for success and advancement in ecological or sustainable engineering professions. Write the entry requirements for the program.

STUDENT LEARNING OUTCOMES

- Identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics.
- Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- Communicate effectively with a range of audiences.
- Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts.
- Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives.
- Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- Acquire and apply new knowledge as needed, using appropriate learning strategies.

PREREQUISITES

MTH112Z or placement into MTH251

WR90R or placement into WR121Z

| Course | Title | Credits |
|-------------------|---|-----------|
| First Year | | |
| Fall | | |
| CHEM221 | General Chemistry I | 5 |
| ENGR111 | Intro to Engineering | 3 |
| ENV235 | Introduction to Soil Science | 4 |
| MTH251 | Calculus I Differential Calculus | 4 |
| Credits | | 16 |
| Winter | | |
| CHEM222 | General Chemistry II | 5 |
| ENGR112 | Engineering Computation | 4 |
| MTH252 | Calculus II Integral Calculus | 4 |
| WR121Z | Composition I | 4 |
| Credits | | 17 |
| Spring | | |
| CHEM223 | General Chemistry III | 5 |
| DRFT112 | Computer Assisted Drafting III | 3 |
| MTH264 | Introduction to Matrix Algebra and Power Series | 4 |

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|---------------------------------|---|------------|
| WR227Z | Technical Writing | 4 |
| Credits | | 16 |
| Summer | | |
| PE231 | Wellness for Life | 3 |
| PHL102 | Ethics | 3 |
| Credits | | 6 |
| Second Year | | |
| Fall | | |
| ECON201 | Microeconomics | 4 |
| ECON202 | Macroeconomics | 4 |
| PH211 | General Physics with Calculus I | 5 |
| ENGR211 | Statics | 3 |
| MTH254 | Vector Calculus I | 4 |
| Credits | | 20 |
| Winter | | |
| COMM111Z | Public Speaking | 4 |
| CS161 | Introduction to Computer Science I ² | 4 |
| F222A | Elementary Forest Surveying | 4 |
| MTH256 | Differential Equations | 4 |
| PH212 | General Physics with Calculus II | 5 |
| Credits | | 21 |
| Spring | | |
| PH213 | General Physics with Calculus III | 5 |
| ENGR213 | Strength of Materials | 3 |
| Cultural Diversity ³ | | 3 |
| Credits | | 11 |
| Total Credits | | 107 |

¹ Arts and Letters Elective can be any course from the approved AAOT arts and letters distribution list.

² Transfers to Oregon State are encouraged to become familiar with Python in addition to this CS course

³ Cultural Diversity elective must be a social science from the approved list.