Course Substitutions for Ecological Engineering Program

## Pre-Core (Old and New Program)

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| **Program Requirement** | **Allowable substitution** |
| BEE 101 (for transfer students) | Junior (by credit) transfer student may substitute 3 credits of upper division engineering elective for BEE 101.   |
| BI 301 Human Impacts on Ecosystems | The appropriate substitution is a course taken from the Synthesis-CGI category.  Not required in new program.  |
| CH 231/261, 232/262, 233/263 | CH 100 level series* + Student needs to have taken CH 121/2/3 with a B or better plus CH 324 per the policy enacted last year by the UG Committee.
	+ Use the grade from ch121 in the pro-school calc.

Chemistry for Engineers* + Students who complete the Chemistry for Engineers sequence, including recitations (CH 201, 202, 205, 211, and 212) will have to take an additional 6 credits of 200-level or above chemistry. Students petition to take chemistry courses to bring their total 200-level and above chemistry course credits to 15.
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| ST 314 | The Ecological Engineering BS degree program requires ST 314 Statistics for Engineers in recognition of the importance that statistical analysis plays in systems modeling. ST 421 Introduction to Mathematical Statistics is a recommended substitute for ST 314 but ST 422 must be taken additionally as an Upper Division Science Elective course.  |
| MTH 306 (for transfer students) | * At the Community College students may take Infinite Series and Sequences (MTH 253) and Linear Algebra (MTH 2XX) to substitute for Matrix and Power Series Methods (MTH 306)
* MTH 253 at Linn Benton Community College, Chemeketa Community College, & Central Oregon Community College is accepted for MTH 306.
* MTH 253 & MTH 261 from Clackamas Community College, Eastern Oregon University, Lane Community College, Mt. Hood Community College, Portland Community College, Portland State University, Rogue Community College, and Southern Oregon Community College is accepted for MTH 306
* MTH 253 & MTH 260 from Southwestern Oregon Community College is accepted for MTH 306
* MTH 253 & MTH 341 from University of Oregon & Oregon Institute of Technology is accepted for MTH 306
* Reference: <http://eecs.oregonstate.edu/transfer-credit>
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| ENGR 390 | ENGR 391 is an acceptable substitution for ENGR 390 in the old program. ENGR 391 is required in the new program. **NO PETITION IS REQUIRED** |

## Old Program - Professional Core substitutions

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| **Program Requirement** | **Allowable substitution** |
| BEE 458 Nonpoint Source Pollution (3 credits) | BEE 446 River Engineering (4 credits): We prefer non-point but recognize that since it is only offered every other year some students may not have the opportunity to take the course.  We allow river engineering as a substitute. If a student chooses to substitute BEE 446 for BEE 458, BEE 446 cannot be used as an engineering elective, except that because of the credit difference, we count one credit of River Engineering as engineering elective.  |
| CE 313 Hydraulic Engineering | BEE 433 was accepted as a substitute for CE 313 due to access issues to the CE 313 course. As BEE 312 will replace the CE 313 we do not expect this substitution to occur in the future. |
| FW 456 Limnology | FW 445 Ecological Restoration |

## Old Program – Electives substitutions

**Note:** Regarding the substitution of engineering elective credit for science elective credit: Petitions considered on case-by-case basis. No blanket approval or disapproval.

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| **Engineering Electives** | **Science Electives**  |
| BEE 411 Global Environmental Change: Using Data To Inform Decisions | ENVE 456 (Sustainable Water Resources Development) is listed as an engineering elective but can also be counted as science elective  |
| CBEE 414 Process Engineering Laboratory | FE 456 International Forestry |
| CCE 422 Green Building Materials | FES 452 Biodiversity Conservation In Managed Forests |
| CE 202 Civil Engineering: Geospatial Information and GIS | FW 580 Stream Ecology |
| CE 411 Ocean Engineering | GEO 301 Map And Image Interpretation |
| CE 514 Groundwater Hydraulics | GEO 360 Cartography |
| CE 520 Engineering Planning | GEO 425 Water Resources Management In The United States |
| CE 630 Ocean Wave Mechanics I | GEO 444 Remote Sensing |
| ENGR 248 Engineering Graphics and 3-D Modeling | GEO 483 Snow Hydrology |
| FE 209 Forest Photogrammetry And Remote Sensing | GEO 487 Hydrogeology |
| FE 435 Forest Watershed Management Impacts | RNG 446 Wildland Fire Ecology |
|  | SOIL 366 Ecosystems of Wildland Soils |
|  | Wood Science Engineering (WSE) courses are allowed for science elective credit but not engineering elective credit |
|  | Z 331 and Z 333 Human Anatomy & Physiology |
|  | Z 464 Marine Conservation Biology |

## Not allowed

* BEE 312 and BEE 313 not allowed as electives if CE 412 and CE 313 have already been taken
* Student may not take both FE 315 and CE 372 and count them both as part of their required 22 credits of engineering electives.
* ENVE 321 is not allowed as an engineering elective