

MATHEMATICS AND PHYSICAL SCIENCE – PRE-ENGINEERING OPTION

(Note: Program requirements for this degree are offered on NOC Tonkawa campus only.

At the beginning of each course listing, the four letter abbreviation indicates the department and the four digits indicate the course code used for enrollment. The total course hour value follows each.)

| PROGRAM REQUIREMENTS | Credit Hours | SUGGESTED COURSE SEQUENCE | Credit Hours |
|--|----------------|---|----------------|
| GENERAL EDUCATION COURSES | 37 TOTAL HOURS | FIRST SEMESTER | 14 TOTAL HOURS |
| ENGLISH COMPOSITION COURSES | | ENGL 1113 English Composition I | 3 hours |
| ENGL 1113 English Composition I | 3 hours | CHEM 1314 General Chemistry I | 4 hours |
| ENGL 1213 English Composition II | 3 hours | ORNT 1101 Freshman Orientation | 1 hour |
| HISTORY AND GOVERNMENT COURSES | | *MATH 1513 College Algebra (Pre-Calculus) | 3 hours |
| HIST 1483 American History to 1877 (OR) HIST 1493 American History Since 1877 | 3 hours | *MATH 1613 Plane Trigonometry | 3 hours |
| POLI 1113 American Government | 3 hours | SECOND SEMESTER | 16 TOTAL HOURS |
| HUMANITIES COURSES | | ENGL 1213 English Composition II | 3 hours |
| Electives | 6 hours | MATH 2145 Calculus I | 5 hours |
| One 3 hour course to be chosen from those listed with the International Dimension and 3 hours of humanities electives. | | PHYS 2014 Engineering Physics | 4 hours |
| MATHEMATICS COURSES | | CHEM 1314 General Chemistry I | 4 hours |
| *MATH 1513 College Algebra | 3 hours | THIRD SEMESTER | 15 TOTAL HOURS |
| SCIENCE COURSES | | HIST 1483 American History to 1877 (OR) HIST 1493 American History Since 1877 | 3 hours |
| CHEM 1314 General Chemistry I | 4 hours | ENGR 2443 Thermodynamics | 3 hours |
| CHEM 1414 General Chemistry II | 4 hours | MATH 2155 Calculus II | 5 hours |
| COMPUTER SCIENCE COURSES | | PHYS 2114 Engineering Physics II | 4 hours |
| CS 1013 Visual BASIC (or other approved computer course) | 3 hours | FOURTH SEMESTER | 15 TOTAL HOURS |
| ORIENTATION COURSES | | POLI 1113 American Government | 3 hours |
| ORNT 1101 Freshman Orientation | 1 hour | ENGR 2113 Statics (OR) | |
| GENERAL EDUCATION ELECTIVE COURSES | 4 hours | MATH 2613 Differential Equations | 3 hours |
| (3 of 4 hours for these electives are designated for MATH 1613 Plane Trigonometry; 1 hour can be combined with requirement for recommended electives below, or selected from course in Language Arts, Natural Science, Foreign Languages, Fine Arts, Humanities, Mathematics, Behavioral, or Social Sciences.) | | Humanities Elective | 3 hours |
| PROGRAM REQUIREMENT COURSES | 18 TOTAL HOURS | CS 1013 Visual BASIC | 3 hours |
| **MATH 2145 Calculus I | 5 hours | Suggested NOC courses for specific engineering disciplines: | |
| **MATH 2155 Calculus II | 5 hours | ALL DISCIPLINES: | |
| **PHYS 2014 Engineering Physics I | 4 hours | BIOL 1114 General Biology | 4 hours |
| **PHYS 2114 Engineering Physics II | 4 hours | PHIL 2223 Business Ethics | 3 hours |
| RECOMMENDED PROGRAM ELECTIVE COURSES | 6 TOTAL HOURS | ENGR 2123 Dynamics | |
| **ENGR 2113 Statics | 3 hours | BIOSYSTEMS AGRICULTURAL: | |
| **ENGR 2443 Thermodynamics | 3 hours | BISI 2124 Microbiology | 4 hours |
| **MATH 2613 Differential Equations | 3 hours | BISI 1414 General Biology | 4 hours |
| TOTAL CREDIT HOURS | 61 | Students need to consult with the engineering school of interest for Chemistry and Biology requirements. | |
| <i>* Students scoring 26 or above on the math subsection of the ACT do not have to take MATH 1513 College Algebra. Students scoring 28 or above on the math subsection of the ACT do not have to take MATH 1613 Plane Trigonometry. Students not taking Algebra & Trigonometry because of ACT scores or CLEP exam results are required to substitute 3-6 hours of credit in appropriate General Education Electives or RECOMMENDED PROGRAM ELECTIVES to complete 60 hours at NOC and maximize their transfer hours to the four-year institution.</i> | | This is a suggested sequence timeline only. A student may require more than four semesters to complete an Associate in Science degree. | |
| | | **These program courses are typically offered only once a year. See course descriptions for fall or spring designations and plan accordingly. | |

The Pre-Engineering degree option is designed to transfer into all disciplines of engineering. It is important to secure a catalog from the engineering school to transfer so you may select the courses to meet the requirements needed to obtain the bachelor's degree your choose. The program features small class size and individual attention for this challenging degree.

Career Opportunities

- Architect/Designer
- Aerospace
- Agriculture
- BioSystems Engineer
- Chemical Engineer
- Construction Technology
- Civil Engineer
- Electrical Engineer
- Environmental Engineer
- Environmental Scientist
- Mechanical Engineer
- Meteorology
- Metallurgical Engineer
- Petroleum Engineer

NOC evaluates students for placement into either foundational or college-level courses, whichever will lead to the greatest possibility of student success. Academic placement is determined either by A.C.T. test scores or by Accuplacer test scores. These tests are administered in the Testing Center at NOC. Based upon the scores, students may be required to take one or more courses for remediation in English, Math, or Reading, either prior to or concurrent with credit courses. See the NOC testing web page by clicking on the following link: ACT |