

# ENGINEERING

## Coordinator: Stephen Tufte

See also *Mathematical Sciences, Chemistry, and Physics*.

For students seeking a traditional engineering background leading to certification, Lewis & Clark has joined several nationally recognized engineering schools to offer a cooperative program that provides students with the advantages of a liberal arts education as a complement to rigorous studies in engineering. This engineering program, commonly referred to as the "3-2 Program," enables a student to complete three years of study at Lewis & Clark, followed by two years at the engineering school. The student earns a degree from each school. Lewis & Clark cooperates in this program with three institutions: Columbia University in New York (<http://columbia.edu>), Washington University in St. Louis (<http://wustl.edu>), and the University of Southern California in Los Angeles (<http://usc.edu>).

In all of these 3-2 programs, the student earns one bachelor's degree from Lewis & Clark and one from the engineering school. Some of these schools also provide 4-2 options in which the student may complete a four-year degree at Lewis & Clark and then enter a two-year program toward either the bachelor's or the master's degree in engineering.

The existence of a formal 3-2 or 4-2 agreement between Lewis & Clark and these three institutions essentially ensures students admission to the engineering schools upon completing a required set of courses with a satisfactory GPA, typically around 3.300, and the recommendation of the Lewis & Clark faculty. In addition, Lewis & Clark students sometimes enroll in engineering schools at other institutions upon graduation or by transfer. The preengineering advisor (the coordinator of the engineering program) works with students individually, helping them evaluate the relative merits of various options. Students are kept informed about the program through regular mailings and annual visits from representatives of the engineering schools.

Students interested in these programs should meet with the preengineering advisor as soon as they enroll at Lewis & Clark. Preengineering students generally take mathematics (through differential equations), chemistry, physics, and computer science. Students are strongly encouraged to take full advantage of Lewis & Clark's diverse course offerings in the arts, humanities, and social sciences during their studies.

*Note: Because Lewis & Clark does not offer a "preengineering" major, students must choose a standard Lewis & Clark major such as mathematics, chemistry, physics, or economics. They must plan a course of study that will enable them to meet the requirements of the engineering school and complete all but two or three courses of those required for the Lewis & Clark major. Preengineering students must also meet all of Lewis & Clark's General Education requirements.*

Students in the 3-2 program must spend a minimum of four full-time semesters at Lewis & Clark (excluding summer session) and complete 93 semester credits, 60 of which must be taken in residence at Lewis & Clark, before proceeding to the engineering school. For these students, Lewis & Clark waives its senior-year academic residency requirement. The chair of the student's major department evaluates courses at the engineering school as substitutes for completing the student's Lewis & Clark major requirements.

## Program Requirements

Although students may graduate with any Lewis & Clark major, they should plan their schedules so as to complete the following courses by the end of the junior year. Since each school has different requirements, students should consult with the preengineering advisor as early as possible to plan the most effective and profitable course of study at Lewis & Clark.

### Chemistry

- CHEM 110 General Chemistry I

### Computer Science

- CS 171 Computer Science I

### Mathematics

- MATH 131 Calculus I
- MATH 132 Calculus II
- MATH 233 Calculus III
- MATH 235 Differential Equations

### Physics

- One of the following sequences:

PHYS 141	Introductory General Physics I
PHYS 142	Introductory General Physics II

or

PHYS 151	Physics I: Motion
PHYS 152	Physics II: Waves and Matter
PHYS 251	Physics III: Electromagnetism
PHYS 252	Physics IV: Thermodynamics and Statistical Mechanics

- Also recommended:

PHYS 201	Experimental Methods in the Physical Sciences
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### Other

- All programs require four or five courses in the arts, humanities, and social sciences. Washington University requires at least two courses in the humanities and two in the social sciences.
- Columbia University requires one course in economics.

Students planning a career in chemical engineering or computer science will need additional prerequisites. All students planning for the 3-2 or 4-2 programs should consult with the engineering coordinator for detailed information about major requirements at specific schools.