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Pre-Engineering Major **Total Credits: 40+**

Faculty	Dr. Mark Edelman	medelma1@yu.edu
	Dr. Lea Ferreira dos Santos	lsantos2@yu.edu
	Dr. Emil Prodan	prodan@yu.edu
	Dr. Edward Berliner	eberline@yu.edu

Required Courses		Credits
CHEM 1045C	General Chemistry I, Lecture & Lab	4 credits
COMP 1300C	Introduction to Computer Science	4 credits
ECON 1010	Principles of Economics (may count toward Foundation)	3 credits
MATH 1412	Calculus I	4 credits
MATH 1413	Calculus II	4 credits
MATH 1510	Multivariable Calculus	4 credits
PHYS 1051C	General Physics I, Lecture & Lab	4 credits
PHYS 1052C	General Physics II, Lecture & Lab	4 credits
Plus three (3) or more courses as required by the particular track of engineering chosen – see back of page		

Students interested in engineering may pursue the Pre-engineering major or opt for a related major in Physics, Physical Sciences, Biology, Chemistry, Computer Science or Mathematical Sciences.

The Pre-engineering major is open to students who enter SCW with sufficient AP credits so that they can complete the major, general and reduced Jewish Studies requirements (4 semesters of Core + 14 JS credits) in 3 years-either one year in Israel and two years at SCW, or three years at SCW.

Pre-engineering majors must continue their studies through a Combined Program in engineering with Columbia University (BS). Students who do not continue at Columbia, must complete a total of 6 semesters of Core and change their major (e.g., Physical Sciences or a Shaped Major) in order to receive the BA degree from SCW.

To be eligible to apply for admission to Columbia through the Combined Program in Engineering, Pre-engineering majors must meet the SCW graduation requirements, other than the 128 credits, as well as all Columbia requirements listed in the Columbia Combined-Plan Guide (available at the Academic Advisement Center). Provided that they maintain a 3.3 GPA overall, with no grade lower than a B in courses required by Columbia, and receive the recommendation of the pre-engineering advisor, students enrolled at YU prior to Fall 2019 are guaranteed admission to the two-year program at Columbia. For students who enroll in YU beginning with Fall 2019, admission will be competitive with Columbia reserving the right to admit students based upon criteria such as GPA in Columbia required courses, overall GPA, recommendations, etc.

If admitted, students should file for a Leave of Absence and not file for graduation from SCW.

After successfully completing the two year program at Columbia, students file for a BA from YU, and a BS from Columbia.

Students interested in the Columbia Program (BS) should meet with Dr. Lea Santos.

Engineering Major specific courses depending upon chosen field

1. **Applied Math/Applied Physics**
MATH 2601
PHYS 2051
PHYS 2052
2. **Biomedical Engineering**
MATH 2105
MATH 2601
PHYS 2051
PHYS 2052
CHEM 1046C
BIOL 1011C
BIOL 1012C
Electrical Engineering*
3. **Chemical Engineering**
MATH 2105
MATH 2601
CHEM 1046C
CHEM 1213R
CHEM 1215L
4. **Civil Engineering**
MATH 2105
MATH 2601
Geology course*
PHYS 1221
PHYS 1222
5. **Computer Engineering**
MATH 2105
MATH 2601
COMP 1504
COMP 3650
Electrical Engineering*
6. **Computer Science**
COMP 1320C
COMP 1504
COMP 3650
7. **Electrical Engineering**
MATH 2105
MATH 2601
PHYS 2051
PHYS 2052
Electrical Engineering*
8. **Materials Science and Engineering**
MATH 2601
PHYS 2051
PHYS 2052
9. **Mechanical Engineering**
MATH 2105
MATH 2601
PHYS 2051; PHYS 2052 **OR**
BIOL 3038C **OR**
BIOL 3207C; BIOL 3521C
PHYS 1221
PHYS 1222
Electrical Engineering*

*There is no current SCW course that meets this requirement. Introduction to Electrical Engineering (ELEN E 1201) may be taken the summer before entering or while at Columbia.