

Materials Science & Engineering

Sample AB Major in Engineering Sciences

Prerequisites

MATH 3, 8, 13; or MATH 11; PHYS 13, 14; CHEM 5;
ENGS 20 or COSC 1 and 10

Common Core (3 courses)

ENGS 21: Introduction to Engineering*
ENGS 22: Systems
ENGS 23: Distributed Systems and Fields

Distributive Core (2 courses)

ENGS 24: Science of Materials
ENGS 25: Introduction to Thermodynamics

Gateway (2 courses)

ENGS 33: Solid Mechanics*
One from 31-32, 35-37

Electives (2 courses; 1 may be math or natural science)

ENGS 73: Materials Processing and Selection*
PHYS 19: Introductory Physics III

Culminating Experience: ENGS 86, 88, 89 or one advanced ENGS course that may also count as 1) one of the above electives and 2) toward the BE Math and Natural Science Requirement or the BE ENGS/ENGG requirement.

Total: Includes 9 or 10 courses through AB

LEGEND

Allowable or potentially allowable in the BE concentration
Math or Natural Science course

Introductory course: Not allowable in the BE concentration

* Significant design content

Sample BE Program

Math and Natural Science Requirement

9 course credits (minimum) including any completed for AB major requirements.

PHYS 24: Introductory Physics IV

Applied MATH/ENGS Requirement

One of ENGS 91, 92 and 93 must be completed for the BE and may be counted as either a MATH course or an ENGS course in fulfilling BE requirements.

ENGS 93: Statistical Methods in Engineering

ENGS/ENGG Requirement

– 13.5 courses minimum (15.5 is typical), including courses completed for the AB major, 6 total with significant design content*. ENGS 20 (or CS 1 + 10) counts as 0.5 ENGS credit.

– 3-course concentration, 1 with significant design content*

– ENGS 89 and 90

Engineering Electives: 3-course concentration

ENGS 130: Mechanical Behavior of Materials*
ENGS 131: Science of Solid State Materials
ENGS 132: Thermodynamics and Kinetics in Condensed Phases

Electives (3 courses; 2 may be math or natural science)

CHEM 6: General Chemistry
ENGS 71: Structural Analysis*
ENGS 133: Methods of Materials Characterization
ENGS 134: Nanotechnology
ENGS 135: Thin Films and Microfabrication Technology*
ENGG 138: Corrosion and Degradation of Materials
ENGS 142: Intermediate Solid Mechanics
ENGS 148: Structural Mechanics
MATH 22: Linear Algebra with Applications
MATH 23: Differential Equations

Capstone Design Experience

ENGS 89: Engineering Design Methodology and Project Initiation*
ENGS 90: Engineering Design Methodology and Project Completion*