

Materials Science Minor Required Elective Courses

One elective course from the list below is required to complete the minor:

- EETEC 333 Polymer Technology (5)**
Prereq: ETEC 220; ETEC 110 recommended. Polymer science and analysis of basic plastics materials; experience in product design, tooling, and processing of thermoplastic.
- EETEC 334 Reinforced Plastics/Composites (5)**
Prereq: ETEC 333. Polymer and reinforcement systems; material testing; mold design and development; laboratory involvement in reinforced plastics production processes.
- CHEM 308 Introduction to Polymer Chemistry (3) (Currently not planned for 2009-10)**
Prereq: CHEM 115 or 121 or 125, 251, ETEC 333. Types of polymers, methods of polymerization, and preparation of important commercial thermoplastic and thermosetting plastics. Addition and condensation polymers are prepared in the laboratory.
- CHEM 425r Surface Chemistry (3)**
Prereq: CHEM 461 and permission of instructor and any additional prerequisites as listed.
- CHEM 425K Bioanalytical Instrumentation (3)**
Prereq: CHEM 333 or instructor permission
- CHEM 425 series courses that are materials science related**
- CHEM 497R**
- GEOL 306 Mineralogy (4)**
Prereq: Geol 211; CHEM 121, 122. Introduction to crystal chemistry and crystallography. Origin, occurrence and classification of common minerals; physical and chemical properties of minerals used in identification. Basic petrographic microscopy techniques and identification of common rock-forming minerals in thin-section. *(Note: GEOL 211 prereq is waived for MSCI minors)*
- GEOL 352 Introduction to Geophysics (4)**
Prereq: Geol 211; Phys 121. Basic elements of geomagnetism, seismology, gravity and heat flow with reference to the internal structure of the earth. *(Note: GEOL 211 prereq is NOT waived for MSCI minors)*
- GEOL 454 Magnetic Fabrics and Geological Processes (4)**
Prereq: Geol 352 or equivalent. Theory and laboratory measurement of magnetic anisotropy in rocks, sediments, and minerals. Emphasis on the use of magnetic anisotropy techniques to understand various geological processes including deformation, sediment transport, and magma flow and emplacement. Laboratory project and writing project included.
- GEOL 461 Analytical Geochemistry (2)**
Prereq: Geol 306, CHEM 123. Introduction to analysis of rocks, soil and water. Methods include atomic absorption spectrophotometry, ion chromatography, gas chromatography and quadrupole mass spectrometry as well as gravimetric, volumetric and colorimetric analysis.
- PHYS 475 Physics of Solids and Materials 1 (3), W**
Prereq: Phys 255 or permission of instructor. Structure and properties of materials including crystallography, symmetry, bonding-related properties, electronic structure, phase diagrams, surfaces, semiconductors, metals.
- PHYS 476 Physics of Solids and Materials 2 (3), S**
Prereq: PHYS 475. Application and investigation of materials including amorphous, liquid crystal, magnetic, porous and novel materials, lasers, photo detectors, optical fibers, microscopy, spectroscopy.
- EXTRA quarter of research may also count as an elective with special permission**