Center for Materials Science

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Mission Statement
The educational mission of the Center for Materials Science is to
develop and maintain an innovative cross disciplinary and
multidisciplinary undergraduate program in materials science that
will increase the maturation of students, their research experience
and their employment opportunities. The mission includes the
integration of undergraduate education with basic and applied
research in materials science.

Goals
- To develop an undergraduate cross disciplinary curriculum in
  materials science.
- To integrate undergraduate education with basic and applied
  research.
- To increase funding for applied and basic research in
  materials science. (Faculty and students focus on problems of
  interest to industry and government in materials processing,
  materials characterization, materials applications and thermal
  sciences including thermal structural interactions and infrared
  analysis.)

Minor Requirements
The minor in materials science includes four major components:
- Choice of an entry-level introductory course in materials science.
- Lecture or laboratory course that emphasizes more specialized
  areas in materials science.
- Materials science electives that can include all specialized courses.
- Research or an additional materials science lecture or
  laboratory experience.

Courses for the minor are offered through the departments of
chemistry, geology and environmental studies, integrated science
and technology, mathematics, and physics.

Courses Credit Hours
Choose one of the following: 3
MATS/PHYS 275/CHEM 375. An Introduction to Materials Science
MATS/GEOL 395. Geologic Perspectives in Materials Science
MATS/ISAT 430. Materials Science in Manufacturing
MATS Electives
Research or Materials Science Laboratory Course 3
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Concentration Requirements
The concentration in materials science consists of 12 credits hours
of course work approved by the student’s adviser and by the
director of the center. Appropriate courses may be chosen from
materials science offerings in the areas of chemistry, geology and
environmental studies, integrated science and technology,
mathematics, and physics. This concentration must be pursued in
conjunction with a designated major in chemistry, geology and
environmental studies, integrated science and technology,
biology, mathematics, and physics.

Courses Credit Hours
Choose one of the following: 3
MATS/PHYS 275/CHEM 375. An Introduction to Materials Science
MATS/GEOL 395. Geologic Perspectives in Materials Science
MATS/ISAT 430. Materials Science in Manufacturing
MATS Electives
Research or Materials Science Laboratory Course 3
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Research in Materials Science
Register for Research in Materials Science under one of the
following:
CHEM 497. Undergraduate Research (in materials science, 2-4 credits)
GEOL 497. Problems in Geology (in materials science, 1-3 credits)
ISAT 491, 492, 493. Thesis (in materials science, 6 credits)
PHYS 498R. Undergraduate Physics Research (in materials science,
2-4 credits)
MATS 498R. Undergraduate Materials Science Research (1-3 credits,
repeatable to 6 credits)

Materials Science Elective Courses

Courses Credit Hours
GEOL 300. Introduction to Petrology 3
MATS/PHYS 337. Solid State Physics 3
MATS/PHYS 381. Materials Characterization (Lecture/Lab) 3
MATS 382. Microfabrication Laboratory (Lecture/Lab) 3
PHYS 390. Thermodynamics and Statistical Mechanics or 3
CHEM 331. Physical Chemistry I 3
MATS/ISAT 431. Manufacturing Processes 3
MATS/ISAT 432. Selection and Use of Engineering Materials
  and Manufacturing Processes 3
MATS/ISAT 438. Micro-Nanofabrication and Applications 3
CHEM 445. Polymer Chemistry 3
MATS/GEOL 386. X-RAY Characterization of Solid Materials 3
Special topics in materials science registered under:
CHEM 480. Selected Topics in Chemistry (materials science) 1-3
GEOL 389. Topics in Geology (materials science) 1-4
ISAT 480. Selected Topics in ISAT (i.e., light metals) 1-4
MATH 483. Selected Topics in Applied Mathematics
  (materials science) 3
MATS 498R. Undergraduate Materials Science Research 3
PHYS 497. Topics in Physics (materials science) 1-4

Academic Advising
Faculty members in the Center for Materials Science are dedicated
advisers who will assist students in developing a minor that will
enhance their academic experience with the goal of improving
their employment and post-graduate opportunities.