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 interdisciplinary 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.

Professor

Associate Professor
B. Boardman, C. Constantin, K. Gipson, E. Johnson, Q. Lin, G. Scarel, Y. Zhang

Assistant Professor
B. Augustine, T. DeVore, O. Egekwu, J. Gilje, A. Henriksen, W. Hughes, L. Kearns, J. Miles, D. Warne

Goals
- To develop an undergraduate interdisciplinary, multidisciplinary 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:
- A choice of an entry-level introductory course in materials science.
- A 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, or physics.

Courses Credit Hours
Choose one of the following: 3
- MATS/CHEM/PHYS 275. An Introduction to Materials Science
- MATS/GEOL 395. Geologic Perspectives in Materials Science
- MATS/ISAT 430. Materials Science in Manufacturing

MATS Electives 6
Research or Materials Science Laboratory Course 3

12

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 Course) 3
- MATS 382. Microfabrication Laboratory (Lecture/Lab Course) 3
- PHYS 380. Thermodynamics and Statistical Mechanics or 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 436. Micro-Nanofabrication and Applications 3
- CHEM 445. Polymer Chemistry 3
- MATS/GEOL 396. 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 398. 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.

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