

Materials Science Focus Area

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Description

Materials chemistry focuses on the understanding, design, characterization and implantation of materials, and is critical for fields as diverse as biotechnology, electronics, energy, mineralogy and nanotechnology. A degree in chemistry with additional background in physics and electrical engineering trains students to investigate and create a wide range of materials including polymers, liquid crystals, ceramics, semiconductors and metal alloys, thereby preparing them for careers in many exciting areas including biotechnology, aerospace and electronics. The strong link between materials chemistry and products in the marketplace ensures excellent job opportunities in a wide range of fields and an opportunity to enter new and emerging areas such as nanotechnology. Students with a solid background in materials chemistry are prepared for interdisciplinary work environments and are therefore highly sought after in industry, academics and government laboratories. In addition to a comprehensive curriculum in this area, the Department of Chemistry provides ample opportunities for undergraduate research in materials chemistry further enhancing their competitive advantage in pursuing a career in science and technology.

Chemistry courses: 18 credit hours from:

CHEM 3360	Elementary Quantum Chemistry and Molecular Bonding
CHEM 3370	Symmetry, Spectroscopy and Structure
CHEM 3490	Introduction of Polymers
CHEM 4570	Topics in Inorganic Chemistry: Liquid Crystals/Materials Chemistry
CHEM 4590	Bioanalytical Methods
CHEM 4680	Organometallic Chemistry

Non-Chemistry courses: 9 credit hours from:

BIOE 3320	Engineering Properties of Biological Materials (<i>pre-requisite waiver required</i>)
ECE 3600	Physical Electronics (<i>pre-requisite waiver required</i>)
PHYS 2210	Understanding Electricity and Magnetism
PHYS 2610	Circuit Theory and Introductory Electronics

MATH 1300 (Vector geometry and linear algebra) doesn't count for these 9 credit hours but is **highly recommended** !