*These three courses may be repeated; any two or all three can be taken simultaneously so that from 1 to 6 semester hours total credit can be carried per semester in Research Problems. A maximum of 3 semester hours may be accumulated toward the minimum hours for graduation. See Plan I for limitations.

CHEMISTRY (CHEM)
Nicholas R. Beller, Graduate Coordinator

Graduate Faculty: Nicholas R. Beller, Sajid Bashir, Apurba Bhattacharya, Mauro Castro, Maribel Gonzalez-Garcia

Associate Members: Xiaoliu Chi, Jingbo L. Lin, Greg Moehring

The Department of Chemistry offers a Master of Science degree. Requirements for admission are (a) a grade point average of 3.0 on a 4.0 scale and a satisfactory score on the GRE Aptitude Test (a TOEFL score of 525 when applicable); (b) 20 hours of approved undergraduate chemistry, including 12 advanced; (c) 8 hours of approved physics and 6 hours of calculus. Students not satisfying these requirements may be admitted conditionally. The department, in examining the applicant's prerequisites, may accept equivalent hours or require additional work. An entering graduate student is normally subjected to four placement examinations in organic, inorganic, analytical and physical chemistry that are used for advising the student's beginning course work.

5130. Graduate Chemistry Seminar.

Provides an understanding of the experimental procedures used by authors, helps students develop a critical mind when reading scientific papers and provides them with practice in presenting research work in front of an audience. This training is essential for the education of master's and doctoral students. May be repeated for a total of 3 SCHs. Prerequisites: CHEM 3125, CHEM 3325.

5301. Chemical Instruments, Advanced.

Principles and practices in design of instruments for research, analysis and process control. Prerequisite: CHEM 4401.

5303. Advanced Analytical Chemistry.

An advanced survey of principles of chemical analysis with emphasis on newer developments in the field of analytical chemistry. Prerequisite: CHEM 4401.

5305. Graduate Research Project.

This course is specifically designed for Plan II and Plan III students. A graduate research project must be completed and submitted to the Department Office for a grade to be assigned, otherwise an S or U notation is recorded. Prerequisite: departmental approval. May be repeated for a maximum of 6 semester hours.
5306. Thesis Research. 3
This course is specifically designed for Plan I students. The course requires completion of thesis research. Prerequisite: departmental approval. May be repeated for a maximum of 6 semester hours.

5311. Structural Inorganic Chemistry. 3(3-0)
The structure of inorganic compounds, especially complex compounds and theories that account for the structure and other properties on the basis of bonding. Prerequisite: CHEM 4311.

5321. Organic Preparations. 3(0-9)
Preparation of several different classes of compounds with emphasis on multi-step syntheses and synthetic techniques. Conferences with the instructor. Prerequisites: CHEM 3323/3123, CHEM 3325/3125.

5323. Advanced Organic Chemistry. 3(3-0)
An advanced treatment of organic chemistry including a study of both cyclic and acyclic compounds. Prerequisites: CHEM 3323/3133 and CHEM 3325/3125.

5324. Designing Organic Syntheses. 3(3-0)
A one-semester course that reviews the syntheses of increasingly complex molecules and the retrosynthetic strategies used to develop the synthetic schemes. Required development of a synthetic plan for a structure taken from the recent literature. Prerequisites: CHEM 3325, CHEM 5323.

5325. The Chemistry of Natural Products. 3(3-0)
A one-semester course that provides an introduction to the broad field of natural products chemistry by reviewing the major classes of natural products in terms of isolation, structure, properties, synthesis and physiological importance where applicable. Prerequisite: CHEM 3325.

5326. Heterocyclic Chemistry. 3(3-0)
A one-semester course that provides an introduction to the broad field of heterocyclic chemistry by reviewing the major classes of heterocyclic compounds in terms of nomenclature, structure, properties, preparations, reactions and physiological importance where applicable. Prerequisite: CHEM 3325.

5327. Advanced Organic Synthesis. 3(3-0)
An in-depth survey of modern synthetic reactions in the areas of carbon-carbon single and double bond formations and cycloaddition reactions. Prerequisites: CHEM 3125, CHEM 3325.

5328. Physical Organic Chemistry. 3(3-0)
A one-semester course that provides an in-depth survey of molecular orbital theory in a thorough and rigorous manner and emphasizes the molecular orbital interpretation of various types of concerted pericyclic reactions. Prerequisites: CHEM 3125, CHEM 3325.
5329. Asymmetric Synthesis. 3(3-0)
An in-depth survey of practical methods for the synthesis of enantiomerically pure organic compounds in agrochemical and pharmaceutical industries and in university research laboratories. Prerequisites: CHEM 3125, CHEM 3325.

5331. Advanced Physical Chemistry. 3(3-0)
Detailed investigation of modern and traditional approaches to the study of chemical reaction rates. Prerequisites: CHEM 3331, CHEM 3332, CHEM 4131, CHEM 4132.

5341. Biochemical Analysis of Proteins. 3(3-0)
Biochemical study of proteins (methods of protein purification, principles of protein structure and the study of proteins as enzymes). Prerequisite: CHEM 4341.

5342. Biochemical Analysis of Gene Expression. 3(3-0)
Biochemical study of nucleic acids and the expression of genetic information (nucleic acid structures and manipulation, transcription and translation). Prerequisite: CHEM 4341.

5351. Environmental Chemistry. 3(3-0)
The advanced study of chemistry as the basis of the environmental regulations for air pollution, water pollution, solid/hazardous wastes, toxic commercial chemical products and employee safety.

5412. Special Topics in Chemistry. V:1-4
A detailed study of special areas of chemistry featuring current advances and trends. Course may be repeated for a maximum of 6 semester hours. A laboratory may or may not be offered.

COMMUNICATIONS AND THEATRE ARTS

The Department of Communications and Theatre Arts offers a supporting field for graduate majors. The student may have a supporting field in communications/journalism, communications/speech or theatre arts. An interdisciplinary supporting field among these areas is possible with permission of the department chair.

JOURNALISM (COMJ)

5302. Hispanics in the Media. 3(3-0)
Provides historically accurate information about the impact of Spanish-language media in the United States and develops appreciation for diversity and knowledge of Latino subcultures of the United States.

5303. Selected Topics in Mass Communication. 3(3-0)
Weekly reports and individual research papers. The course may be repeated once for credit when the topic changes.