

CHEMISTRY (CHE)

CHE 520 Laboratory Safety and Management Credits: 3

Typically Offered: Spring (even-numbered years).

Course Description: Covering chemical safety, biological safety, chemical management, risk management, industrial toxicology, industrial hygiene, best practices, chemical compatibility, and regulatory controls and compliance. **Prerequisite(s):** Graduate standing in Chemistry.

CHE 526 Graduate Topics in Chemical Instrumentation Credits: 5

Typically Offered: Spring (even-numbered years).

Course Description: Advanced applications and troubleshooting of chemical instrumentation. Three hours lecture, six hours lab.

Prerequisite(s): Graduate standing and completion of organic chemistry with lab (CHE 381 and CHE 382) and quantitative analysis (CHE 321) or the equivalents.

CHE 530 Principles of Quality Assurance Credits: 3

Typically Offered: Fall (even-numbered years).

Course Description: Good Laboratory Practices (GLP), Good Manufacturing Practices (GMP), quality control, process monitoring and control, statistical methods, record keeping and regulatory compliance.

Prerequisite(s): Graduate standing in Chemistry.

CHE 541 Graduate Topics in Inorganic Chemistry Credits: 3

Typically Offered: Spring (even-numbered years).

Course Description: Graduate topics in the field of inorganic chemistry. Three hours lecture. **Prerequisite(s):** Graduate standing and completion of organic chemistry with lab (CHE 310 and CHE 311) or equivalent.

CHE 545 Advanced Chemical Methods Credits: 3

Typically Offered: Spring (odd-numbered years).

Course Description: Advanced chemical methods for process control, monitoring and analysis as applied to the practice of industrial chemistry. Topics include: Environmental Chemical Methods, Forensic Chemical Methods, Synthetic Chemical Methods, Clinical Chemical Methods, and Biochemical Methods. **Prerequisite(s):** Graduate standing in Chemistry.

CHE 570 Graduate Topics in Biochemistry Credits: 3

Typically Offered: Spring (even-numbered years).

Course Description: Advanced study of the biochemical properties of living systems, the diversity of biochemical functions, and mechanisms for biosynthesis. Emphasis on developing a more expansive understanding of biomolecular structure and dynamics, and intermediary metabolism. **Prerequisite(s):** Graduate standing and completion of biochemistry (CHE 370) or equivalent.

CHE 610 Applied Chemical Separations Credits: 1

Typically Offered: Summer.

Course Description: Covering applications of chemical separations as they relate to industrial process monitoring and control, drug discovery and development, environmental analysis, and research and development. **Prerequisite(s):** Graduate standing in Chemistry.

CHE 611 Applied Spectroscopy Credits: 1

Typically Offered: Summer.

Course Description: Covering applications of spectroscopy to industrial process monitoring and control, drug discovery and development, environmental analysis, and research and development. **Prerequisite(s):** Graduate standing in Chemistry.

CHE 612 Applied Biochemical Techniques Credits: 1

Typically Offered: Summer.

Course Description: Covering applications of biochemical methods as they relate to industrial process monitoring and control, drug discovery and development, environmental analysis, and research and development. **Prerequisite(s):** Graduate standing in Chemistry.

CHE 613 Principles of Drug Discovery Credits: 1

Typically Offered: Summer.

Course Description: Covering general principles of drug discovery. Topics include the drug discovery process, drug targets, design and screening methods, and approaches to synthesis. **Prerequisite(s):** Graduate standing in Chemistry.

CHE 640 Principles of Industrial Scale-up and Production Credits: 3

Typically Offered: Fall (odd-numbered years).

Course Description: Topics include industrial chemical and biotechnology processes and process scale up, catalysis, process monitoring, green chemistry, and industrial scale preparations. **Prerequisite(s):** Graduate standing in Chemistry.

CHE 650 Analytical Method Development and Validation Credits: 3

Typically Offered: Spring (odd-numbered years).

Course Description: This course will cover topics including defining the chemical problem, stability indicating methods, impurity testing, process monitoring and control, classes of methods including instrumental and wet methods. Validation will be covered with respect to validation of equipment, process, method, and cleaning. **Prerequisite(s):** Graduate standing in Chemistry.

CHE 675 Graduate Internship in Chemistry Credits: 3

Typically Offered: Fall, Spring, Summer.

Course Description: The Graduate Internship offers qualified students the opportunity to work in a setting or workplace outside of the University to gain industrial or professional experience. Student will be supervised by an on-site supervisor and a departmental coordinator. **Prerequisite(s):** Successful completion of at least 6 hours of graduate CHE credit and permission of department.

CHE 680 Intellectual Property in the Scientific Setting Credits: 2

Typically Offered: Spring (odd-numbered years).

Course Description: Physical limitations to present technologies will be examined along with the use of chemistry and biology to identify potential opportunities for new venture creation. The course will provide experience in using life sciences for the identification of incremental improvements and as the basis for alternative technologies. A proposal for a new business venture with applications in the life sciences will be required. Case studies will be used to illustrate recent commercially successful (and unsuccessful) ventures, and the associated characteristics for success. **Prerequisite(s):** Graduate standing in Chemistry.