DEPARTMENT OF CHEMISTRY

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The Department of Chemistry cooperates with the other STEM departments and the College of Education and Applied Human Sciences in offering the degree of Master of Arts in Education, in Secondary Education with a concentration in Physical Science. The program is primarily for non-specialized science teachers and is described more thoroughly in the College of Education and Applied Human Sciences section of this Catalog.

Master's

No results were found.

Courses

CHE 701. Chemtopics: _____. (3 Credits)
A. Prerequisite: instructor approval. Topics to be chosen from a current and/or specialized area of chemistry such as environmental chemistry or industrial chemistry, and will vary according to students¿ needs. May be retaken to a maximum of six hours.

CHE 701A. Chemtopics:_____. (1-3 Credits)
A. Prerequisite: departmental approval. Topics to be chosen from a current and/or specialized area of chemistry based on interests and/or need: A: Analytical, B: Biochemistry, C: Inorganic, D: Organic, or E: Physical. May be retaken to a maximum of six hours.

CHE 701B. Chemtopics:_____. (1-3 Credits)
A. Prerequisite: departmental approval. Topics to be chosen from a current and/or specialized area of chemistry based on interests and/or need: A: Analytical, B: Biochemistry, C: Inorganic, D: Organic, or E: Physical. May be retaken to a maximum of six hours.

CHE 701C. Chemtopics:_____. (1-3 Credits)
A. Prerequisite: departmental approval. Topics to be chosen from a current and/or specialized area of chemistry based on interests and/or need: A: Analytical, B: Biochemistry, C: Inorganic, D: Organic, or E: Physical. May be retaken to a maximum of six hours.

CHE 701D. Chemtopics:_____. (1-3 Credits)
A. Prerequisite: departmental approval. Topics to be chosen from a current and/or specialized area of chemistry based on interests and/or need: A: Analytical, B: Biochemistry, C: Inorganic, D: Organic, or E: Physical. May be retaken to a maximum of six hours.

CHE 701E. Chemtopics:_____. (1-3 Credits)
A. Prerequisite: departmental approval. Topics to be chosen from a current and/or specialized area of chemistry based on interests and/or need: A: Analytical, B: Biochemistry, C: Inorganic, D: Organic, or E: Physical. May be retaken to a maximum of six hours.

CHE 701L. Chemtopics Lab:_____. (1 Credit)
A. Prerequisite: departmental approval. Laboratory experiences chosen from specialized areas of chemistry including advanced chemical instrumentation/analysis, synthetic methods, computational chemistry, or molecular modeling. Topics vary according to student needs. May be retaken to a maximum of two hours. 3 Lab.

CHE 702. Polymers & Particles. (1 Credit)
A. Study of the structure, synthesis, preparation, characterization, and properties of synthetic polymers, supramolecular aggregates, and/or meso- or nanoscale materials. (3 Lab)

CHE 715. Synthetic & Analytical Methods. (3 Credits)
A. Corequisite: CHE 715L Synthesis, isolation, purification, and characterization (including spectroscopy and to her analytical methods) of inorganic and organic compunds and mixtures. Other methods include handling of air and moisture sensitive compounds and molecular computations. 3 Lec/6 Lab.

CHE 715L. Synthet & Analytical Metho Lab. (2 Credits)
A. Corequisite: CHE 715. Synthesis, isolation, purification, and characterization (including spectroscopy and other analytical methods) of inorganic and organic compounds and mixtures. Other methods include handling of air and moisture sensitive compounds and molecular computations. 6 Lab.

CHE 720. Mass Spectrometry. (3 Credits)
A. Prerequisite: Departmental approval. Topics include types of mass spectrometers: qualitiative and quantitative mass spectrometry, different ionization processes, sample inlet systems (including chromatography systems), and interpretation of mass spectral data.

CHE 770. Biophysical Chemistry I. (4 Credits)
I, II. An introduction to physical and chemical explanations of biological phenomenon and physical chemistry theories and methodologies applied on biological systems. Topics include thermodynamics, chemical equilibrium, kinetics, quantum chemistry, spectroscopy, and selected topics. 6 Lec/Lab Credit will not be awarded for both CHE 770 and 570.

CHE 774. Physical Chemistry I. (3 Credits)
A. Corequisite: CHE 774L. A study of thermodynamic properties in physical and chemical systems; electrochemical processes; rates and mechanisms of chemical reactions.

CHE 774L. Physical Chemistry Lab I. (1 Credit)
A. Prerequisites or Corequisites: CHE 774 (C or better). Laboratory component of CHE 774. Experimental work to illustrate principles of physical chemistry that include thermochemistry, thermodynamics, equilibrium, and reaction kinetics. 3 Lab.

CHE 775. Physical Chemistry II. (3 Credits)
A. Corequisite: CHE 775L. An introduction to quantum mechanics as applied to model, atomic, and molecular systems; applications of atomic and molecular spectroscopy; introduction to computational chemistry.

CHE 775L. Physical Chemistry Lab II. (1 Credit)
A. Prerequisites or Corequisites: CHE 775 (C or better). Laboratory component of CHE 775. Experimental work to illustrate principles of physical chemistry including UV-visible, infrared, and fluorescence spectroscopic techniques, fundamentals of laser operation, statistical mechanics, and computational chemistry.

CHE 776. Advanced Physical Chemistry. (3 Credits)
A. Prerequisite: CHE 575 (MAT 353 Recommended) or departmental approval. Intermediate and advanced topics in themodynamics, kinetics, sturcture and bonding. Credit will not be awarded to students who have credit for CHE 772.

CHE 801. Special Topics in CHE Ed. (3-6 Credits)
(3) A. Prerequisite: Departmental approval. Areas of secondary school chemical content aligned with current state and national standards. May be retaken for a maximum of 6 credit hours provided topics are different. Lec/Lab.

CHE 802. Topics in Analytical Chemistry. (1-3 Credits)
A. Prerequisite: departmental approval. Topics chosen from advanced areas of interest and vary according to needs. May be retaken for credit when new topics offered.

CHE 810. Professional Training. (2 Credits)
I. Prerequisite: departmental approval. Course demonstrates professional tools and establishes skills including chemical literature searching, independent project planning, methods for disseminating chemical data, chemical safety, as well as professional ethical conduct.

CHE 811. Chemistry Practicum. (1-3 Credits)
(1-2) Methodologies of chemistry teaching achieved through guided mentoring. Formal project assigned by faculy mentor is required for each student. Examples include devloping novel assignments or lab experiences, designing new education demonstrations, or investigating lecturing/tutoring techniques. May be retaken for a maximum of two hours. 3-6 Lab.

CHE 822. Advanced Analytical Chemistry. (3 Credits)
A. Modern practices in chemical analysis. Sampling, sample preparation, spectroscopic and chromatographic methods.

CHE 830. Applied Biochemistry. (3 Credits)
A. Structure, analysis and organization of proteins; drug development; organic mechanisms of enzyme action; and the chemistry of the immune system.

CHE 839. Co-op or Appl. Lrn: Chemistry. (0.5-6 Credits)
A. Prerequisite: departmental approval. Work under faculty and professional supervisors in an accepted chemistry or chemistry-related internship. Half (.5) to three hours per semester or summer. May be retaken up to a maximum of three hours. 80 hours work for each credit.

CHE 839A. Co-op or Appl Lrn: Chemistry. (0.5-6 Credits)
A. Prerequisite: departmental approval. Work under faculty and field supervisors in cooperative experience. Half (.5) to three hours per semester or summer. May be retaken to a maximum of six hours. A minimum of 80 hours work for each credit.

CHE 839B. Co-op or Appl Lrn: Chemistry. (0.5-6 Credits)
A. Prerequisite: departmental approval. Work under faculty and field supervisors in cooperative experience. Half (.5) to three hours per semester or summer. May be retaken at discretion of department or college up to a maximum of three hours. A minimum of 80 hours work for each credit.

CHE 839C. Co-op or Appl Lrn: Chemistry. (0.5-6 Credits)
A. Prerequisite: departmental approval. Work under faculty and field supervisors in cooperative experience. Half (.5) to three hours per semester or summer. May be retaken at discretion of department or college up to a maximum of three hours. A minimum of 80 hours work for each credit.

CHE 845. Chem Lab & Demonstr Techniques. (1-4 Credits)
A. Prerequisite: six semesters of undergraduate work in chemistry or departmental approval. Techniques of constructing and demonstrating apparatus to illustrate principles of chemistry. Primarily for high school and community college science teachers. 3-12 Lab.

CHE 850. Advanced Inorganic Chemistry. (3 Credits)
A. Prerequisite: Molecular symmetry in inorganic chemistry, mechanisms of inorganic reactions, and catalysis by coordination and organometallic complexes.

CHE 860. Advanced Organic Chemistry. (3 Credits)
A. Prerequisite: Structure and reactivity or organic molecules and an in-depth study of interactions involved in molecular, macromolecular, and supramolecular systems and multiple step synthesis for polyfunctional molecules.

CHE 880. Graduate Seminar. (1 Credit)
A. Presentation of significant developments in chemistry to members of the chemistry faculty and department majors. May be retaken to a maximum of three hours. Cannot be taken concurrently with CHE 810. 1 Lec.

CHE 890. Grad Lit & Project Planning. (1 Credit)
A. Extensive survey of literature related to a specific research program and planning of that program through consultation with a selected research advisor.

CHE 895. Chemistry Independent Research. (1-3 Credits)
A. Objectives and techniques of chemical research. Problems in all fields of chemistry. May be retaken to a maximum of three hours. Student must have the independent study proposal form approved by faculty supervisor and departmental chair prior to enrollment.

CHE 899. Thesis. (1-6 Credits)
A. Laboratory research in one of the major areas of chemistry for application to a thesis. May be retaken to a maximum of six hours.

CHE 899C. Cont' of Thesis Research. (1-9 Credits)
(1-9) A. Prerequisite: departmental approval. The continuation of research in one of the major areas of chemistry. May be retaken as necessary to complete research. A student must have registered (or be currently registered) for six hours of CHE 899 before registering for CHE 899C. May not be used to satisfy degree program requirements. Credit will not be awarded for both CHE 895C and CHE 899C.