General Course Overview

Prerequisites: Although there are no formal prerequisites for this class, student will preferably have taken (or are taking concurrently) most of the following undergraduate courses or their equivalent: instrumental analysis (Chem 5640/5650), quantitative analysis (Chem 3600/3610) and physical chemistry (Chem 3060/3070). Also, students must also be registered for/or have already taken CHEM 7640 - Chromatography and CHEM 7640 - Mass Spectrometry.

This course is intended for chemistry graduate (Ph.D., MS) and advanced undergraduate students. The class will be structured as a follow up to the CHEM 7640 - Chromatography and CHEM 7640 - Mass Spectrometry courses and offer an applied laboratory experience of the concepts discussed in the other two special topics courses. This course should prepare the student for implementing chromatographic separations coupled with mass spectrometry as tools for chemical analysis in their individual research areas as well as providing a solid background in these tools for future use in academics or industry.

Grading

Grading will be based upon successful completion of the following:

(a) Completion of an instructor approved course project on the development of a combined chromatographic method coupled with Mass Spectrometry detection.

(b) A 3-5 page written (typed) report describing the separation development process and optimized procedure (in the form of a standard operating procedure i.e., an SOP).

Course Withdrawal: Students may withdraw from Chemistry 7640 as outlined in the most recent Utah State University General Catalog and the most recently revised semester calendar.

Additional Final Provisions: The administration of Chemistry 7640 will adhere strictly to the regulations outlined in the most recent Utah State University Fall Schedule of Classes. Missed exams will be handled on a case-by-case basis and may require written documentation of a medical or family emergency, at the instructors discretion.

Course Learning Objectives:

1) Gain an understanding of the application of chromatography and mass spectrometry to chemical applications.
2) Gain an understanding of how to optimize a chromatographic separation and specific requirements for the development of a successful combined chromatographic and mass spectrometry procedure.

3) Be able to convert experimental optimizations into a written standard operating procedure (SOP) that incorporates both chromatography and mass spectrometry criteria for the analysis.

4) Gain practical operating experience of chromatography and mass spectrometry equipment.

In accordance with the Americans with Disabilities Act, reasonable accommodation will be provided for all persons with disabilities in order to ensure equal participation in Chem. 7610. Any student that requires an accommodation must contact the Instructor. The disability must be documented by the Disability Resource Center. In cooperation with the Disability Resource Center, reasonable accommodation will be provided for students with disabilities. Course material may be requested in alternate formats.