Instructor: Prof. Scott K. Shaw
Office: W476 Chemistry Building
Hours: Mondays 8-10 a.m.
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DEO: Prof. Jim Gloer, E331 CB, phone 335-3124

Lectures Location/Times: 8:00-9:15 AM, Tue/Thurs, E264 Chemistry Bldg

Course Website: See ICON - https://icon.uiowa.edu/

Course Description: This graduate-level course provides a survey of optical methods for spectrochemical analysis.

Course Goals & Objectives:
The student will learn to:
1. criticize literature articles
2. evaluate the feasibility of an idea
3. suggest spectroscopic apparatus for experiments
4. prepare and present data in an accurate and meaningful way
5. apply spectrochemical measurements to current research challenges

Texts and Materials: Recommended textbooks for this course include:
• D. C. Harris, Quantitative Chemical Analysis
• J. D. Ingle and S. R. Crouch, Spectrochemical Analysis
• D. A. Skoog, Holler, and Crouch, Principles of Instrumental Analysis

Supplemental materials will be made available via files posted to the ICON website. Students will be expected to access primary literature for discussions, assignments, and presentations.

Calculators, laptops, tablets, etc. may be used on homework and are encouraged during class. Students must provide their own devices.

Grading: Grades in this course will reflect the student’s ability to effectively communicate mastery of the goals and objectives outlined above. This will be assessed through homework assignments, exams,
class presentations, written reports, and active class participation. This course will use the +/- system of letter grades. Relative values of course assessments are provided here:

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<tr>
<th>Assessment</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Exams</td>
<td>20%</td>
</tr>
<tr>
<td>Homework</td>
<td>20%</td>
</tr>
<tr>
<td>Presentations</td>
<td>20%</td>
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<tr>
<td>Reports</td>
<td>20%</td>
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<tr>
<td>Participation</td>
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**Re-grading:** Re-grading of any assessment may be requested within 24 hours of the time the original grading decision is presented to the student. Such requests must be accompanied by a written description of the justification(s) for the re-grade request. Note that a re-grade implies review of the entire assessment and may raise or lower the ultimate score.

**Attendance:** On-time attendance is required and active participation will be evaluated for quantity and quality on an individual basis. Circumstances may arise that require some students to be absent or late. In these instances flight boarding passes, funeral announcements, a physician’s note, or equivalent will be required.

**Late work:** Late work is not accepted unless you have a physician’s statement of your incapacitation, at which point appropriate alternative arrangements can be made.

**Academic Integrity:** The University's Code of Student Life includes a full statement on academic integrity and honesty; anything less than 100% adherence will result in referral to the University for investigation and disciplinary action. If you are unsure of the definition of academic dishonesty please consult your instructor and read the documents at: [http://clas.uiowa.edu/students/handbook](http://clas.uiowa.edu/students/handbook), [http://clas.uiowa.edu/students/handbook/academic-fraud-honor-code](http://clas.uiowa.edu/students/handbook/academic-fraud-honor-code)

**General Course Philosophy and Practices:**
1) Everyone involved in the course will be expected to exhibit courtesy and professionalism at all times.
2) **Collaboration** is encouraged on all assignments **except examinations**. Collaboration means working with someone so that
both of you know more than either would if you had not worked together. Collaboration on examinations is prohibited.

3) Lectures are a guide to what the instructor views as interesting or useful. They are not meant to provide the exclusive viewpoint on a topic. Students are expected to browse the relevant journals to form their own views. That way, lectures will give perspective on a topic, rather than being vehicles to replace the literature and textbook.

4) E-mail must be carried out exclusively via official @UIOWA.EDU email addresses.

5) All homework and other assignments must be uploaded to the appropriate ICON drop box. Scanning hand-written work and uploading images is acceptable. Legible writing and good organization are required.

6) Be aware that video and audio may be recorded during lectures.

7) Your instructor talks too fast. Be sure to slow him down by asking good questions at regular intervals.

**Detailed Assessment Information:**

**Exams:**
In a graduate course, exams no longer seek to have you hand back what you've been handed. Rather, they seek to have you synthesize what you've learned in solving novel problems. Exams may include calculations, criticism of a literature article based on what you've learned, design of an experiment, and evaluation of a proposed idea. What you have learned will be revealed by your use of the concepts covered in class activities.

**Homework Assignments:**
Homework assignments will involve complex problems that go beyond material presented in class. Students may need to research additional sources of information. These assignments are meant to be collaborative, e.g. groups of students should work together to develop an approach for completing the assigned work, but each student should arrive at their own, independent conclusions and each student must submit their own, unique responses to ICON. Selected problems from the homework sets will be graded and returned. Some may re-appear on exams.
Presentations:
Each student will deliver two in-class presentations. These are outlined below:

1) Students will lead a class discussion on a primary research article. The article will be pre-approved by the course director. The student will present the technique used, critique the paper’s major findings, and address questions from the class.

2) Students will deliver an oral defense of a research idea that employs an advanced spectroscopic technique. The presentations will: 1) explain the technique’s unique spectroscopic attributes, 2) explain why this technique is the best tool for the proposed research 3) offer an interpretation of data from the technique as it explains a chemical process or phenomena, 4) field questions from a panel of peer reviewers.

Written Reports:
Each student will be responsible for three literature summary reports and one white paper. These are outlined below:

1) Students will submit individual summary documents of three separate literature articles presented in this class. Each summary will target different audiences as follows: 1) a non-scientist without a college degree, 2) a scientifically literate non-expert, and 3) an advanced technical expert. The summary reports will be 400 words long. A student cannot present and report on the same paper. The summaries must be submitted to ICON on the assigned deadlines.

2) Groups of students (assigned by the instructor) will be responsible for submitting a white paper. A white paper is a common first step in preparing a proposal for research funding. They are short documents that provide a project overview for evaluation by a program manager, who ultimately decides whether or not to invite the author(s) for a full proposal. Student papers should: 1) utilize an advanced spectroscopic technique to answer a chemical question, 2) address the questions presented in the Heilmeier catechism, 3) contain 2-3 graphics, one of which must be a schematic of the spectroscopic technique, 4) fit
into two and one-half single-spaced pages, and 5) include a bibliography (not counted towards the 2-page limit).

Participation:
Quality and quantity of in-class participation will be evaluated holistically. You are encouraged to:

1) ask and answer questions, contribute to discussion and group activities
2) submit literature review questions and thoughtful peer-reviews
3) identify, share, attend, participate in, and review out-of-class seminars, lectures, or other on-campus activities relevant to spectroscopy.
Administrative Home

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at [http://clas.uiowa.edu/students/handbook](http://clas.uiowa.edu/students/handbook).

Electronic Communication

University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences ([Operations Manual, III.15.2, k.11](#)).

Accommodations for Disabilities

A student seeking academic accommodations should first register with Student Disability Services and then meet with the course instructor privately in the instructor's office to make particular arrangements. See [www.uiowa.edu/~sds/](http://www.uiowa.edu/~sds/) for more information.

Academic Honesty

All CLAS students or students taking classes offered by CLAS have, in essence, agreed to the College's [Code of Academic Honesty](#): "I pledge to do my own academic work and to excel to the best of my abilities, upholding the [IOWA Challenge](#). I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled ([CLAS Academic Policies Handbook](#)).

CLAS Final Examination Policies

The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final examination period. No exams of any kind are allowed during the last week of classes. All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of a final exam.
Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (CLAS Academic Policies Handbook).

Understanding Sexual Harassment

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Comprehensive Guide on Sexual Harassment for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Department of Public Safety website.