



## Advanced Microscopy and Spectroscopy Techniques and Applications

Chemistry 7770  
Spring 2022

Time and location TBD  
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- Office Hours:** By appointment [nick.dickenson@usu.edu](mailto:nick.dickenson@usu.edu)
- Text:** There is no required text for the course, but there will be required readings that will be made available by the instructor.
- Lecture Overheads - Canvas:** We will be using Canvas for the management of Chem 7770. Copies of many required readings and some lecture overheads will be posted on Canvas (<https://online.usu.edu/>).
- Course Withdrawal:** Refer to the current academic year registration calendar for details and deadlines concerning withdrawal conditions and deadlines.
- Provisions:** The administration of Chem 7770 will adhere strictly to the academic policies outlined in the most recent USU General Catalog, which can be found here: <http://catalog.usu.edu/index.php>  
Students not enrolled in the course may sit in only with instructor approval.
- Course Content:** Chemistry 7770 is a special topics graduate course. It will cover the theory and practical approaches for an array of microscopy and spectroscopy techniques with a special emphasis on biochemical applications. The course is designed to provide the participants with a level of understanding sufficient to guide them in critical reading the literature and in the acquisition and interpretation of data.
- Target audience:** This course is suitable for any graduate student who has a solid command of fundamental biochemistry or for undergraduate science majors who have taken the prerequisite biochemistry.
- Course Assessment:** Students in this class are expected to develop an understanding of the techniques and ideas covered in the course. Some will be covered in much greater depth than others and this will be reflected in the testing of the material. While the instructor will guide the course, the students will be responsible for adequately preparing for lecture as well as presenting a significant amount of the material to their peers. Attendance and participation (including presentation) are vital for this type of course and while attendance is not graded, participation is mandatory and is worth a total of **50 points**.
- Additionally, you will perform 2 “peer reviews” of a published paper that utilizes one or more microscopy/spectroscopy techniques. The reviews will be worth 25 points each.

There will be **two 25 point** short exams/quizzes during the semester. Some will be announced ahead of time and some may not. It is imperative that you come to class full prepared each period.

**Grading:**

**\*\*There will be NO EXTRA CREDIT awarded in this class.**

Class participation and presentations.....	50 points
“Peer reviews” (2 @ 25pt each).....	50 points
Short exams/quizzes (2 @ 25pt each) .....	50 points
<b>Total.....</b>	<b>150 points</b>

In terms of final assignment of grades, you are guaranteed the following grades if your final class percentage lies within the indicated ranges.

100-90% A through A-	89.9-78% B+ through B-
77.9-68% C+ through C-	67.9-59% D+ through D-

Based on the overall class average at the END of the semester, the percentage cutoffs may be adjusted to be lower than those above at the instructor’s discretion. They will never, however, shift higher.

**OBJECTIVES**

In planning this course, I have identified three main course objectives:

1. *Gaining factual knowledge (terminology, classifications, methods, trends)*
2. *Learning fundamental principles, generalizations, or theories*
3. *Learning to apply course materials (to improve rational thinking, problem solving and decisions)*

Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, (435)797-2444. Please contact the DRC as early in the semester as possible.

Alternate format materials (Braille, large print, digital, or audio) are available with advance notice.

## The “fine Print”

## COVID-19 Classroom Safety Protocols

While not mandated, USU encourages and welcomes the wearing of masks in all university building, especially within 6 feet of others. Furthermore, it is strongly encouraged to take measures to mitigate risk as recommended by federal and state public health officials. These measures include getting fully vaccinated, staying home if you are sick (even with mild symptoms), and maintaining good hygiene including frequent hand washing. Testing will be provided, without charge, throughout the semester and the USU COVID Webpage will provide up-to-date information. Please remember; COVID can have significant impact on the health and safety of those around you so remain vigilant and respectful.

## Academic Freedom and Professional Responsibilities

Academic freedom is the right to teach, study, discuss, investigate, discover, create, and publish freely. Academic freedom protects the rights of faculty members in teaching and of students in learning. Freedom in research is fundamental to the advancement of truth.

Faculty members are entitled to full freedom in teaching, research, and creative activities, subject to the limitations imposed by professional responsibility. USU Policy 403 further defines academic freedom and professional responsibilities.

## Academic Integrity - "The Honor System"

The University expects that students and faculty alike maintain the highest standards of academic honesty. The Code of Policies and Procedures for Students at Utah State University (Student Conduct) addresses academic integrity and honesty and notes the following:

Academic Integrity: Students have a responsibility to promote academic integrity at the University by not participating in or facilitating others' participation in any act of academic dishonesty and by reporting all violations or suspected violations of the Academic Integrity Standard to their instructors.

The Honor Pledge: To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge: "I pledge, on my honor, to conduct myself with the foremost level of academic integrity". Violations of the Academic Integrity Standard (academic violations) include, but are not limited to cheating, falsification, and plagiarism

#### Plagiarism

Plagiarism includes knowingly "representing by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials." The penalties for plagiarism are severe. They include warning or reprimand, grade adjustment, probation, suspension, expulsion, withholding of transcripts, and denial or revocation of degrees.

#### Course Fees

Instructors that utilize course fees should identify the amount and explain the purpose of the course fee on the top half of the first page of the syllabus. Course fees are listed in the catalog.

#### Grievance Process

Students who feel they have been unfairly treated [in matters other than discipline, admission, residency, employment, traffic, and parking - which are addressed by procedures separate and independent from the Student Code] may file a grievance through the channels and procedures described in the Student Code: Article VII Grievances

#### Discrimination and Sexual Misconduct

USU strives to provide an environment for students and employees that is free from discrimination and sexual misconduct. If you experience sexual misconduct or discrimination at any point during the semester inside or outside of class, you are encouraged to contact the USU Title IX Coordinator via Old Main room 161 in Logan, 435-797-1266, [titleix@usu.edu](mailto:titleix@usu.edu), or at [equity.usu.edu/report](http://equity.usu.edu/report).

You can learn more about the USU resources available for individuals who have experienced sexual misconduct at [sexualrespect.usu.edu](http://sexualrespect.usu.edu). Resources for individuals who have experienced discrimination are listed at [equity.usu.edu](http://equity.usu.edu).

#### Required Reporting of Sexual Misconduct

The instructor is designated by USU as a "reporting employee." This means that if you share information about sexual misconduct (sexual harassment, sexual assault, relationship violence, or sex-based stalking) with the instructor, they will report that information to the USU Title IX Coordinator. The instructor is also required to tell you about designated confidential resources, supportive measures, and how you can file a report with the USU Title IX Coordinator.

#### Students with Disabilities

USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the Disability Resource Center (DRC) as early in the semester as possible (University Inn # 101, 435-797-2444, [drc@usu.edu](mailto:drc@usu.edu)). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.

#### Withdrawal Policy, "I" Grade Policy and Dropping Courses

If a student does not attend a class during the first week of the term or by the second class meeting, whichever comes first, the instructor may submit a request to have the student dropped from the course. (This does not remove responsibility from the student to drop courses which they do not plan to attend.) Students who are dropped from courses will be notified by the Registrar's Office through their preferred e-mail account.

Students may drop courses without notation on the permanent record through the first 20 percent of the class. If a student drops a course following the first 20 percent of the class, a W will be permanently affixed to the student's record (check General Catalog for exact dates).

Students with extenuating circumstances should refer to the policy regarding Complete Withdrawal from the University and the Incomplete (I) Grade policy in the General Catalog.

#### No-Test Days Policy

For classes that meet for a full semester, a five-day period designated as "no-test" days precedes final examinations. During this time, no major examinations, including final examinations will be given in order that students may concentrate on classwork, the completion of special assignments, writing projects, and other preparation for duly scheduled final examinations. Approved exceptions include final papers, weekly chapter quizzes, quizzes, projects, and examinations associated with a lab that does not meet during final examinations. This policy does not apply to classes that meet only during the second 7-week session of the semester or to classes offered during the summer term. Complete information related to Final Examination Policies can be reviewed in the General Catalog.

#### Assumption of Risk

All classes, programs, and extracurricular activities within the University involve some risk, and some involve travel. The University provides opportunities to participate in these programs on a voluntary basis. Therefore, students should not participate in them if they do not care to assume the risks. Students can ask the respective program leaders/sponsors about the possible risks a program may generate, and if students are not willing to assume the risks, they should not select that program. By voluntarily participating in classes, programs, and extracurricular activities, students do so at their own risk. General information about University Risk Management policies, insurance coverage, vehicle use policies, and risk management forms can be found at <http://www.usu.edu/riskmgt/>.

#### Mental Health

Mental health is critically important for the success of USU students. As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce your ability to participate in daily activities. Utah State University provides free services for students to assist them with addressing these and other concerns. You can learn more about the broad range of confidential mental health services available on campus at Counseling and Psychological Services (CAPS).

Students are also encouraged to download the "SafeUT App" to their smartphones. The SafeUT application is a 24/7 statewide crisis text and tip service that provides real-time crisis intervention to students through texting and a confidential tip program that can help anyone with emotional crises, bullying, relationship problems, mental health, or suicide related issues.