

**CHM 3120**  
**INTRODUCTION TO ANALYTICAL CHEMISTRY**  
**Spring Semester 2025, 3 Credits**

- Instructor:** Boone Prentice, CLB C210A, 352-392-0556,  
[booneprentice@chem.ufl.edu](mailto:booneprentice@chem.ufl.edu)
- Lectures:** M W F, 9:35AM-10:25AM (Period 3), SFH 221
- Office hours:** Wednesday 3:00PM-4:00PM in CLB 212  
Friday 12:00PM-1:00PM in CLB 212
- Graduate TAs:** Justin Ellenburg, [jellenburg@chem.ufl.edu](mailto:jellenburg@chem.ufl.edu)  
Office Hours: Monday 3:00PM-4:00PM in CLB 212  
You may also e-mail us to set up a 1-on-1 appointment.
- Course objectives:** In this course, you will be introduced to the basics of analytical chemistry and how analytical techniques are used to make quantitative measurements. Lectures will emphasize both classical and modern techniques, with a greater focus on modern methods and recent developments. Included in this will be discussions of statistical analyses and data interpretation. Some aspects of quantitative analysis will also be covered.
- Communication:** Please do not use e-mail to ask me specific questions on problem sets, lecture materials, or exams. These types of questions are better addressed during office hours. E-mail is not an efficient modality for teaching (*i.e.*, it may be easy to type a question, but it can be very time-consuming and even unclear to offer responses in the form of explanations, drawings, or equations). Please use e-mail within Canvas if you need to ask about course logistical information.
- Textbook:** "Quantitative Chemical Analysis," 10<sup>th</sup> Edition, Daniel C Harris, Freeman, 2020. This **book is required** because suggested readings and graded in-class problem sets will facilitate comprehension of course material in preparation for exams.
- "Analytical Chemistry," Version 2.1, Online Textbook, David T. Harvey. Available:  
[http://dpuadweb.depauw.edu/harvey\\_web/eTextProject/version\\_2.1.html](http://dpuadweb.depauw.edu/harvey_web/eTextProject/version_2.1.html) This reference will not be referred to for readings and problem sets, but is a free online resource.
- Grading:** Grades will be based on four in-semester exams, a cumulative final exam, and in-class problem sets/participation. Grades will be determined on the scale below and posted in Canvas. A small curve may be applied at the end of the term at the professor's discretion. Information on current UF grading policies is available

online:

(<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>).

Grade	Percentage	Grade	Percentage	Grade	Percentage
A	≥93	B-	≥80	D+	≥67
A-	≥90	C+	≥77	D	≥64
B+	≥87	C	≥73	D-	≥60
B	≥83	C-	≥70	E	<60

Exams: One in-semester exam will follow each topical area (*i.e.*, statistics, spectroscopy, electrochemistry, and separations & mass spectrometry) and will be held in the **evening outside of normal instructional time from 7:20-9:20pm in SFH 221**. Only the top four exam grades will be counted towards your final grade, so the lowest of the five exam scores is dropped. If you believe there was an error in grading, please see Prof. Prentice within 1 week of having the exam returned to you. I do my best to ensure that the grading is fair for all students. Re-takes of exams due to poor performance are not offered. Make-ups of exams are offered per course policies described below.

Final Exam: The **cumulative final exam** is scheduled for **5/2/25 from 10AM-12PM in SFH 221**. Of the four in term exams and the final exam, the **lowest exam grade is dropped**. Students are not required to attend the final exam if they choose to drop the final exam.

Problem Sets/Participation: Problem sets will cover relevant real-world examples of the theory, operation, and application of these topics during each topical area of the course. These materials will contribute to the final grade as follows:

<u>Exams:</u>	80% (20% each)
<u>Problem sets/Participation:</u>	20%

### Course policies:

Students are expected to arrive on time for class and conduct themselves respectfully and professionally. Cell phones and other electronic devices should not be used for communication during instructional time, except when expressly directed by the instructor or in the case of an emergency.

**This course is designed as a flipped classroom.** Students are required to watch pre-recorded lectures as homework prior to class. Class time will be largely spent working collaboratively on problem sets and group work activities. These problem sets and in-class participation represent 20% of the course grade. PowerPoint lectures will also be available on Canvas, but may not contain 100% of the information in the pre-recorded lectures.

Any request for make-up assignments for absences due to sporting events, family matters, religious obligations, etc. should be made to Prof. Prentice as far in advance as possible. If you are absent for an assignment due to an unpredicted documented medical reason or family emergency, please submit documentation to Prof. Prentice. I will follow UF academic regulations in evaluating the notification and/or documentation received. Once the validity of your assignment absence has been verified, a make-up assignment will be scheduled after a reasonable amount of time. Make-up assignments will only be given if appropriate documentation is provided. Late assignments will not be permitted otherwise. To alleviate stress with potential issues and grades, the lowest of five exams for the course is dropped. If you are experiencing hardships due to absences, you may reach out to the DSO (<https://care.dso.ufl.edu/instructor-notifications/>).

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://disability.ufl.edu/get-started/>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

University of Florida students are bound by the Honor Pledge (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>). On all work submitted for credit by a student, the following pledge is required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Student Honor Code and Conduct Code (Regulation 4.040) specifies a number of behaviors that are in violation of this code, as well as the process for reported allegations and sanctions that may be implemented. All potential violations of the code will be reported to Student Conduct and Conflict Resolution. If a student is found responsible for an Honor Code violation, the instructor will enter a Grade Adjustment sanction which may be up to or including failure of the course.

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

For counseling the following resources are available to students:  
**U Matter, We Care:** If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352-392- 1575. **Counseling and Wellness Center:** <https://counseling.ufl.edu/>, 352-392-1575; the University Police Department: 352-392-1111 or 911 for emergencies. **Sexual Assault Recovery Services (SARS):** Student Health Care Center, 352-392-1161.

Instructional materials for this course consist of only those materials specifically reviewed, selected, and assigned by the instructor(s). The instructor(s) is only responsible for these instructional materials.

**In-Class Recording:** Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal education use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and deliver by an instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentation such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or guest lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless, of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to civil cause of action instituted by a person injured by publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

## TENTATIVE LECTURE SCHEDULE

<u>Date</u>	<u>Lecture</u>	<u>Topic</u>	<u>Textbook</u>
M 1/13	1	Introduction and Overview	Ch. 0 & 1
W 1/15	2	Units and Chemical Measurements	Ch. 1
F 1/17	3	Tools	Ch. 2
M 1/20		<i>No class – MLK Day</i>	
W 1/22	4	Error and Sigfigs	Ch. 3
F 1/24	5	Sigfigs Continued	Ch. 4
M 1/27	6	Statistics	Ch. 4
W 1/29	7	Statistics	Ch. 4
F 1/31	8	Quality Assurance and Calibrations	Ch. 5
M 2/3	9	Introduction to Spectroscopy	Ch. 18
<b>M 2/3</b>		<b>Evening Exam 1 (up to Lecture 8)</b>	
W 2/5	10	Fundamentals of Spectroscopy	Ch. 18
F 2/7	11	Fundamentals of Spectroscopy	Ch. 18
M 2/10	12	Spectroscopic Instrumentation	Ch. 20
W 2/12	13	Spectroscopic Instrumentation	Ch. 20
F 2/14	14	Spectroscopic Instrumentation	Ch. 20
M 2/17	15	Atomic Spectroscopy	Ch. 21
W 2/19		Exam 1 Review	
F 2/21	16	Atomic Spectroscopy	Ch. 21
M 2/24	17	Applications of Spectrophotometry	Ch. 19
W 2/26	18	Fundamentals of Electrochemistry	Ch. 14
<b>W 2/26</b>		<b>Evening Exam 2 (Lectures 9-17)</b>	
F 2/28	19	Fundamentals of Electrochemistry	Ch. 14
M 3/3	20	Electrodes and Potentiometry	Ch. 15
W 3/5	21	Electrodes and Potentiometry	Ch. 15
F 3/7	22	Electrodes and Potentiometry	Ch. 15
M 3/10	23	Electroanalytical Techniques	Ch. 17
W 3/12	24	Electroanalytical Techniques	Ch. 17
F 3/14		Exam 2 Review	
		<i>3/17-3/21 No Class – Spring Break</i>	
M 3/24	25	Applications of Electrochemistry	Ch. 17
W 3/26	26	Applications of Electrochemistry	Ch. 17
F 3/28	27	Separations	Ch. 23
F 3/28		<b>Evening Exam 3 (Lectures 18-26)</b>	
M 3/31	28	Liquid Chromatography	Ch. 25
W 4/2	29	Liquid Chromatography	Ch. 25
F 4/4	30	Gas Chromatography	Ch. 24
M 4/7	31	Mass Spectrometry	Ch. 22
W 4/9	32	Mass Spectrometry	Ch. 22
F 4/11	33	Mass Spectrometry	Ch. 22
M 4/14		Exam 3 Review	
W 4/16	34	Mass Spectrometry	Ch. 22
F 4/18	35	Applications of Mass Spectrometry	
F 4/18		<b>Evening Exam 4 (Lectures 27-35)</b>	
M 4/21	36	Analytical Chemistry Discussion	

W 4/23  
F 4/25  
**F 5/2**

Final Exam Review  
*No class – Reading Day*  
**Final Exam (Cumulative)**