

CHM 3120
INTRODUCTION TO ANALYTICAL CHEMISTRY
Spring Semester 2023, 3 Credits

- Instructor:** Boone Prentice, CLB C210C, 352-392-0556,
booneprentice@chem.ufl.edu
- Lectures:** M W F, 3:00PM-3:50PM (Period 8), FLI 0050
- Office hours:** Monday 8:30AM-9:30AM in CLB 212
Friday 9:00AM-10:00AM in CLB 212
- Graduate TAs:** Troy Scoggins, t.scoggins@ufl.edu
Office Hours: Tuesday 10:00AM-11:00AM in CLB 212
Yingchan Guo, yingchangguo@ufl.edu
Office Hours: Wednesday 9:00AM-10:00AM 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 us 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," 10th Edition, Daniel C Harris, Freeman, 2020. The book is required because suggested readings and problem sets will facilitate comprehension of course material in preparation for exams. However, these problem sets will not be graded.
"Analytical Chemistry," Version 2.1, Online Textbook, David T. Harvey. Available:
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 and a cumulative final exam. Only the top four exam grades will be counted towards your final grade, so the lowest of the five exam scores is dropped. Grades will be determined on the scale below and posted in Canvas. A curve may be applied at the end of the term at the professor's discretion.

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

Information on current UF grading policies is online: (<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>).

If you believe there was an error in grading, please see Prof. Prentice or the TA within 1 week of having the exam returned to you. We do our best to ensure that the grading is fair for all students. Re-takes of exams are not offered.

Final Exam: The cumulative final exam is scheduled for **5/2/23 from 12:30PM-2:30PM in FLI 50**. Of the four in term exams and the final exam, the lowest exam grade is dropped, so students are not required to attend the final exam if they choose to drop the final exam.

Course policies:

Attendance will not be recorded, but attendance at lectures is important for assimilating the course material. PowerPoint lectures will be available on Canvas, but may not contain 100% of the information provided in class. Lectures will NOT be recorded. Any request for make-up exams 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 exam due to an unpredicted documented medical reason or family emergency, please have the reason for your absence verified by the UF Dean of Students Office (DSO). You can access that system here: <https://care.dso.ufl.edu/instructor-notifications/>. I will follow UF academic regulations in evaluating the notification and/or documentation received by the DSO. Once the validity of your exam absence has been verified, a make-up exam will be scheduled after a reasonable amount of time. Make-up exams will only be given if appropriate

documentation is provided. Late exams will not be permitted otherwise. To alleviate stress with potential issues and grades, the lowest of five exams for the course is dropped.

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://disability.ufl.edu/>) 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.

UF students are bound by The Honor Pledge which states: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class." Violations of the Honor Code will be reported to the Dean of Students Office.

Students are expected to provide 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 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.

TENTATIVE LECTURE SCHEDULE

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

M 4/24
W 4/26
F 4/28
T 5/2

Exam 4 (Ch. 22-25)
Exam 3 and Exam 4 Review
No class – Reading Day
Final Exam (Cumulative)