

CHM 3120 – INTRODUCTION TO ANALYTICAL CHEMISTRY – SPRING 2022

INSTRUCTOR INFORMATION:

Instructor: Dr. Anna Brajter-Toth

Email: atoth@chem.ufl.edu (for administrative purposes only)

Office Hours: T, R 6th and 7th period (12:50 pm -1:40 pm; 1:55 pm- 2:45 pm) in office, Sisler 228A

T 5th period (11:45 am -12:35 pm) via Zoom; Zoom link will be posted on Canvas on the class website.

COURSE MEETING TIMES:

T 9th period (4:05PM – 4:55PM) R 9-10th Period (4:05PM –6:00PM) CLB 130

Course Delivery Method: This course will be delivered primarily in the classroom during the scheduled class meeting times listed above. Course content will be available on the CANVAS course shell. Required Discussion Sections meetings will occur via the Zoom platform during scheduled discussion period. *Please see your registered section for Discussion meeting time.*

General Chemistry Policy Questions: For general questions regarding the course please contact the instructor.

IN-CLASS RECORDING

All recordings of this class are available on-line. 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 delivered by any 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 presentations 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 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 a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

TA

OFFICE HOURS & RESOURCES

TA Information: Office Hours of the teaching assistant (TA) in this class Chenlu Yang, chenlu.yang@ufl.edu will be posted on Canvas on the class website. You may see your own TA in this class during his/her office hours, no appointment necessary, or visit the office hours of the instructor.

Use the office hours as a resource for being successful in CHM3120.

GENERAL INFORMATION:

DESCRIPTION:

The course will cover topics including: Essential background information, experimental error, statistics, the concept of chemical activity, electrochemistry and electrochemical methods, methods based on measurement of light. Background material covered in freshman chemistry will not be covered but will be referred to. Review of chemical equilibrium concepts and calculations, titrations monoprotic acids and polyprotic acids is recommended.

PREREQUISITES:

Information can be found via the [Undergraduate Catalog](#).

MATERIALS:

Required:

- **Textbook:** Daniel C. Harris, Quantitative Chemical Analysis", 9th Edition, Freeman, 2016.
- If you have different edition of the book, contact the instructor if you have questions about the chapter content and the end of chapter problem assignments.
- **Non-graphic / non-programmable scientific** calculator.

Note: 9th Edition (Copies of the 9th ed. and solution manual are available in the Marston Science Library).

GRADES:

Grades for the term will be determined as follows: Four in-class exams and a final exam.

Option One:

3 best of 4 Progress Exams (3 @ 200 pts each = 25.0% each)	75.0%
Final Cumulative Exam (200 pts)	25.0 %
Homework (Not graded)	0%
TOTAL (800 points)	100%

Option Two:

4 Progress Exams (4 @ 200 pts each = 25.0% each)	100%
Final Cumulative Exam (200 pts)	Skip
Homework (Not graded)	0%
TOTAL (800 points)	100%

The following **grade cutoffs** will be used (these are non-negotiable):

87.5-100% = A	84.5-87.4% = A-	81.5-84.4 % = B+	77.5-81.4% = B	74.5-77.4% = B-
71.5-74.4 % = C+	67.5-71.4.9% = C	64.2-67.4% = C-	61.2-64.1% = D+	57.5-61.1% = D
< 57.4% = E				

Posted grades: Should a student wish to dispute any grade received in this class, the dispute must be in writing and submitted to the course instructor within one week of the grade being posted to CANVAS. After one week has passed from when the grade was posted and the student was made aware of the posting of the grade(s) via an announcement on CANVAS, the instructor considers those grades final.

TENTATIVE SCHEDULE:

The following is a tentative schedule, subject to change as needed:

Week	Dates (T R)	Topic	Reading
1	Jan. 6 (1)	Steps in Analysis	Chapter 0
2	Jan. 21 (2), 13 (3,4)	Units, Tools of the Trade	Chapter 1, 2
3	Jan. 18 (5), 20 (6,7)	Error, Statistics	Chapter 3, 4
4	Jan. 25 (8), 27 (9,10)	Statistics	Chapter 4
Tuesday, February 1 – IN CLASS –Exam 1			Chapters 0- 4
5	Feb. 3 (11,12)	Figures of Merit, Signals and Noise	Chapter 5
6	Feb. 8 (13),10 (14,15)	Detection Limit, Standard Addition, Electrochemistry	Chapters 5, 14
7	Feb. 15 (16), 17 (17,18)	Electrochemistry, Activity (Introduction)	Chapters 14, 8
Tuesday, February 22 – IN CLASS – Exam 2			Chapters 5, 14
8	Feb. 24 (19)	Electrochemistry	Chapter 14
9	Mar.1 (20), 3 (21, 22)	Electrodes, Potentiometry	Chapter 15
10	Mar.7-11	SPRING BREAK	
11	Mar.15 (23), 17 (24, 25)	Potentiometry, Electroanalytical Methods	Chapter 15, 17

12	Mar. 22 (26), 24 (27, 28)	Electroanalytical Methods	Chapter 17
Tuesday, March 29 – IN CLASS – Exam 3			Chapters 14,15 ,17
13	Mar. 31 (29,30)	Electroanalytical Sensors, Spectroscopy	Chapter 17, 18
14	Apr. 5 (31), 7 (32, 33)	Spectroscopy	Chapter 20
15	Apr. 12 (34), 24 (35, 36)	Spectroscopy	Chapters 18, 20
Tuesday, April 19 – IN CLASS – Exam 4			Chapters 18, 20
Tuesday, April 5:30 –7:30 pm– Final Exam			Cumulative

Note: In class we discuss the specific topics from of the chapters. The format of the lectures will be Power Point slides which will be posted for each lecture on Canvas. The lecture material is what you will be responsible for. Class attendance is strongly recommended for success in the course.

DISCUSSION SECTIONS

There are no discussions in this class. The CHM 3120 L is a separate course. Lectures and the lab will help you learn this material. To succeed in this class, it is recommended that you read the chapters before attending the class, attend the lectures, and then do the assigned problems immediately after they are assigned and practice the problem solving until you are comfortable with the material. It takes a lot of practice to master this material so be prepared to spend time on this material.

HOMEWORK

Homework (HW) problems will be assigned in class each week. The HWs will not be graded but if you want to succeed in this class doing the assigned problems is the best way to master the material. The assigned problems will be very similar to the problems that you will see on the exams.

In addition to the recommended HW, problems in the chapter and other end of chapter problems will help you practice the material. [Working assigned problems, and end-of-chapter problems is recommended as the primary study activity.](#) Solutions to the recommended HW problems will be available and will be posted. In office hours the TA and Dr. Toth are available to discuss the material and help with the problems.

EXAMS

There are four in class exams in this class. Make sure to be on time to get the seat and be settled before the start of the exam which will start with the scheduled class time. The exams will end promptly at the end of the class period. Each in class exam will be 50 mins on the dates indicated on the preceding schedule. **Detailed instructions for your exams will be given prior the exam.** Students are expected to plan their work and other activities so as to be available at these times. Exam questions will cover the material discussed in class and will consist of questions similar to the HWs, and end of chapter problems recommended as the primary study tools. You will need a non-graphing non-programmable scientific calculator on exams, as well as pencils, your UFID card. Scratch paper will be provided.

Grades will be posted on e-learning as soon as available. Contact Dr. Toth by e-mail (atoth@chem.ufl.edu) about any errors you feel may have been made. For any grade adjustments of the midterm exams you will need to contact Dr. Toth by e-mail within ONE WEEK of the scheduled exam date.

EXAM ABSENCES

Absences will be handled in accordance with official UF academic regulations. For more information, see <https://catalog.ufl.edu/UGRD/academic-regulations/>. See below for further clarification for two different types of situations.

(1) Conflicts with other events: Acceptable reasons to miss a scheduled exam include conflicting evening exams in courses with higher course numbers, religious holidays, military obligations, special curricular requirements (e.g., attending professional conferences), or participation in official UF-sanctioned activities such as athletic competitions, etc. For more information on such absences see the official UF Policy at <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/#absencetext>). If you must be absent for an exam due to a documented and approved conflict known in advance, you must e-mail your instructor (atoth@chem.ufl.edu) the documentation at least one week prior to the scheduled exam and an early conflict exam will be scheduled for you.

(2) Missing an exam due to an emergency or sudden illness: If you are absent for an exam due to an unpredicted documented medical reason or family emergency, you must contact the instructor (atoth@chem.ufl.edu) as soon as possible, and you may be asked to have your excuse verified by the Dean of Students Office (DSO). Your instructor will follow UF academic regulations in evaluating the notification and/or documentation received by you or by the DSO on your behalf. Once your instructor is satisfied with the validity of your exam absence a make-up exam will be scheduled after a reasonable amount of time, i.e., before the end of the semester. If your documentation is deemed insufficient to excuse your absence you will receive a zero on the missed exam.

HONOR CODE

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.

CAMPUS RESOURCES

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the [Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the [Student Health Care Center website](#).

University Police Department: Visit [UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the [UF Health Emergency Room and Trauma Center website](#).

GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the [GatorWell website](#) or call 352-273-4450.

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. Once registered, students will receive an accommodation letter which must be presented to the instructor (Dr. Toth) when requesting accommodation (use CANVAS email). The student is responsible for scheduling the exam dates with the DRC. Students with disabilities should follow this procedure as early as possible. The DRC has 4 business day policy to submit Accommodated Testing Requests (ATRs).

EVALUATIONS

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

GENERAL EDUCATION CREDIT

A minimum grade of C is required for general education credit.

This course is available for general education credit. This course introduces students to fundamental concepts of chemistry including bonding, atomic and molecular structure, chemical reactions, states of matter, reaction rates, chemical thermodynamics and equilibria. The scientific method and the place of chemistry in the everyday world are emphasized.

GENERAL EDUCATION STUDENT LEARNING OUTCOMES

The following learning outcomes (see table below) will be assessed through monitored progress tests and a cumulative final examination.

Area	Institutional Definition	Institutional SLO
CONTENT	Content is knowledge of the concepts, principles, terminology and methodologies used within the discipline.	Students demonstrate competence in the terminology, concepts, methodologies and theories used within the discipline.
COMMUNICATION	Communication is the development and expression of ideas in written and oral forms.	Students communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the discipline.
CRITICAL THINKING	Critical thinking is characterized by the comprehensive analysis of issues, ideas, and evidence before accepting or formulating an opinion or conclusion.	Students analyze information carefully and logically from multiple perspectives, using discipline specific methods, and develop reasoned solutions to problems.

DR. TOTH is available individually to all students in office hours. Yes, this is a large class, but Dr. Toth does get to know you if you are in class and participate and attend office hours. Much of the help you get will probably be from the TA and Dr. Toth office hours which are available to you for help with the material. We are in this business because we like to discuss chemistry. We also are concerned about your progress. We are available to discuss and advise you about any individual difficulties that might affect your ability to satisfactorily complete this course. Take advantage of the opportunities to meet and work with your instructors. We want you all to do well!

Letters of recommendation: If Dr. TOTH knows you, she can write a letter. Make yourself known!

DISCLAIMER

This syllabus represents my current plans and objectives. If those need to change as the semester progresses, then the changes will be communicated to the class clearly.