

# Chemistry 3101: Introductory Analytical Chemistry

## Course Syllabus, Fall 2023

Lecture: T & Th 9:45-11am, Bruininks 114

3 Credits

Professor Kyle C. Bantz

Smith Hall 312

[Bantz008@umn.edu](mailto:Bantz008@umn.edu)

612-625-7816

### Course Description

Chem 3101 is an introductory course into the field of chemical analysis. At the conclusion of this course, students should have an understanding of the common approaches used in analytical chemistry. Quantitative fundamentals (e.g., statistics, error propagation, and chemical equilibria) to specific analytical techniques, such as titrations, spectroscopy, and separations. These concepts will be explored in a hands-on manner in the lab portion of the course, Chem 3111.

Students with an interest in a career involving analytical chemistry are strongly encouraged to take Chem 4101 lecture and Chem 4111 lab.

### Course Modality

This course is scheduled as an in-person course. I intend to hold all class sessions in-person except if situational factors arise, such as personal illness of the instructor. Attendance is not taken and if you miss class you can watch the videos on the Canvas site which cover that day's material.

### What you can expect from the instructor:

- Prepared for lecture
- Accessible to students for any reason
- Start/end class on time
- Will assess students fairly with timely feedback
- Will give you respect

### Issues with your Instructor:

On occasion you may have a concern or problem regarding this course. I am very willing to discuss this with you. If, however, you wish to discuss it with someone other than your instructor, please contact Prof. Lee Penn, the director of the undergraduate chemistry program. You may e-mail them at [rleepenn@umn.edu](mailto:rleepenn@umn.edu) to arrange for a meeting or discuss via email. They will serve as a mediator in helping us resolve the issue.

### What your instructor expects from you:

- Come prepared for class (reading book sections and watching associated videos before class)
- Ask questions/seek help when you are uncertain about various topics

- Be on time for class (this includes zoom meetings)
- That everything you turn in for a grade represents your best work
- Work to contribute to a positive class community (work cooperatively with classmates, respectful, inclusive)
- Participate in activities during lecture (group work, “poll questions”, etc.)

### Student Hours

These are drop in hours for you to ask questions related to the course material. During this time we can work through problems that you find challenging or address concepts that you are struggling with.

I will hold student hours in person

I am also available to answer questions by appointment. You may contact me by email.

### Text

Quantitative Chemical Analysis 10th edition by Harris and Lucy

### Websites

[www.canvas.umn.edu](http://www.canvas.umn.edu)

[www.gradescope.com](http://www.gradescope.com)

Please check the Canvas site regularly for updated information and announcements. You may want to alter your Canvas settings to allow for these notifications to be sent to your email. Canvas will be used to post lecture notes and other classroom assignments. Homework will be submitted through gradescope

### Other Materials

Access to a computer with Microsoft Excel/Google Sheets and internet access

Scientific calculator (non graphing)

Achieve Homework (can be found on canvas)

### Prerequisites

CHEM 1062 or equivalent

### Assessment of Learning Outcomes and Grading

Student learning in this course will be assessed with exams, homework, and short chapter quizzes.

Category	Percentage
Homework	15%
Challenge Problems	10%
Goal Setting/Reflection	5%
Exams	50%

<b>Final Exam</b>	20%
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## Exams

All exams will be given in person this semester. There will be a multiple choice portion of the exam and then there will be a short answer/calculations portion that will have you work analytical problems out .

Final Exam      The final exam will be cumulative. It will be held on **Tuesday December 20th from 1:30pm to 3:30pm** and is worth 20% of your semester grade. The final exam will take ~2hrs.

Mid-terms      There will be 4 mid-term exams during the semester (see your course calendar for dates). The lowest midterm is dropped. Each mid-term is worth 16.7% of your grade. Midterms will take you ~60min.

Exams will emphasize both concepts and numerical problem solving. Exams will be closed book but you will be given an equation sheet. You may use a non-graphing scientific calculator, but you cannot use a graphing calculator or your cell phone. There will be no make-up exams. An exam missed without a legitimate absence will count as zero. If you miss more than one exam, you should consider dropping the class. In accordance with Senate policies, students are responsible for providing documentation to the instructor to verify the reason for a legitimate absence and for notifying the instructor of such circumstances as far in advance as possible. If you know of the conflict before the exam date, you must take the exam prior to the designated class period for the exam. You are not allowed to talk to any of your colleagues about the content of the exam until all have completed the exam. Reasons for a legitimate absence are, for example, due to subpoenas, jury duty, military service, verified illness, or serious family emergencies. Exam regrades will only be given under extraordinary circumstances. The request for a regrade must be submitted on gradescope within five days of the exam being returned and the reason legitimate.

## Homework (Achieve)

Homework starts on day 1 of the class and is available using the Achieve platform. If you decided to add the course later and have missed homework you will not be able to get those points back. Homework is due Sunday evenings at 11:59pm. You have unlimited attempts on each homework problem and you can submit Achieve homework up to 5 days late. All of the homework assignments are visible at the beginning of the course. There are no extensions given for homework assignments.

## Challenge Problems (Gradescope)

Gradescope is a free online platform for grading exams and homework. For each challenge problem, you will be able to see clearly which rubric items your solution satisfied and any additional comments the grader has for you. Late work will not be accepted. You are responsible for uploading your homework assignment to gradescope using the gradescope app.

The challenge problems will be posted in Canvas. Points are given for the work and answer, so please show your work. There are instructions on Canvas under the "previous exams" tab on how to scan your homework assignments using the [new gradescope app](#). Upon uploading into gradescope make sure you indicate what page each problem corresponds to. Challenge problems are due every 2 weeks on Sundays @ 11:59pm. Two of the challenge problem scores will be dropped, so you can choose to skip 2 challenge problems this semester if you want.

### **Grading Break-down**

The tentative course grading scale is:

90-100%: A to A-, 80-89%: B- to B+, 70-79%: C- to C+, 60-69% D- to D+, 0-59% F

I reserve the right to change this at any time during the semester. However, the lower limits for a particular letter grade will never be raised (i.e. the A range could be changed from 88-100, but never to 95-100). Updates on grade breakdowns will be given after each exam.

### **Course Policies**

#### **Email**

My preferred mode of communication is email. I teach two courses during the semester, so in an effort to keep everything organized. When you email me with questions about this course please include CHEM 3101 in the subject of your email. You can expect a reply to your question within 24hrs and if you do not hear anything after that time span then send another email.

#### **Attendance**

Attendance will not be monitored. Students are responsible for announcements and all materials covered in class and posted on the Canvas site.

#### **Student Academic Integrity Policy**

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using course materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, misrepresenting or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. ([Student Conduct Code](#).) If it is determined that a student has cheated, the student may be given an "F" or an "N" for the course, and may face additional sanctions from the University.

The Office for Community Standards has compiled a useful list of [Frequently Asked Questions](#) pertaining to scholastic dishonesty.

Beware of websites that advertise themselves as being “tutoring websites.” It is not permissible to upload any instructor materials to these sites without their permission or copy material for your own homework assignments from these various sites.

If you have additional questions, please clarify with your instructor for the course. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class, e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

### **Use of ChatGPT/Bard/Chegg etc. and other Large Language Models:**

The Board of Regents [Student Conduct Code](#) states the following in Section IV, Subd.1: Scholastic Dishonesty:

"Scholastic dishonesty means plagiarism; cheating on assignments or examinations, including the unauthorized use of online learning support and testing platforms; engaging in unauthorized collaboration on academic work, including the posting of student-generated coursework on online learning support and testing platforms not approved for the specific course in question; taking, acquiring, or using course materials without faculty permission, including the posting of faculty-provided course materials on online learning and testing platforms; ..."

Artificial intelligence (AI) language models, such as ChatGPT, and online assignment help tools, such as Chegg®, are examples of online learning support platforms: they can not be used for course assignments except as explicitly authorized by the instructor. The following actions are prohibited in this course [remove bullets as necessary]:

- Submitting all or any part of an assignment statement to an online learning support platform;
- Incorporating any part of an AI generated response in an assignment;
- Using AI to brainstorm, formulate arguments, or template ideas for assignments;
- Using AI to summarize or contextualize source materials;
- Submitting your own work for this class to an online learning support platform for iteration or improvement.

If you are in doubt as to whether you are using an online learning support platform appropriately in this course, I encourage you to discuss your situation with me.

Any assignment content composed by any resource other than you, regardless of whether that resource is human or digital, must be attributed to the source through proper citation. (Examples of citing content composed by digital tools are presented in: [libguides.umn.edu/chatgpt](https://libguides.umn.edu/chatgpt) [or provide an alternative reference appropriate for your class].)

Unattributed use of online learning support platforms and unauthorized sharing of instructional property are forms of scholastic dishonesty and will be treated as such.

### **Other Important University of Minnesota Policies:**

For additional information on other applicable university policies/resources, please see the links below

#### **Online Learning Expectations:**

<https://communitystandards.umn.edu/know-code/online-learning-expectations>

**Student Conduct Code:**

[http://regents.umn.edu/sites/regents.umn.edu/files/policies/Student\\_Conduct\\_Code.pdf](http://regents.umn.edu/sites/regents.umn.edu/files/policies/Student_Conduct_Code.pdf).

**Use of Personal Electronics in the Classroom:**

<http://policy.umn.edu/education/studentresp>.

**Grading Definitions:**

<http://policy.umn.edu/education/gradingtranscripts>.

**Sexual Harassment:**

[https://regents.umn.edu/sites/regents.umn.edu/files/policies/Sexual\\_Harassment\\_Sexual\\_Assault\\_Stalking\\_Relationship\\_Violence.pdf](https://regents.umn.edu/sites/regents.umn.edu/files/policies/Sexual_Harassment_Sexual_Assault_Stalking_Relationship_Violence.pdf)

**Equity, Diversity, Equal Employment Opportunity, and Affirmative Action:**

We welcome to this course individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability, and other visible and invisible differences. Instructors, teaching assistants, and students are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class. This is in agreement with university policy:

[http://regents.umn.edu/sites/regents.umn.edu/files/policies/Equity\\_Diversity\\_EO\\_AA.pdf](http://regents.umn.edu/sites/regents.umn.edu/files/policies/Equity_Diversity_EO_AA.pdf)

For information on the Diversity and Inclusion Committee in the Chemistry Department, see:

<https://sites.google.com/umn.edu/chemintranet/diversity-inclusion>

"Collaboration among people of all cultures and backgrounds enhances our experiences and contributes to excellence in teaching, learning, and research. We strive for a climate that celebrates our differences and strengthens our department by embracing and working to increase diversity, equity, and inclusion."

For the Gender and Sexuality Center for Queer and Trans Life, see:

<https://gsc.umn.edu/>

For gender-neutral restrooms in Smith and Kolthoff Halls and elsewhere on campus, see:

<https://sites.google.com/umn.edu/chemintranet/accessible-gender-neutral-restrooms>

**Stress and Mental Health Management:**

<http://www.mentalhealth.umn.edu>.

**Disability Accommodations:**

<https://diversity.umn.edu/disability/>

**Appropriate Student Use of Class Notes and Course Materials:**

<http://policy.umn.edu/education/studentresp>.

### **Academic Freedom and Responsibility:**

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.\*

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college, or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.

*\* Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students".*

### **Missed Exams**

In the case of a true emergency, serious illness, or University-related trip that prevents a student from taking a midterm exam, an excused absence may be granted in strict accordance with University policy (see link below). To obtain an excused absence, students must contact the instructor in advance OR as soon as circumstances allow to discuss the nature of the emergency. Documentation will be required. The unweighted average score of all the student's other exams will replace the zero from the excused midterm exam. Only one missed midterm exam will be replaced in this fashion. If circumstances prevent a student from taking more than one midterm exam, a meeting must be scheduled as soon as possible with the instructor to discuss any options available.

<http://www.policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html>

Students on University teams playing out of town may be able to take the exam with the coach or an instructor as proctor; please see the course instructor about this early so arrangements can be made. For information on missing the final exam, see "Incompletes".

### **Incompletes**

Students who have an EXCUSED ABSENCE from the Final Exam, and have taken the all midterm exams, may be eligible to receive a grade of "I" in the course. Incompletes will not be granted if a student has missed earlier exams, or is not passing based on the work up to the final. You need to fill out an incomplete request form (available in Smith 115) and have it signed. See me for details. This grade is NOT routinely assigned! Any incomplete must be made up in the following semester. After that time all incompletes will turn into F grades.