

Chemistry 4101: Intermediate Analytical Chemistry (DRAFT)

3 Credits

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| Instructor: | Edgar A. Arriaga, 326 Smith Hall, 612-624-8024 E-mail: arriaga@umn.edu |
| Teaching Assistant: | Paul Erickson, Room 362, Kolthoff Hall (612-625-2206) E-mail: eric2408@umn.edu |
| Lectures: | MWF, 9:05 AM to 9:55 AM, Room 126, Appleby Hall |
| Office Hours: | (Arriaga) – To be announced (Erickson) – To be announced |
| Required Text: | D. A. Skoog, F. J. Holler and S. R. Crouch “Principles of Instrumental Analysis,” 6 th ed.; Thomson/Brooks/Cole, Belmont CA, 2006. |
| Web (Blog) site: | http://blog.lib.umn.edu/arriaga/chem4101/ . This resource is intended to communicate useful information to the rest of the class, download lecture notes, find answers to problems, quizzes, and exams, post information about your analytical problem, provide feedback to the instructor and TA. |
| E-mailing: | For course related e-mails always include “Chem4101” or “Chem 4101” in the subject line. (For example: “Chem4101-Lecture 5 on Sep 8”). This helps us respond more promptly. |
| Objectives: | <ol style="list-style-type: none">1. Understand the principles behind instrumental methods of analysis commonly used in industry and the laboratory.2. Solve analytical problems. |
| Attendance: | Attendance to all lectures is expected. You are responsible for all material and announcements presented in class. |
| Handouts: | Handouts will be posted in the blog. Hard copies will be provided only when the handouts are not available 18 hours prior to the beginning of the lecture. |
| Assignments: | Exercises will be provided, but not graded. Answers will be posted in the blog. It is very important that you do the exercises to develop an understanding of the course material. It is important that you use the blog to help and seek help from other students in the class. |
| Quizzes: | On average there will be one short quiz every week. They may be unannounced. Only the highest ten grades will contribute to the final grade. |
| Tutorials: | There will be a review session given by the TA or the instructor the lecture day prior to each of the partial exams. We will look at those questions from the problem sets that caused you difficulties. |
| Exams: | There will be three in-class written exams on the days indicated on the lecture schedule (see below). Each exam will last 50 minutes. There will also be a fourth “oral/ poster exam”. The final exam will last two hours. It will be comprehensive and place emphasis on topics that presented difficulty during the semester. All exams will be closed book. I will |

distribute useful equations, etc. in the class prior to each exam. U of MN policy prohibits bringing communication devices into any exams.

Make up exams will be permitted only in the case of a valid certification of illness by an appropriate medical professional, with the further stipulation that the notification of absence be provided in advance of the exam date and time to the course instructor. In accordance with Senate policies, instructors are required by UMN policies to take the position that only serious and unavoidable causes should be accepted as an excuse for missing an examination.

Analytical Problem:

At the beginning of the course each student defines his or her own analytical problem. As the course progresses, the student evaluates the feasibility of using each analytical technique covered in class to help solve the analytical problem. The student posts her or his evaluation in the blog so that the rest of the class learns about it. This evaluation will need to be based on the literature and will be in the form of answers to specific questions. These answers will need to be posted in the blog within one week after reviewing a technique in class. Late postings will not count toward the required postings that make up part of the final grade.

Oral/Poster Exam

This exam evaluates your ability to plan how to solve your analytical problem and presenting a poster on the topic. For the exam, the student presents in a poster how to solve the analytical problem using various analytical techniques. External evaluators from industry and academia usually participate in the evaluation of each poster. Instructions will be provided in due time.

Bonus Points:

In some special circumstances there will be opportunities for bonus points. They may be related to posting comments in the blog on relevant seminars. Other bonus points in the final exam will be in the form of additional questions on topics that presented difficulty during the midterm exams (i.e. questions on topics that were not answered correctly by anyone in the class).

Regrades:

Requests for a question to be regraded will only be honored if the **exam is written in ink** and a detailed written request is made.

Calculators:

A hand-held calculator will be useful in solving many exam problems. Calculators may not be shared during exams. Portable personal computers and PDAs may not be used.

Final Grade:

The final grade for the course will be determined by the total number of points earned.

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| Three Mid-term exams | 45 |
| Oral/poster | 15 |
| Final exam | 15 |
| Quizzes (10 highest grades) | 20 |
| Posting in the blog | 5 |
| Total Points Possible | 100 |

The grade of "I" will not be assigned as a course grade. If S/N grading is being used, a grade of "S" will correspond to a grade of "C" or better. The course will not be graded on a curve. Typically scores above 90% will correspond to an A, above 75% to a B, and above 60% to a C.

- Incomplete Grade Policy:** The policy of the Chemistry Department is that a student may request an Incomplete grade only when (a) he or she has a University sanctioned excuse for missing the final exam and (b) he or she is passing the course based on all other graded components. Assignment of an I requires that the instructor and student sign a contract, available in the Departmental undergraduate office, stipulating the procedure by which the I grade will be made up (e.g., taking a final exam from another instructor in the next semester). Failure to successfully complete the procedure outlined in the contract will result in the I being administratively changed by the University Registrar to an F or N (depending on the grade base) one calendar year from the end of the semester for which the I grade was granted.
- Scholastic Conduct:** All students are expected to be familiar with the University policy on scholastic conduct, particularly as it pertains to cheating; see www1.umn.edu/regents/policies/academic/Student_Conduct_Code.pdf
- Rights of Students with Disabilities:** Please let me know as soon as possible if you have any special needs. I will do all that I can to help out.
- Conflict Resolution:** Let's try and settle disagreements as quickly and amicably as possible. If you need assistance please contact the Office of Conflict Resolution; see <http://www1.umn.edu/ocr/>
- Study Hints:** There are five general approaches that can greatly assist your ability to master the material and perform well in the course.
1. Read the relevant text material before the lecture.
 2. Review your lecture notes on the same day. By putting your notes into legible form, with full sentences, you will readily expose which parts of the lecture you understood and which not.
 3. Work problems without first looking at the answers. Be very persistent. Visit the instructor and TA during office hours.
 4. Interact with others through the course BLOG. By working together you will find it easier to grasp difficult material, and by helping others you will cement your own understanding.
 5. Solve additional problems, see other text books, rework problems that you solved previously. Your exam performance will often be greatly enhanced by knocking off some of the more routine questions rapidly, in order to save more time for the more challenging ones.