CHEM:2021 Basic Measurements
Spring 2016

Instructor: Professor M. Lei Geng
330 Iowa Advanced Technology Laboratories
Phone: (319)335-3167
E-mail: Lei-Geng@uiowa.edu

Office Hours: 10:30 am – 12:00 pm Mondays and Wednesdays (330 IATL)
or by appointment

Lectures: 1:30 – 2:20 pm, Mondays and Wednesdays, E224 CB
Labs: 2:30 – 5:20 pm, Mondays and Wednesdays, E440 CB

Textbooks: Quantitative Chemical Analysis, 9th edition (2015); Daniel C. Harris
W. H. Freeman & Co.
Laboratory manual provided on ICON.

Course Web Site: http://icon.uiowa.edu; CHEM:2021:0AAA Spr16 Basic Measurements
Course syllabus, schedule, lecture notes, announcements, answer keys to assignments
and exams, and grades are posted on this site. The laboratory manual is available on
the course ICON site.

Course Objective:
The objective of this course is for students to learn how to make basic measurements in
the chemistry laboratory. The course will emphasize measurement theory, practical
skills, and laboratory safety. Course topics include volumetric analysis,
spectrophotometry, chromatographic separations, mass spectrometry, standardization,
calibration, error analysis, hypothesis testing, modeling, graphical representation, and
discussion of results.

Basic Schedule:
The course is divided into lecture and laboratory sections. Lectures will cover basic
principles of the experiments and the associated data analysis. The laboratory will
provide the practical setting for conducting the experiments. Initial course materials will
focus on general procedures for analyzing and presenting data along with learning basic
laboratory skills. Basic instrumental measurements are featured in later class
assignments.

Policy on Class Attendance:
Students are required to attend and arrive promptly for each laboratory session. Arriving
late to laboratory sessions is not permitted. Attendance at lectures is strongly
encouraged.
In the case of an excusable absence (e.g. illness, mandatory religious obligation, certain University activities, or unavoidable circumstances), a completed Explanatory Statement of Absence form must be provided to the instructor in advance of foreseeable absences or within 72 hours of unforeseeable absences.

Missed laboratory sessions or exams can be made up only if the absence is excused. Lab reports for make-up laboratories will be due one week from the date the make-up lab is completed.

Grading:

Semester grades will be based on 11 laboratory experiments, one spreadsheet assignment and two exams. The course components are scored as follows:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Spreadsheet Assignment</td>
<td>50</td>
</tr>
<tr>
<td>1</td>
<td>Safety Training</td>
<td>20</td>
</tr>
<tr>
<td>11</td>
<td>Notebook Preparation and Data Recording (2 points each)</td>
<td>22</td>
</tr>
<tr>
<td>11</td>
<td>Laboratory Performance (8 points each)</td>
<td>88</td>
</tr>
<tr>
<td>4</td>
<td>Lab Reports (Exp. 1-4, 30 points each)</td>
<td>120</td>
</tr>
<tr>
<td>7</td>
<td>Lab Reports (Exp. 5-11, 50 points each, lowest score dropped)</td>
<td>300</td>
</tr>
<tr>
<td>2</td>
<td>Examinations (100 points each)</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>800</strong></td>
</tr>
</tbody>
</table>

Final Grade Assignment:

The course grades will be assigned according to the following grading scales.

- **A range**: 90-100%
- **B range**: 80-90%
- **C range**: 70-80%
- **D range**: 60-70%
- **F range**: < 60%

The lower limits for letter grades may be adjusted, but will never be raised. For example, the A range for final grades may be 88-100%, but will not be 95-100%. Plus/minus grades will be assigned.

A student must turn in eight or more laboratory reports in order to pass the course. Submission of fewer than eight lab reports will automatically result in a failure in the course.
Late Submission of Assignments:
Assignments are due at 11:59 p.m. on the specified due date. Deductions will be made in grading late assignments for 5 points per calendar day after this deadline.

Examinations:
The exams will focus on material presented in both the lecture and laboratory portions of the course. Exams 1 and 2 will focus on Experiments 1-5, and 6-11, respectively. Each exam will be cumulative relative to the statistics and data analysis material presented in the lecture portion of the course.

Regrading:
Adjustments to grades will only be considered within one week after an assignment or exam is returned. The re-grade request must be made to Prof. Geng and accompanied by a written, detailed description of the grading concern using Regrade Request Form on ICON. Regrading will involve re-assessment of the entire assignment and may increase or decrease the grade.

Laboratory Performance:
Learning how to make chemical measurements is a central component of this laboratory course. Points are assigned to each experiment to assess the laboratory performance including observation of laboratory safety, timeliness, laboratory skills, proper cleanup, and appropriate handling of chemicals and wastes.

Laboratory Notebooks:
Each student must maintain a laboratory notebook. Specific instructions for keeping notebooks will be discussed in class and provided on ICON. Points in the class grade are allocated for the completion of the notebook entries.

Lab Reports:
A lab report must be completed and turned in for each experiment. Required report contents are detailed at the end of each experiment information package. Reports must be prepared using the Microsoft Excel templates provided. All reports must be submitted via the ICON Dropbox. It is the student’s responsibility to ensure that your completed assignments are successfully submitted on time; this may be done with an email confirmation.

Laboratory Safety:
Safety is a primary concern in chemistry laboratories and you will be expected to act in a safe and professional manner. Laboratory safety practices will be discussed in detail in lectures and safety guidelines are provided on course ICON site. Eye protection is mandatory. Standard laboratory goggles are required and must be worn at all times, even if you are not actually performing an experiment. Lab coats and gloves are optional. Open toe shoes and shorts are not allowed in the lab.

Computer Usage:
Each student will have access to computers in the departmental computer facility located in W241 CB. Computers will also be available in the laboratory where the experiments are conducted (E440 CB).
Equipment Policy:

All glassware and other equipment received at the beginning of the semester by a student registered for a given course and assigned a drawer/locker is the responsibility of that student. On the day of check-in, the student must be certain that all the equipment required for the course is in the drawer, the glassware has no chips or cracks and that the equipment is in good working order. The Chemistry Department will replace any glassware or equipment that is defective at the time of check-in. At the end of the semester or at the time the student leaves the course, every piece of glassware and equipment must be returned to the Department without chips or cracks and in good working order. All pieces of glassware or equipment that are missing, broken, or not in good working order will be charged to the student through the University billing system after the close of the semester.

Accommodations for Disabilities:

Please inform me if you have a disability which requires seating modifications or testing accommodations or accommodations of other class requirements, so appropriate arrangements can be made. Please contact me as soon as possible.

Policy on Plagiarism:

All work performed in this course is expected to be your own. Some laboratory experiments will be performed in groups. However, once you leave the laboratory, no collaborative work is permitted. If you have questions regarding an experiment, see the instructor or the TAs for help. In grading the assignments and lab reports, the instructors will be looking for evidence of collusion. If such evidence is found, all parties involved will receive no credit for the assignment. These principles also apply to the use of graded lab reports from previous years.

You will receive no credit if it is determined that the work you turn in is not your own.

Department of Chemistry Administrative Details:

<table>
<thead>
<tr>
<th>Department of Chemistry Office</th>
<th>Professor James Gloer, Departmental Executive Officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry Building E331</td>
<td>(319) 335-1350</td>
</tr>
<tr>
<td>Chemistry Center</td>
<td>Chemistry Building E225</td>
</tr>
<tr>
<td></td>
<td>(319) 335-1341</td>
</tr>
</tbody>
</table>

College of Liberal Arts and Sciences Policies and Procedures

Administrative Home of the Course

The administrative home of this course is the College of Liberal Arts and Sciences, which governs academic matters relating to the course such as the add/drop deadlines, the second-grade-only option, issues concerning academic fraud or academic probation, and how credits are applied for various graduation requirements. Different colleges might have different policies. If you have questions about these or other CLAS policies, visit your academic advisor or 120 Schaeffer Hall and speak with the staff. The CLAS Academic Policies Handbook also contains important information for students: [http://clas.uiowa.edu/students/handbook](http://clas.uiowa.edu/students/handbook)
Electronic Communication

The instructors will respond to student questions sent via e-mail with a typical response time of two working days. In addition, general notices concerning the course may be sent to students by electronic mail. Due to privacy considerations, the official University e-mail address (firstname-lastname@uiowa.edu) as listed on the class roster will be used for all communications. Each student is considered to be on notice for information sent to their official e-mail address. For additional information, please consult the policy statement on the Dean of Students web site: http://dos.uiowa.edu/policies/reporting-correct-residential-address-and-e-mail-address/.

Academic Fraud

Plagiarism and any other activities that result in a student presenting work that is not his or her own are academic fraud. Academic fraud is a serious matter and is reported to the departmental DEO and to the Associate Dean for Undergraduate Programs and Curriculum. Instructors and DEOs decide on appropriate consequences at the departmental level while the Associate Dean enforces additional consequences at the collegiate level. See the CLAS Code of Academic Honesty in the Academic Policies Handbook: http://clas.uiowa.edu/students/handbook/academic-fraud-honor-code.

Accommodations for Disabilities

The University upholds actions of diversity and inclusion. A student seeking academic accommodations should first register with Student Disability Services (3015 Burge Hall; 335-1462; http://sds.studentlife.uiowa.edu) and meet with a counselor in that office who reviews documentation and determines eligibility for services. A student approved for accommodations should then go to the Chemistry Center, Room E225 CB, to arrange particular accommodations.

CLAS Final Examination Policies

The final examination schedule will be announced by the fifth week of the semester by the Registrar. Final exams are offered only during the official final examination period. No exams of any kind are allowed during the last week of classes. All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of their final exams.

Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit the instructor, then the course supervisor if appropriate, and then the departmental DEO. All complaints must be made as soon as possible and always within six months of the incident. Consult the CLAS Academic Policies Handbook for details: http://clas.uiowa.edu/students/handbook/student-rights-responsibilities-rights.

Understanding Sexual Harassment

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. Consult the UI Operations Manual for the full University policy: http://opsmanual.uiowa.edu/community-policies/sexual-harassment.
Reacting Safely to Severe Weather

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue, if possible, when the event is over. For more information on Hawk Alert, visit http://hawkalert.uiowa.edu, and for the siren warning system, visit http://emergency.uiowa.edu/content/severe-weather-0.

Student Classroom Behavior

The ability to learn is lessened when students engage in inappropriate classroom behavior, distracting others; such behaviors are a violation of the University’s Code of Student Life. When disruptive activity occurs, a University instructor has the authority to determine classroom seating patterns and to request that a student exit immediately for the remainder of the period. One-day suspensions are reported to appropriate departmental, collegiate, and Student Life personnel (Office of the Vice President for Student Life and Dean of Students). The Code of Student Life can be found on the Dean of Students web site: http://dos.uiowa.edu/policies/code-of-student-life-15-16/

*These CLAS policy and procedural statements have been summarized from the web pages of the College of Liberal Arts and Sciences and The University of Iowa Operations Manual.