Course Syllabus: Spring 2018

CHEM 102L: CURE

Quantitative Chemistry Laboratory II

Lab Instructor and Supervisor: Dr. Lori Del Negro
Graduate Research Consultant: Michael Mortelliti
Teaching Assistant: Yuting Lin

Course Description:

CHEM102L is the second course in a two-semester laboratory sequence. CHEM102L covers gases, intermolecular forces, colligative properties of solutions, reaction rates, chemical equilibria, and acid-base titrations. The laboratory offers an opportunity to investigate chemical concepts in an applied setting, and the learn how to make qualitative and quantitative observations of chemical properties and species. This course incorporates a 3-5 week course-based undergraduate research experience (CURE) module during which students will work in groups of 4-6 students and will contribute to active research in a chemical field. Each group will develop its own specific research question while contributing to the larger effort, and will share their results with other research collaborators. This course complements material taught in the CHEM 102 lecture course, and provides a foundation for more advanced work in chemistry and many other natural sciences.

Pre-requisites: CHEM 101 and 101L. A “C-“or better in CHEM 101L is required.

NOTE: Enrolling in a course for which you do not have the proper prerequisites is considered an Honor Code violation.

Support for CURE and GRC: The GRC program is sponsored by the Office of Undergraduate Research. You may be able to use this research-exposure course to meet a requirement of the Carolina Research Scholar Program. Visit the OUR homepage and blog to learn more.

The Department of Chemistry values the perspectives of individuals from all backgrounds reflecting the diversity of our students. We broadly define diversity to include race, gender identity, national origin, ethnicity, religion, social class, age, sexual orientation, political background, and physical and learning ability. We strive to make this classroom and this department an inclusive space for all students.

CONTACT INFO

Email: lori.delnegro@unc.edu
Please include the following in all correspondence: Name, Course, Section #, clear subject.
If you don’t receive a response in 48 hours, have your TA forward the message.
Office: Kenan B 126
Office Hours: Tu/Th 4:00-5:00 PM
Wed 4:00-4:30 PM
Or by appointment
Phone: 919 966 0077

Asst. Supervisor: Emily Anne Sharpe
Office: Morehead 106
Phone: 919 843 7218

Lab Class Meeting Times
Tues afternoons: 1:00 - 3:50 pm

Experiment Schedule

Week: Experiment:
1/25 HARPOON overview/Part I
2/1 12: Intermolecular Forces
2/8 15: Beer’s Law and Equilibrium
2/15 HARPOON experiment Part II
2/22 16.1 & 16.2: Titration
3/1 11: Gas Laws
3/8 HARPOON electrode prep (I)
3/22 HARPOON data collection(II)
3/29 HARPOON followup/13
4/5 14: Kinetics
4/12 Final Exams
4/19 CURE Reporting out
* No labs week of 3/12
What You Need For Lab:

TEXTBOOK & EQUIPMENT

Required

- **SPRING 2018 QUANTITATIVE CHEMISTRY LABORATORY II E-COURSE WEBSITE:**
  - Access code packet available from Student Stores.
  - The e-Course will be used to access the course syllabus, policies, lab manual, software, announcements, grades, and course assignments, as well as to receive TA feedback (http://courses.hayden-mcneil.com).
  - Be sure to register for the correct course and section number when setting up your e-Course account.
  - If you cannot access the e-Course, please email Dr. Del Negro as soon as possible (lori.delnegro@unc.edu).

- **LAPTOP COMPUTER** with the required software (see Laptop Policy on E-course).
  - Hayden-McNeil e-Course access (via Wi-fi)
  - Microsoft Excel
  - Microsoft Word with Equation Editor
  - PASCO Capstone (link to download in e-Course)

- **LAB GOGGLES** (NOT safety glasses). If this is your first chemistry lab at UNC, you will receive a free pair on the day of lab check-in. Otherwise, you should bring your goggles with you to lab. If you forget your goggles, you will have to purchase a new pair before completing check-in.

- **LAB COAT.** Provided in lab.
  - NOTE: Lab coats must stay in the lab room and may not be taken with you once you finish the lab.

- **PROPER LABORATORY CLOTHING AND SHOES.**
  - Covers your skin from your neck to your toes. Pantsskirts all the way down to the ankles. Socks cover the ankles.
  - Tops must cover entire upper body and have sleeves.
  - Shoes must be completely enclosed.
  - You will not be admitted to lab if you are not properly dressed.

**Strongly Recommended:** Flash drive.

**Recommended:** Calculator.

**IMPORTANT ABSENCE POLICIES**

- Any unexcused absence will result in a 0 for all possible points associated with a given experiment (0/125).
- Three (3) or more absences (including excused absences) will result in a FAILING GRADE for CHEM 101L and 102L. There will be no exceptions to this rule.

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**Assignments and Grading**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Safety Quiz</td>
<td>60</td>
</tr>
<tr>
<td>Weekly Quizzes</td>
<td>10x8 = 80</td>
</tr>
<tr>
<td>Prelab</td>
<td>40x5 = 200</td>
</tr>
<tr>
<td>Lab Report</td>
<td>75x5 = 375</td>
</tr>
<tr>
<td>HARPOON</td>
<td>310</td>
</tr>
<tr>
<td>Lab Final Exam</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1225</td>
</tr>
</tbody>
</table>

Assignment expectations are described in detail in the “Assignment Expectations and Assessment” section of the e-Course resources.

**Tentative HARPOON Breakdown:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly Peer Evaluation</td>
<td>10x5 = 50</td>
</tr>
<tr>
<td>Weekly TA/GRC Evaluation</td>
<td>10x5 = 50</td>
</tr>
<tr>
<td>Group Proposal (informal)</td>
<td>60</td>
</tr>
<tr>
<td>First Draft of Poster Section (1/6)</td>
<td>50</td>
</tr>
<tr>
<td>Final Poster/Presentation</td>
<td>100</td>
</tr>
</tbody>
</table>

**DEFAULT GRADING SCALE**

- >92.5 A
- 90-92.5 A-
- 87.5-90 B+
- 82.5-87.5 B
- 80-82.5 B-
- 77.5-80 C+
- 72.5-77.5 C
- 70-72.5 C-
- 67.5-70 D+
- 62.5-67.5 D
- < 62.5 F

TAs grade assignments according to detailed rubrics, but the instructor assigns the final course grade. At the instructor’s discretion, adjustments may be applied to the scale listed here. Letter grades for an individual student will never decrease, only increase as a result of any changes.
Course Policies Overview
See e-Course for complete policies

Laboratory Absence Policy - Overview

Only significant extenuating circumstances will warrant an excused absence from lab.

To obtain an excused absence, you must submit a request to the instructor using the survey link below.

FIRST ABSENCE — If you are seeking advanced approval of an excused absence due to a University-sanctioned activity (i.e., a one-time orchestra concert for a class you are taking, an official athletic competition, etc.), you must request an excused absence 2 weeks prior to the date when you expect to be absent. If you miss class because of illness or a sudden death in the family, you must follow the same instructions listed below as soon as you know that you will miss the lab or as soon as you are able after the missed lab class.

SECOND ABSENCE — Allowance for a second lab absence will only be made in instances of unforeseeable circumstances and must be supported with written documentation. For a second excused lab absence, you must submit your request no later than 48 hours after your absence following the instructions listed below.

THIRD ABSENCE — Automatic “F” Grade for the semester

TO REQUEST APPROVAL FOR AN EXCUSED ABSENCE, YOU MUST:
1. Submit a request via the attendance survey at: https://unc.az1.qualtrics.com/jfe/form/SV_a8yAJ3Jo4wPXPVQ1
   Incomplete or unsubmitted surveys cannot be evaluated by instructor.
2. Send an email to your TA with a brief explanation of why you missed (or will be missing) lab. Your request can only be granted by the instructor, but you still need to notify your TA when you miss lab.
3. When your excused absence has been approved, you will be notified by confirmation email. Your TA will follow up by providing a mock data set with which you can complete the lab report for the experiment you missed.

The turnaround time for excused absence approvals may take a week or longer during busy times in the semester.

Assignments Following Absence:
1. Prelab: Due on time for planned absences, at 4:00 pm on the day you return to classes for unanticipated absences.
2. In-lab and quiz points: waived from your final grade.
3. Report:
   1st Absence: TA will send mock data from which to write report. Completed report due 1 week from receipt of mock data.
   2nd Absence: Waived from final grade.
   3rd Absence: Failure of course.

Late Arrivals and Assignments - Overview

To achieve full credit, you must arrive and submit assignments on time. More importantly, late arrival to lab or lack of preparation could pose a safety risk to others in your lab section. Therefore, the following guidelines apply:

1. All students must arrive to lab on time, wearing proper attire, and having submitted his/her completed pre-lab assignment.
   a. Any student not meeting these criteria may take advantage of a 30-minute grace period; points will be deducted from pre-lab scores.

Excused Absence Request
Submit the following information via the survey (link shown to the left):

- Full name
- PID
- Course and Section #
- TA’s Full Name
- Date of anticipated absence.
- Brief explanation
- Supporting documentation (e.g. scanned note from Student Health, letter from University advisor or coach. REQUIRED.)
b. The pre-lab MUST be completed in the experiment wiki and reviewed by the TA BEFORE the student is permitted to begin the lab experiment.

2. The **weekly lab quiz** may only be taken during the allotted ten minutes at the start of lab by students who are present in the lab and wearing proper PPE.
   a. Late arrival to lab after the quiz has closed will result in a score of 0 on the lab quiz.
   b. Taking the quiz when you are not present in lab will be treated as an Honor Code violation; it is considered “Cheating—Unauthorized access to lab materials.”
   c. You **must** be wearing proper PPE in lab while taking the quiz, even if you arrive after the quiz has begun. Anyone found taking the quiz without proper PPE will receive a score of 0 on the quiz.

3. No one may join or begin the lab experiment after the 30-minute grace period has passed, for any reason. If you are prohibited from attending lab after the 30-minute grace period has ended, you will receive a 0 for all assignments for that experiment.

4. **Raw data and a record of your laboratory work**, showing sample calculations and observations noted while running experiments, must be time-stamped in the experiment wiki by the end of each lab period, **BEFORE** you leave for the day and must be backed up in the drop box.

5. **Lab Reports** will be completed as part of your experiment wiki page, and may be revised at any time. TAs will grade the most recent version of this page saved prior to the due date. A student may request that a more recent version (up to 48 hours after the due date and time) be graded, but the report will be subject to the late penalties summarized in the box to the right.
   a. **Deadline Extension (reports only)**. A student may request a 48-hour extension on a lab report deadline. Extensions are granted automatically for the first request, evaluated on a case-by-case basis for second requests. Requests can be made using the following link:

      https://unc.az1.qualtrics.com/jfe/form/SV_2i9nQTzVzClWoIt

6. **It is the Student’s responsibility to verify that their Lab Report was properly uploaded and/or saved prior to the scheduled deadline.** Leave extra time when submitting your first few reports so that any difficulties can be resolved prior to the deadline.

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**Laptop/Computing Policies - Overview**

1. **DO NOT** leave lab without a copy of the data.
2. **SHARE and BACKUP** data, and **SAVE** your work frequently
3. **Start Assignments Early.**
4. **Maintain your laptop.** Also, try to minimize the number of applications/windows you have open at a time.
5. **The e-Course site can be accessed from any internet-accessible computer.**

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### General Assignment Deadlines

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Time Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prelab</td>
<td>+ 0:00</td>
</tr>
<tr>
<td>Lab Quiz</td>
<td>+ 0:05-0:15</td>
</tr>
<tr>
<td>In-lab Data/Obs</td>
<td>+ 2:50</td>
</tr>
<tr>
<td>Lab Report (previous exp)</td>
<td>- 1:00</td>
</tr>
</tbody>
</table>

### Late Assignment Options:

- **Proper Attire**: 30 min grace period
- **Prelab**: 30 min grace period
- **Lab Quiz (wearing PPE)**: None
- **In-lab Data/Obs**: None
- **Lab Report**
  - 0-12 hours late: -10 pts
  - 12-36 hours late: -25 pts
  - 36-48 hours late: -40 pts
  - > 48 hrs late: -75 pts

**Report Extension (one time):**

- Request must be made prior to due date and time.
- Use survey link for requests

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**IMPORTANT:**

**NO ACCOMMODATIONS WILL BE GRANTED FOR COMPUTER-RELATED PROBLEMS.**

TAs will only grade what appears on the e-Course by the deadline.
ASSIGNMENT SUBMISSIONS ON COURSE SITE

1. All prelab assignments, in-lab observations and data, and lab reports must be completed in the appropriate experiment wiki on the e-Course site. Grades will be based on the presentation of information in the wiki. Any of these assignments submitted as files attached to the wiki or uploaded to the drop box will not be graded, except in exceptional circumstances.

2. Experimental data will be backed up and time-stamped in the drop box as an Excel file (lastname_rawdata.xlsx) with an appropriate header containing all required metadata.

3. Calculations that support the analysis contained in the lab report may also be uploaded to the drop box (lastname_calculations.xlsx). While these files will not explicitly be graded, they are recommended as they assist the grading TA in understanding errors. This allows the TA to assign the maximum partial credit on the report.

4. Don’t wait until the last minute before the deadline to update and submit assignments. If the deadline for a report is 12:00 pm, any revisions applied at 12:00:01 or after will be considered late.

5. If you submit an assignment in the wrong wiki:
   a. Email the grading TA and instructor with the time stamp and location of the assignment in the wrong wiki, then move the information to its correct location.
   b. TAs are only permitted to grade time-stamped work submitted prior to the due date, unless specifically requested by the student.

LAB CHECKOUT will not be required for students in the pilot CURE section 434.

Honor Code Violations
- Unauthorized collaboration
- Plagiarism
- Cheating — Unauthorized access to lab materials
- Violating procedures pertaining to the academic process

CHEATING – UNAUTHORIZED ACCESS TO LAB MATERIALS
- Any use of lab reports, templates, or lab manuals from previous semesters constitutes a violation of the Honor Code.
- Accessing and/or submitting answers to a quiz without being present in lab is not permitted.

VIOLATING PROCEDURES PERTAINING TO THE ACADEMIC PROCESS
- Providing lab reports, report templates, quiz/exam questions, or any graded laboratory material where it might be distributed to others (in person, electronically, or via online platforms), or using resources acquired from such sources, is not permitted.

Honor Code and Academic Integrity - Overview

The Department of Chemistry faculty adopted the following policy on Sept. 9, 1977:

“Since all graded work (including homework to be collected, quizzes, papers, mid-term examinations, final examinations, research proposals, laboratory results, and laboratory reports) may be used in the determination of academic progress, no collaboration on this work is permitted unless the instructor explicitly indicates that some specific degree of collaboration is allowed. This statement is not intended to discourage students from studying together or working together on assignments which are not to be collected.”

Behavior in this course is governed by the University of North Carolina’s Honor System and the codes contained therein. The entire code, and information pertaining to the code, can be found at https://studentconduct.unc.edu/.

Established by the Undergraduate Labs Committee

The guiding principle of academic integrity is that the work submitted by a student must be that student’s own independent work. In this course, students will work in pairs or groups to collect experimental data. This can lead to misunderstandings regarding academic integrity that are
described below. Misunderstandings of academic integrity can also arise when citing external sources in your lab report. The submission of any material that is substantially the same as some other written document or source (i.e., a journal article, a textbook, a lab manual, a book, a website) that is not properly referenced constitutes a violation of academic integrity. In all cases when you work with other students, you must clearly indicate on your Title Page who your partner or partners were.

UNAUTHORIZED COLLABORATION

Note: Unauthorized collaboration is defined differently for each laboratory course. Please read the following points developed to define what constitutes unauthorized collaboration in General Chemistry (CHEM101L and CHEM102L):

When writing up your pre-lab and lab report, there is NO collaborative work. You must write your own report, answer questions in your own words, and work up your own data. If you are having difficulties or have questions, you should see your TA, peer mentor, or instructor for help.

Laboratory Data and Observations. In General Chemistry, you and your lab partner are expected to enter data and observations directly into an Excel spreadsheet/Lab Notebook wiki during the experimental procedure.

• You and your lab partner may exchange spreadsheets containing data that you collected together before either of you starts to perform any data analysis steps. You are not permitted to share calculations, graphs, or tables.

• In the event that exceptions to this guideline are allowed, you will receive instructions detailing where in a particular experimental protocol graphs, tables, or calculations may be shared between lab partners.

Laboratory Report and Report Template. All lab reports in General Chemistry must be written independently. During this laboratory course, you will be working with a lab partner on all experiments. However, the work that you submit for a grade must reflect your own unique interpretation of the experiment and expression of your conclusions.

• You will have access to the current lab report template during lab and these templates must be completed independently. Lab report Word or web documents or downloaded notebook wiki pages should never be shared.

□ Your report must be substantively different from any other report on the same experiment, including that of your lab partner(s).

□ When reporting observations collected together, be sure to add sufficient individual value to those observations so that your unique contribution is clear and distinct.

□ Avoid rehearsing phrases or answers to questions in the lab manual or report templates for use in your report. Always build your own understanding and convey concepts, ideas, and observations in your own words.

□ When reports contain elements that are too similar to judge the individual contributions of each author, the grade will be based only on those elements that are clearly distinct in each report. Common material will not be included in the grade. If the similarities are too great, the authors will both be charged with Unauthorized Collaboration.

□ Never share your written work with another student to use as their own, or to inform their own. Do not allow your lab partner or other students to have access to your lab reports. This applies even if you took
the course in a previous semester. While it may seem helpful, it can lead to violations of the Honor Code in which both students face consequences.

**PLAGIARISM**

Using someone else’s words or ideas without giving credit for their work is called plagiarism. The ideas presented in your report must be your own. If you present anyone else’s ideas or work as your own, this is plagiarism.

- **Rearranging the words from a source to make them seem like your own words is a type of plagiarism known as an improper paraphrase.** Any paraphrase still needs a proper citation.

- **Self-plagiarism:** Using a direct quote from your own earlier work without attribution in a separate document can be considered self-plagiarism. You are essentially presenting the same intellectual work twice for credit. Consider this when you refer to observations collected in the laboratory. Whenever possible, flesh out those observations in your own words, with the benefit of added understanding following the lab. Never rely solely on the word-for-word observations collected during the experiment.

- **External Sources:** You may present facts from an outside source, as long as you properly reference the source with both an in-text citation and a full reference at the end of your document.
  
  - **The Lab Manual for your course and semester should be considered an external source.** Whenever you refer to the procedures and information provided in that document, you should include a citation. (Whenever possible, avoid direct quotes from the lab manual, as this represents little to no individual contribution to your report.)

  - For more guidance on correct citations and advice on avoiding plagiarism or improper paraphrasing, please see the Library Resource page on the course website, the links provided on the upper right corner of this page, or consult a TA, peer mentor, librarian, or the instructor.

**TA and Peer Mentor Office Hours:**

You can attend office hours anytime when they are held by 102L TAs or peer mentors, according to the schedule linked in the course website. TA Office Hours are held in Morehead Labs Room 408A at various times between 9:00 am and 5:00 pm, Monday through Friday.

**The Instructor reserves the right to modify course policies as needed during the semester, especially when such modifications are for the benefit of all students.**

In CHEM 102L we will not spend class time specifically covering correct citation of external resources. Students should use the resources above, and ask for assistance from librarians, writing center tutors, peer mentors, TAs, and the instructor so that you can avoid any real or perceived academic dishonesty.