Note that this syllabus is subject to change with proper notification by the instructor.

**Fall 2021 CHEM 111L Principles of Chemistry Laboratory**

- All labs are taught in SSMB 141.

<table>
<thead>
<tr>
<th>Section</th>
<th>Day</th>
<th>Time</th>
<th>Instructor</th>
<th>Email</th>
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<td>L01</td>
<td>M</td>
<td>12:00 pm - 3:00 pm</td>
<td>McFadden</td>
<td><a href="mailto:tmcfadde@cofc.edu">tmcfadde@cofc.edu</a></td>
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<td>L02</td>
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A laboratory course designed to introduce the student to the application of the scientific method in solving chemical problems and to acquaint him or her with specific tools and techniques used in the chemistry laboratory, while reinforcing and illustrating concepts encountered in lecture.

**Co-requisites and Prerequisites**

Chemistry 111 is a co-requisite for Chem 111L.

### Required Materials

**Lab Manual**

Chemistry 111L Principles of Chemistry Laboratory Manual

*Available for purchase at the College of Charleston bookstore*

**Lab Notebook**

Students must purchase a composition book (sewn pages) to serve as their lab notebook.

### Personal Protective Equipment

- Safety glasses/googles
- Nitrile gloves
- Lab coat
- Mask

### Student Learning Outcomes

**Student Learning Outcomes for Chem 111 Lab**

- Develop an understanding of the scientific method in a chemistry laboratory setting.
- Employ mathematical calculations to assess acquired data.
- Synthesize laboratory experiments to determine the purpose, results, and conclusions of a scientific study.

**Student Learning Outcomes for Natural Sciences General Education Courses** *

The sequence CHEM 111/112 and associated labs satisfy the 8-hour natural science requirement of the College. In this sequence

- Students apply physical/natural principles to analyze and solve problems.
- Students explain how science impacts society.

*These learning outcomes will be assessed in the second course of the year-long natural science sequence.
Evaluation of Student Performance

Grading Scale

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Letter Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93-100</td>
<td>B-</td>
<td>80-82</td>
<td>D+</td>
<td>72</td>
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<tr>
<td>A-</td>
<td>90-92</td>
<td>C+</td>
<td>78-79</td>
<td>D</td>
<td>71</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
<td>C</td>
<td>75-77</td>
<td>D-</td>
<td>70</td>
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<tr>
<td>B</td>
<td>83-86</td>
<td>C-</td>
<td>73-74</td>
<td>F</td>
<td>&lt;70</td>
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</table>

Pre-Lab Quizzes 10 %

- A pre-lab quiz for each experiment will be available on OAKS. The quiz is due before the beginning of the lab period for the experiment. Students have a time limit of 15 minutes to complete the quiz and a total of 2 attempts. The highest grade on the three attempts will be recorded.

Laboratory Reports 60 %

- The lab report for each experiment is due at the beginning of the next lab period. Details of the format of the lab report will be discussed in class.

- Late lab reports will receive the following point deduction:
  - 10 % (from start of lab until the end of the day)
  - 25 % (second day)
  - 50 % (third day)
  - 100 % (thereafter)

Lab Notebook and Deportment (10 %)

- You are expected to keep a lab notebook in a composition book with sewn pages. The format and content of the lab notebook is discussed in the lab manual. You need to write the pre-lab notebook (objectives, materials and equipment, and procedure) before coming to lab.

- Your deportment grade is based on your adherence to lab safety protocols and how you leave your work area. You are expected to clean your glassware and equipment and return it to your law drawers. All chemicals and equipment should be returned to their original position and your work area should be clean.

Your professor will check your lab notebook and your work area at the end of the class period before you are allowed to leave the laboratory.

Exams 20 %

- A midterm and final exam will be administered during the scheduled class time. Details will be discussed in class.
Class Policies

All students in Chem 111L must adhere to the policies included in the Lab Manual. These include the School of Sciences and Mathematics Safety Policy and Procedures, the Policy on Scientific Integrity, and the Procedure for Leaving the Laboratory. Additionally, all students must adhere to the Honor Code and Code of Conduct college policies regarding academic integrity.

Attendance Policy

- Labs are experiential learning courses that emphasize the scientific method and data interpretation and they provide training in essential technical skills for chemists and other scientists. Furthermore, the technical lab skills presented in one course are assumed to be mastered in subsequent chemistry courses. Thus, attendance in all lab periods is mandatory.

- That being said, **do not attend lab if you are sick or under quarantine**. If you have to miss lab, you must notify your professor before the beginning of the scheduled lab period. If you are unable to e-mail your professor, ask a roommate or family member to e-mail the professor on your behalf. In order to be eligible to do a makeup assignment for the lab, you must notify your professor before the beginning of the lab period. If you do not, you will be assigned a grade of zero for all items due that week.

- Chemistry lab requires students to participate in hands-on activities to master the material. You learn by doing the experiments in-person in the lab. If you miss more than two weeks of lab for any reason, you will be assigned zeros for all items due in any additional weeks you miss. If this happens, you are encouraged to discuss with your professor the option of withdrawing from the class and retaking it in a future semester when you are able to fully participate in the class.

Lab Safety

- The safety guidelines are outlined in the manual and will be discussed at the mandatory safety training session, but there are several rules that will be of paramount importance:
  1. Wear clothing that completely covers all skin below your neck. If any skin on your legs, ankles, or feet is not covered completely, you will not be allowed to work in the lab.
  2. No sandals, flip flops, or other open-toed shoes.
  3. Laboratory coats must be worn at all times.
  4. Safety glasses/goggles must be worn at all times when chemicals are in use.
  5. Gloves must be worn when handling chemicals. You will need to purchase nitrile gloves at the bookstore or a pharmacy and bring multiple pairs to lab each week.

- If you **come to lab without the appropriate PPE** (most often exposed skin around ankles), you will need to correct it before you are allowed in the lab. In such cases, you will receive a zero for that week’s quiz.

- Failure to adhere to safety rules will result in dismissal from the laboratory with a grade of zero for that laboratory period.
Note that this syllabus is subject to change with proper notification by the instructor.

**Academic Integrity Statement**

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when suspected, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student’s actions are related more to misunderstanding and confusion will be handled by the instructor. The instructor designs an intervention or assigns a grade reduction to help prevent the student from repeating the error. The response is recorded on a form and signed both by the instructor and the student. It is forwarded to the Office of the Dean of Students and placed in the student’s file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This status indicator will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent.

Students can find the complete Honor Code and all related processes in the Student Handbook at: [http://deanofstudents.cofc.edu/honor-system/studenthandbook/](http://deanofstudents.cofc.edu/honor-system/studenthandbook/).

**Accommodations for Students with Disabilities**

This College abides by section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the Center of Disability Services/SNAP, 843.953.1431 or me so that such accommodation may be arranged.

**Attendance Verification**

Only students officially registered (graded or auditing) for this course may attend class. During the week following the drop/add deadline, the professor will verify student enrollments in this course. Any student appearing on the class roll but determined not to have attended the class even once will be removed.

**OAKS**

OAKS, including Gradebook, will be used for this course throughout the semester to provide the syllabus and class materials and grades for each assignment, which will be regularly posted.

**Inclement Weather, Pandemic or Substantial Interruption of Instruction**

If in-person classes are suspended, faculty will announce to their students a detailed plan for a change in modality to ensure the continuity of learning. All students must have access to a computer equipped with a web camera, microphone, and Internet access. Resources are available to provide students with these essential tools.
F2F Courses When students are Quarantined/Isolated due to Covid-19

If one or more students are absent for an extended period of time due to COVID-19 (quarantine or isolation), instructors may, at their discretion, conduct the class exclusively online via OAKS for the duration of student quarantine/isolation, record class lessons to share with students, or choose an alternate accommodation that provides the impacted student(s) with the opportunity to continue in the course. The specific accommodation will vary depending on the number of students affected, the expected duration of their absence, and the needs of the class.

Schedule of Lab Periods

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
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</table>
| August 30-September 1 | Safety  
|                    | Introduction to Calculations with Excel                                    |
| September 6-10     | Experiment 1  
|                    | Experimental Precision and Uncertainty                                    |
| September 13-17    | Experiment 2  
|                    | Thin Layer Chromatography of Dyes                                         |
| September 20-24    | Experiment 3  
|                    | Chemical and Physical Measurements: Drug Laboratory                       |
| September 27-October 1 | Experiment 5  
|                    | Absorbance of Light vs. Concentration                                     |
| October 4-8        | Experiment 7  
|                    | Percent Composition of Potassium Chlorate                                  |
| October 11-15      | Midterm Exam                                                             |
| October 18-22      | Fall Break – No lab this week                                            |
| October 25-29      | Experiment 8  
|                    | Molecular Geometry and Polarity                                           |
| November 1-5       | Experiment 9  
|                    | Limiting Reactants: Synthesis and Pyrolysis of Transition Metal Oxalates |
| November 8-12      | Experiment 10  
|                    | Qualitative Analysis: Testing the Solubility Rules                        |
| November 15-19     | Experiment 11  
|                    | Acid-Base Titrations: Acetic Acid in Vinegar                              |
| November 22-26     | Thanksgiving Break – No lab this week.                                  |
| November 29-December 3 | Final Exam                                                             |
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COVID-19 Reminders

Respect for Others
For the health and safety of yourself and those around you, you are **required to wear a face-covering over both your nose and mouth while inside all campus buildings** (you should do the same inside other public buildings). This mask should fit well; there should not be gaps anywhere between your face and the mask. Also remember that **students, faculty, and staff should not come to campus when they feel unwell**.

Close Contacts and Infection
Anyone with known contact with someone who is infected with COVID is required to follow CDC and CofC guidance, which states that unvaccinated people quarantine themselves away from others for 10-14 days after the last known contact and additionally get tested (negative test results do not eliminate the need to quarantine), while vaccinated people monitor themselves for symptoms and, if they become symptomatic, begin quarantine and testing. Additionally, per the CDC, fully vaccinated people should get tested 3-5 days after their exposure, even if they don’t have symptoms, and wear a mask indoors in public for 14 days following exposure or until receiving a negative test result.

Students living in the same household as someone infected with COVID will need to consult Student Health on the length of their quarantine. If a new member of the household becomes sick, they will need to restart their quarantine.

*Anyone who is sick should be tested for COVID and, upon receiving a positive test result, isolate from others for at least 10 days, regardless of vaccination status.* Consult Student Health for whether you can come out of isolation after 10 days.

The CDC's guidance has changed over the course of the pandemic as new data and new variants have emerged; check the latest info for yourself: [https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/quarantine.html](https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/quarantine.html) and find CofC's info here: [https://cofc.edu/back-on-the-bricks/](https://cofc.edu/back-on-the-bricks/) The easiest thing to do is to contact Student Health about your particular situation to get their guidance: [https://studenthealth.cofc.edu/](https://studenthealth.cofc.edu/) If you cannot attend class due to a COVID-related situation, contact your instructors for help in making up assignments.

Resources
CofC Student Health requests that you inform them of positive COVID testing results and any close contact with someone who is COVID-positive, so they can monitor the campus health situation and give you personalized healthcare. CofC holds regular free testing events on campus for anyone in the campus community to get tested for COVID infection. CofC also holds free vaccination events on campus for all students. Vaccination remains the best way to protect yourself, your family, and those around you.