New York University  
Department of Chemistry  
CHEM-UA126.001  GENERAL CHEMISTRY II & LABORATORY  
SUMMER 2019

Instructor Information

- **Zhihua An**, Clinical Associate Professor  
- **Office**: Room 1001 M, Silver  
- **Office hours**: M, W 11:30 am – 12:30 pm  
- **Email**: za6@nyu.edu

Course Schedule

**Laboratory classes**: M, W 1:00 pm-5:15pm, Location: room 151, Brown building.

<table>
<thead>
<tr>
<th>Date</th>
<th>Exp. #</th>
<th>Title</th>
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<tbody>
<tr>
<td>July 8, M</td>
<td>1</td>
<td>Check-in and Safety in the Chemistry Laboratory</td>
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<tr>
<td>July 10, W</td>
<td>2</td>
<td>Introduction to the LabQuest Interface</td>
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<td>July 15, M</td>
<td>4</td>
<td>Aspirin History, Chemistry, and Colorimetric Analysis</td>
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<td>July 17, W</td>
<td>5</td>
<td>Properties of Solutions: Colligative Properties</td>
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<td>July 22, M</td>
<td>6</td>
<td>Kinetics; Iodine Clock Reaction—Part A</td>
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<td>July 24, W</td>
<td>7</td>
<td>Kinetics; Iodine Clock Reaction—Part B</td>
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<td>3</td>
<td>Molecular Geometry and Orbitals with Spartan (Take-home Lab)*</td>
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<tr>
<td>July 29, M</td>
<td>8</td>
<td>Le Châtelier’s Principle</td>
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<td>July 31, W</td>
<td>9</td>
<td>Determining the Equilibrium Constants for Bromothymol Blue and Bromophenol Blue</td>
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<td>Aug 5, M</td>
<td>10</td>
<td>Titration of Acids and Bases</td>
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<td>Aug 7, W</td>
<td>11</td>
<td>Buffered Solutions; Designing Solutions to Resist Changes in pH</td>
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<td>Aug 12, M</td>
<td>13</td>
<td>Electrochemistry—An Introduction to Oxidation-Reduction Chemistry (Check-out)</td>
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<td>Aug 14, W</td>
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<td>Final exam</td>
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<td>Room to be announced</td>
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*Exp 3, this is a take-home lab, it is due on July 24th.*
Course Description
Welcome to the General Chemistry II laboratory! The objective of this course is to become proficient in techniques used by chemists, to carry out experiments safely and carefully, to obtain data and to analyze data correctly. You will utilize techniques learned and skills acquired in General Chemistry I and learn new techniques, such as spectrophotometry, kinetic methods, buffer preparation, automated titrations, constructing voltaic cells and so on. Many of the experiments are scheduled to follow the topics of the lecture portion of the course. Try to see the connections between the two. Lab work will help you to understand the material covered.

Course Materials

Required Textbooks & Materials

- Personal Protective Equipment (PPE): 12 disposable lab coats ($18), full coverage safety goggles ($5), and 1 box of disposable rubber gloves ($8) can be purchased in the chemistry stockroom using NYU CAMPUS CASH only.

- Software:
  o Logger Pro®, available for free download from the course NYU Classes site (Sec001, resources tab, course software folder, password: conservation)
  o Spartan Software Version 7 (for experiment 3); Instructions for purchase at a special discounted price ($25) are described at the end of this syllabus.

Resources
- All other course materials (announcements, homework instructions, additional readings, etc.) will be posted on NYU Classes under General Chemistry II & Laboratory: Section 001. NYU Classes can be accessed using the ACADEMICS TAB on your NYU Home page: https://home.nyu.edu/academics.

Course Requirements

Pre-Lab Assignments
- Read the lab manual and prepare a laboratory preparation sheet (LPS). You are not allowed to bring your lab manual into the lab. Do bring the data sheet(s) and the post-lab sheet(s) from the manual and the LPS. The LPS must contain (1) the title of the experiment, (2) balanced chemical equations if the experiment involves one or more chemical reactions, (3) a chemical table including columns for chemicals (including molarity for solutions), amount needed, and safety hazards, and (4) a flowchart (see appendix V of the manual). For experiment 8, you will prepare four data sheets with a different format (sample data sheet shown in manual).
• **Take the Pre-Lab Assignment on-line** on NYU classes. The pre-lab assignment includes general safety questions and relevant technique questions; also several questions based on the content in the Background Information with a focus on the sample calculations. In some cases, you may have to create a graph using Logger Pro to be handed in. The pre-lab assignments are available to you one week prior to the lab and must be completed by 11:59 PM the evening before lab.

**In-Lab Tasks**

• **Take a 10 min quiz** at the beginning of each lab. It will focus on the key concepts, and procedure about the lab.

• **Perform the experiments, record and analyze data.** You will work with a partner in lab.

• **Write Lab Report and answer post-lab questions.** You and your partner will work collaboratively on the data and post-lab sections and hand in one report for the two of you. Lab reports consist of a cover sheet, data sheets, graphs, post-lab, and LPSs of both partners. Completed lab reports are due on the day that you perform the experiment, before you leave the laboratory. Instructors are not authorized to accept laboratory reports after the class has ended. Late labs lose points or may not be accepted.

**Final Exam**

A written final exam is scheduled by the NYU Registrar’s Office and **no alternative exam date will be provided.** A make-up will be given for the final exam **only under exceptional circumstances** that must be discussed with Professor An prior to the exam. In the rare cases where approval is granted, a grade of **incomplete** will be given for the course and the make-up will be scheduled for the Fall 2019 semester.

**Grade Components**

Each experiment is graded out of 100 points. Each pre-lab assignment counts for 30 points, the quiz for 6 points, the LPS for 9 points, and the written lab portion for 55 points. You will also take a written final exam during the final exam week. The final exam will be worth 25% towards your final lab grade while experiments worth 75%. Your lab grade will be incorporated in your final grade for the lecture and laboratory course and will be worth 25% of your final grade (please see Prof. Halpin’s syllabus).

<table>
<thead>
<tr>
<th>Lab grade</th>
<th>Experiments (75%)</th>
<th>Pre-lab assignment</th>
<th>Total</th>
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<td>30 points</td>
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<td>LPS</td>
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<td>quiz</td>
<td>6 points</td>
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<td>Lab reports</td>
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<td>Total</td>
<td>100 points</td>
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<td>Final exam (25%)</td>
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<td>100 points</td>
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Course Policies

Basic Laboratory Rules

1) Laboratory Safety
SAFETY IS OF PARAMOUNT IMPORTANCE IN THE LABORATORY. If you do not follow the safety rules presented to you, you will be removed from the lab and you will lose credit for the experiment.

WEAR SAFETY GOGGLES AT ALL TIMES IN THE LABORATORY
a. Proper Lab Attire is required!!! everyone will be required to wear disposable lab coats during each experiment.
b. Clothing that covers your legs and shoulders are required for this course. This does not include stockings or ripped jeans.
c. No shorts or short skirts
d. No exposed bellies
e. Closed shoes must be worn at all times. No ballet flats, flip flops, or open shoes of any kind are permitted.
f. In other words, minimal skin should be showing from the waist down. If you come to lab improperly dressed, you will be sent home.
g. Please shut off your cell phones while in the lab. Receiving calls or texting is not permitted.
h. Personal computer or IPODs are also not permitted.
i. Food or water is not allowed in the lab. Gum chewing is not permitted.

IF YOU DO ANY UNAUTHORIZED EXPERIMENTATION, YOU WILL FAIL THE COURSE!!!

2) Lockers
Personal belongings are not permitted in the lab. Coats, book bags, purses, etc., will have to be placed in a hall locker. These lockers are located on the 4th floor of the Silver building. How to use the clothing lockers…
a. Go to any locker on the 4th floor.
b. Place your items inside and close the door.
c. On the keypad press C, then any 4-digits combination you will remember, then the key (lock button). The lock will engage. I suggest you take a picture of your locker as a record.
d. To open the locker, simply repeat the earlier steps – Press C, then the same 4 number combination that you entered earlier, followed by the key (lock button). The lock will release. After you have removed your items, please leave the locker as it is, you do not need to re-engage the lock.
e. Please note that once the lock engages it will only remain locked for 5 hours. You must return as soon as possible following your lab and reclaim your belongings. After 5 hours have passed, the lock will disengage automatically, and the contents will be accessible to anyone.
f. *Items left in a locker past their removal time are subject to removal and disposal.*
g. If your locker does not open, the stockroom staff will be able to help you open your locker if you can prove it’s your locker (take a picture).

3) Waste Minimization
To minimize costs and reduce any environmental damage, we need to avoid wasting laboratory materials and to dispose of all chemicals and other materials properly. You must observe the following rules in the lab:

a. When you obtain a reagent for use in an experiment, read the label on the bottle; make sure that the substance name, its chemical formula, and its concentration match those specified in the directions for the experiment.

b. Take only the amount that you need, and **DO NOT RETURN** any reagent to the bottle.

c. Dispose of all materials into the proper waste container (again, read the labels). **NOTHING WILL GO INTO THE SINKS. DISPOSABLE PIPETS, BROKEN GLASS and GLOVES** must be disposed of in the "Broken Glass" container (not the regular trash). Liquid chemical waste from the experiments is disposed of in the designated waste drum in the center of the lab.

**Attendance and Tardiness**

**THERE WILL BE NO MAKEUP LABS.** If you are too ill to attend lab, see a doctor or go to NYU Health Services. You are required to bring to me documentation that will verify your illness. The documentation must be on a physician's stationary, and I may call for verification. Excused labs will not count when we evaluate your grade. Similarly, if you must miss a lab because of religious observance, you should provide some documentation to be excused. **More than 3 absences (excused and unexcused) will result in an F for your lab grade.**

**Academic Honesty/Plagiarism**

If you are caught cheating/plagiarizing in this course, you will receive a grade of F and your actions will be reported to the Dean of your school. You can destroy your entire career in an attempt to score a few extra points. Think about that. It isn't worth it. Cheating includes carrying any unauthorized written material during a quiz or exam, storing any information in your calculator (which we'll check for), talking to anyone other than an instructor during a quiz or exam, copying work from another student (or allowing another student to copy from you), changing an answer on a quiz or exam after it has been graded, and anything else that would give you an unfair advantage over other members of the class.

**Disability Disclosure Statement**

Academic accommodations are available for students with disabilities. Please contact the Moses Center for Students with Disabilities (212-998-4980 or mosescsd@nyu.edu) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance.