Queens College - CUNY
Department of Chemistry and Biochemistry

Laboratory Syllabus
Chemistry 113.1 Section 4 (47048)
Introduction to Chemical Techniques

Instructor: Tianyu Bo
Office: Blackboard Collaborate or Zoom
Office hours: Tu 4:30 – 5:30 pm or by appointment (arrange via e-mail)
E-mail: tianyu.bo@qc.cuny.edu

Lab Section: SEC 4: Tuesday: 1:40 pm - 4:30 pm, Remsen 156

Laboratory Coordinator: Dr. Sheila Sanders
Office: Blackboard Collaborate or ZOOM
Office hours: Arrange via e-mail
E-mail: ssanders@qc.cuny.edu

Responsibilities: Oversight of quizzes, laboratory protocols, Blackboard postings, laboratory instructors and grade assignments.

Important: A grade of C or better must be achieved in CHE 113.1 and CHE 113.4 courses to advance to CHE 114.1 and CHE 114.4 courses.

Required Items:
- Laboratory Notebook
- Scientific Calculator
- Experiment Documents (downloaded from Blackboard, no electronic devices are allowed in the lab).
- Blue or Black Pen
- Safety Goggles
- Lab Coat
- Mask
- Gloves

Withdrawal:
Withdrawal from the CHE 113.1 LAB does not require withdrawal from CHE 113.4 Lecture if you are passing the lecture course.
If you withdraw from lab make sure to check out with the stock room and take your White Card as a proof.
Withdrawal from the CHE 113.4 Lecture does not require withdrawal from CHE 113.1 Lab if you are passing the Lab course.

Academic Dishonesty:
Instances of academic dishonesty will not be tolerated and will be treated in accordance with university policy. Examples of academic dishonesty include copied lab reports, use of data obtained by other students, faking data, copying from another student during a quiz, etc.

Course Objectives:
To provide students with the opportunity to develop core competencies in chemistry laboratory skills, as enumerated by the American Chemical Society, including:

- Safe handling of chemicals and proper disposal of waste arising from hazardous chemicals
- Maintaining a laboratory notebook and writing proper laboratory reports
- Acquiring and analyzing data, both qualitative and quantitative, and correctly interpreting results, including correct precision, accuracy and units.

**Attendance:**
- **Attendance** for every laboratory section is mandatory. Lateness by more than 15 min. is counted as an absence.
- There is NO MAKE-UPS in Lab for any reason.
- For Holidays only official CUNY free days are respected.
- If you are absent for any reason, then you cannot submit a Lab Report for that day.
- Missed labs: Acceptable emergency or religious observances must be approved by the instructor. The instructor reserves the right to approve or reject your request. If not approved, it will result in loss of points for the lab. Make-up labs are not possible because of social distancing issues. Your instructor will assign alternate work to complete assigned labs if excused.

**Laboratory Safety:**
All safety rules listed in the laboratory safety contract, which you sign, must be followed at all times.

A 5 pt grade deduction for the most serious violations are listed below:

- Failure to wear safety glasses AT ANY TIME during the laboratory period
- Improper disposal of any chemicals (for example pouring chemicals into the sink)
- Food or drink brought into the lab
- Winter coats, book bags, etc brought into the lab. USE THE LOCKERS!
- General Housekeeping Deduction: Clean after yourself when you finish experiment.

**There is no lab manual for this course.**
Instead, you must print all 12 Queens College Experiment Procedures from Blackboard and bring the hard copy to the lab. **You will not be allowed to access the lab experiments electronically during the lab.**

If the Procedure was revised by the Instructor, then you must print the revised form and transfer the information to your personal notebook.

**THE LABORATORY NOTE BOOK** is the only place where observations or data will be written for the experiments during the lab period using a pen.

The lab notebook must be brought to each lab session and should contain the following:

- Chemicals being used
- Apparatus being used
- Steps of the procedure
- Tabulated data and observations
- Before leaving the laboratory for the day, you must obtain the instructor’s initials in the notebook and hand in the data sheet(s).

**LABORATORY REPORTS (70%)**
During the 14 week schedule, 12 experiments will be performed and each will require a LABORATORY REPORT.
LAB REPORTS must be **typed**.
EVALUATION OF LAB REPORTS
Maximum points for each LAB REPORT is **25 points**, which will convert to a % in the grade column.

A sample rubric is provided below:

**Title Page & Abstract** – 3 pts  
**Introduction** – 5 pts  
**Experimental** – 5 pts  
**Results & Discussion** – 10 pts  
**Conclusions** – 2 pts

The following penalty are given for

- wrong table 1 pt  
- wrong sig. figs. 1 pt  
- wrong graph 1 pt  
- wrong formulas 2 pts  
- wrong calculations 3 pts  
- no Data Sheets 3 pts  
- no conclusions 2 pts

**Laboratory Reports are due 7 days after the experiment was completed** (they are due at the next class meeting).

Reports up to 7 days late are subject to 5 points deduction automatically from the lab report grade.  
If the lab report is more than 2 weeks late, a grade of zero is assigned and no report is accepted.  
**THE INSTRUCTOR CANNOT ACCEPT REPORTS 7 DAYS AFTER THE LAST EXPERIMENT.**

**Laboratory Safety Quiz**
Students must obtain a score of 70% or greater on the Laboratory Safety Quiz before working in the lab.

**Quizzes (10%)**
- Quizzes will be given during the first 10 - 15 mins of the class.  
  You will not be granted extra time if you arrive late.  
- Laboratory quizzes may cover the experiment from the previous week and/or ‘pre-lab’ questions regarding the experiment to be performed that day.

**LAB COURSE GRADES WILL BE POSTED IN BLACKBOARD FOR YOU TO TRACK YOUR PROGRESS**
There are three components to the laboratory course grade:

- **Lab Quizzes**  
  10%
- **Final Lab Quiz**  
  20%
- **Laboratory Reports**  
  70%

**Structure and Schedule:**
There are 14 lab periods. Lab periods 1,2, 13, and 14 are completely online. Entire class meets together online with instructor. These are synchronous online labs conducted via ZOOM or Blackboard Collaborate. In the table below, these labs are highlighted in **yellow** color.

Lab periods 3 to 12 will be a mixture of hands-on and asynchronous online labs. The class is divided into 2 groups, Group A and Group B. When Group A is doing hands-on, Group B will be doing asynchronous online lab. The groups switch their labs in the following week. The asynchronous online labs are highlighted in **red** and hands-on labs are shown in **green**. Lab Instructor will be present for in-person lab. Lab reports are due for
all labs irrespective of how it is done. There are 2 online lab quizzes taken using blackboard. Week 1 is safety quiz and week 14 is final lab quiz. There are 5 lab quizzes that will take place during in-person lab.

**Hybrid Lab sequence**

<table>
<thead>
<tr>
<th>Lab period #</th>
<th>Expt</th>
<th>Type of lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Instructor introduction, Syllabus and Grading Overview, Lab safety Video, General lab safety intro from instructor, lab safety quiz</td>
<td>Synchronous online</td>
</tr>
<tr>
<td>2</td>
<td>Precision and Accuracy, significant digits, Lab experiment for measuring density (calibration of volumetric pipet and density of a solution by mass/volume measurement)</td>
<td>Synchronous online</td>
</tr>
<tr>
<td>3</td>
<td>Hands-on Lab Check-in, safety review &amp; Density of Solids, liquids [Quiz on precision, accuracy, density]</td>
<td>In-Person</td>
</tr>
<tr>
<td>4</td>
<td>Separation of a Mixture</td>
<td>Asynchronous Online</td>
</tr>
<tr>
<td>5</td>
<td>Empirical Formula for Magnesium Oxide</td>
<td>Asynchronous Online</td>
</tr>
<tr>
<td>6</td>
<td>(a) Precipitation Reactions</td>
<td>In-Person</td>
</tr>
<tr>
<td></td>
<td>(b) Preparation and standard KHP and titration with NaOH [Quiz]</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Copper Cycle</td>
<td>Asynchronous Online</td>
</tr>
<tr>
<td>8</td>
<td>Gravimetric Analysis</td>
<td>Asynchronous Online</td>
</tr>
<tr>
<td>9</td>
<td>Molar mass of metal AND/OR Heat of Neutralization [QUIZ]</td>
<td>In-Person</td>
</tr>
<tr>
<td>10</td>
<td>Percentage of acetyl salicylic acid in aspirin – by titration</td>
<td>Asynchronous Online</td>
</tr>
<tr>
<td>11</td>
<td>Measuring specific heat capacity of a metal &amp; identifying a metal</td>
<td>Asynchronous Online</td>
</tr>
<tr>
<td>12</td>
<td>Beer's Law, PHET lab simulation for concentration Vs absorbance, making plots and finding unknown concentration</td>
<td>Synchronous online</td>
</tr>
<tr>
<td>13</td>
<td>Student presentations [3 min each]</td>
<td>Synchronous online</td>
</tr>
<tr>
<td>14</td>
<td>Check-out and Final Lab Quiz</td>
<td>Synchronous online</td>
</tr>
</tbody>
</table>

Please see the detailed schedule with different groups and dates.

Students who participate in this class with their camera on or use a profile image are agreeing to have their video or image recorded solely for the purpose of creating a record for students enrolled in the
class to refer to, including those enrolled students who are unable to attend live. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image.
Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live.
The schedule is tentative; the instructor will notify students in writing of any changes.

SUPPORT
If you require technical help with your Queens College email or CUNYfirst account, please contact the Queens College helpdesk: helpdesk@qc.cuny.edu. Resources for students who need access to tools, to borrow a device, are having internet connectivity issues, etc. can be found at https://provost.qc.cuny.edu/students.
You may also send an email to KeepLearning@qc.cuny.edu if you encounter difficulties or have issues you can’t resolve on your own.

REASONABLE ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES
Students with disabilities needing academic accommodation should register with the Special Services Office by emailing QC.SPSV@qc.cuny.edu. For more information about services available to Queens College students, visit the Office of Special Services website: https://www.qc.cuny.edu/studentlife/services/specialserv/Pages/default.aspx.

CUNY POLICY ON ACADEMIC INTEGRITY
Academic Dishonesty is prohibited in The City University of New York and is punishable by penalties, including failing grades, suspension, and expulsion as provided at https://www.cuny.edu/about/administration/offices/legal-affairs/policies-procedures/academic-integrity-policy/.