Syllabus- General Chemistry Lab, Chem18a, Fall 2019

Instructor
Prof. Milos Dolnik
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Office Hours
MTR 2:00-3:00 pm and by appointment

Class Meetings
Lectures
Tuesdays: 9:30-10:50 AM
Labs
MTRF 1:30-5:20 PM

Course Description and Learning Goals
This course is an Experiential Learning course in which students will utilize concepts learned in the General Chemistry lecture course. Throughout this course students will be introduced to important basic and advanced chemistry laboratory techniques and they will develop an extensive practical laboratory experience. This experience should provide them with a solid foundation and preparation for future scientific development. Upon successful completion of this course students should be able to demonstrate practical skills of utilizing selective qualitative and quantitative laboratory techniques and procedures.

When students encounter any problem during procedural steps they are not provided with fixes and solutions but instead they are helped by questions. These questions guide the troubleshooting process and encourage development of analytical thinking and problem solving skills. Students learn how to use fundamental chemical principles to explain experimental observations and how to interpret data collected from experiments. At the same time students learn how to record observations, how to write a good laboratory report and how to utilize basic statistical methods to evaluate measurements. This laboratory course strongly encourages development of analytical thinking and problem solving skills and engages students both in individual and team projects. Student interactions become an important part of this course and both individual and shared experience helps students to understand and learn basic concepts of chemistry in thoroughly engaging environment.

Lab sessions
The lab sessions are from 1:30 to 5:20 pm. Each lab period begins with a prelab talk/discussion. Any student who will arrive to the lab after the official start 1:30 pm will be noted and will receive a penalty for lateness (one point penalty for every two minutes). A student, who is 10 or more minutes late will not be allowed to stay. Such student will receive 8 points penalty and will have to see the Instructor to reschedule lab for another day.

This laboratory course is a 2 credit course and it is expected that students spend additionally at least between 3-5 hours per week to prepare for experiments and to work on their laboratory reports.
**Course Grade and Evaluation**

**Lab reports**

Lab reports consist of pre-lab parts (due before the lab starts) and post-lab parts (due at the beginning of next lab period). If a part of a lab report is not uploaded on LATTE on time, a “late” penalty will be applied to each late part.

*Pre-lab assignment late penalties:*

4 points for up to 6 hours late and 8 points for up to 24 hours late. No credit will be given for the prelab assignment more than 24 hours late.

*Post-lab assignment late penalties:*

2 points - up to 6 hours late, 3 points - up to 24 hours late, 4 points - up to 3 days late, 6 points - up to one week late, 10 points - up to 2 weeks late, 14 points - up to 3 weeks late.

No points will be awarded for a part of lab report more than 3 weeks late. These penalties apply to each “late” part of any lab report. If a post-lab assignment consists of two or more files (for example Data Table and Sample calculations) and one of these files is submitted on time and the other is late then only half of the late penalty will be assigned for lateness. Only up to what is the part worth can be deducted for lateness. The same penalties apply to absent students unless a special accommodation is arranged in advance.

**Lab performance and notebook**

Your performance throughout the course will be assessed by your teaching assistants (TAs). Qualities to be considered include: laboratory skills, precision, accuracy, efficiency of your lab work, problem solving skills, independence, tidiness, overall improvement, safety precautions, **compliance with laboratory rules**, etc. Students coming to the lab must be prepared, having thoroughly read the experiment, with purpose and procedure outline in their notebook. During the prelab talks and during the lab your TA may ask questions to see if you know the goal of each experiment, describe the main procedural steps, what data are going to be collected and how the final results will be obtained. To achieve uniform performance scoring among sections, students will be ranked within their sections and the performance score will be assigned based on these rankings. A student in each section with an average ranking will be assigned a prescribed “median” performance score. Students ranked in the top half will receive higher than the median score and students in the bottom half will receive a lower than the median performance score. There will be two performance and notebook evaluations, one in the middle and one at the end of semester. Your notebook evaluation will focus on how you follow the guidelines for keeping it. All required parts must be included in the notebook, and all printed material must be well attached (taped or glued) in proper places. All material in the notebook must be kept in a legible, clear and organized manner. A detailed table of contents must be presented in the front of notebook and updated weekly.

**Tests**

There are two lab tests for the Chem 18a course. See calendar of experiments for the test dates.

**Quizzes**

Multiple choice quizzes will be given during lab lectures, they will contribute to the final grade by 5 %.
**Grade weighting**

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<thead>
<tr>
<th>Class Element</th>
<th>Grade Percentage</th>
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<tbody>
<tr>
<td>Lab reports</td>
<td>50%</td>
</tr>
<tr>
<td>Tests</td>
<td>35%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>5%</td>
</tr>
<tr>
<td>Lab performance and notebook</td>
<td>10%</td>
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</tbody>
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**Letter-grade equivalences**

<table>
<thead>
<tr>
<th>Percentage of Total</th>
<th>Grade range</th>
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<tbody>
<tr>
<td>86-100 %</td>
<td>A- through A+</td>
</tr>
<tr>
<td>76-86 %</td>
<td>B- through B+</td>
</tr>
<tr>
<td>62-76 %</td>
<td>C- through C+</td>
</tr>
<tr>
<td>50-62 %</td>
<td>D- through D+</td>
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<td>&lt; 50 %</td>
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**Course Materials**

You will need a laboratory manual that is available for enrolled students online for no charge. You will also need safety goggles UVEX S3960C and laboratory notebook. Both items are available at the University’s bookstore and should be purchased before the first check-in session. The safety goggles could be also purchased online at a discounted price on Amazon.com. Only safety googles UVEX S3960C or better are approved for the general chemistry laboratory. Bring to your lab meetings the lab manual, notebook and a scientific calculator. Write your name on all these items.

**LATTE**

LATTE (Learning And Teaching Technology Environment) offers tools for course management and allows to post course material online. The LATTE Chem18 course is limited only to students enrolled in the Chem 18 course, TAs and the instructor. To access LATTE go to [http://latte.brandeis.edu](http://latte.brandeis.edu) and log in using your ID and password.

**DISCOVERY TEACHING**

Discovery Teaching is a web application designed to facilitate real-time interactions and activities as part of teaching and learning in the classroom. These include assessment questions where students can answer individually or in groups, giving feedback to the instructor, discussions and questions using a forum, student note-taking, and access students’ participation, attendance and performance data. Discovery Teaching will be used in this course during the semester. The instructor will guide students on various activities and all students are expected to participate accordingly. Access the platform through [discoveryteaching.com](http://discoveryteaching.com), and sign-up if you do not already have an account. Google Chrome and Safari are the recommended browsers. You will require a unique enrollment PIN number in order to add yourself to this Discovery Teaching course. This PIN number will be announced during the first classroom meeting and also posted on the course Latte website.
Other Information

Attendance, excuses and make-ups

To receive a credit for this course, a student is required to perform all experiments. Your absence will be excused only if you notify the Instructor well before the scheduled lab starts. Your lab report on previous experiment and prelab for the missed experiment must be submitted before of your “regular” lab session, otherwise a late penalty will be applied. Your first unexcused absence will receive penalty of 10 points. These points will be deducted from your lab report score. The penalty doubles for two and more unexcused absences. The make-up experiment should be scheduled while other students are doing the same experiment. Students will not be excused to study for a test. Only the instructor (and not TAs) can excuse absences and schedule make-ups.

Laboratory safety and rule violations

Laboratory safety rules will be strictly enforced. These safety rules will be reviewed during the first week of lab. A student may be asked to leave the laboratory at any time if he is not performing the experiment safely. A student will not be allowed to stay in the lab if not wearing proper clothing or adequate eye protection. There will be lab performance deductions for safety rule violations. In case of severe and/or repeated safety rule violations you may receive a failing grade. **Use of cell phones in the lab and during lectures is strictly prohibited. Cell phones must be stored in the backpacks during lecture and lab periods.** Use of laptops during lectures and lab sessions is allowed for course related matters only.

Students with disabilities

Brandeis seeks to welcome and include all students. If you are a student who needs accommodations as outlined in an accommodations letter, please talk with me and present your letter of accommodation as soon as you can. In order to provide test accommodations, I need the letter more than 48 hours in advance. I want to provide your accommodations, but cannot do so retroactively. If you have questions about documenting a disability or requesting accommodations, please contact Student Accessibility Support (SAS) at 781.736.3470 or access@brandeis.edu

Academic Integrity

You may discuss an experiment with other students, but you must write your own lab report in your own words. Calculations, graphs, sketches, drawings etc. should be done as individual tasks. A report that is not clearly the student’s own work will lead to charges of academic dishonesty, which are referred to the University’s judicial system. You are expected to be familiar with and to follow the University’s policies on academic integrity. Any suspected instances of alleged dishonesty will be reported to the Office of Student Development and Conduct and may result in sanctions including but not limited to failure in the course, failure on the assignment in question, suspension from the University and/or educational programs.

Academic coursework and religious observance

Brandeis is a university that embraces students of a wide diversity of religious traditions. Students should review their syllabus at the beginning of each term to determine if there are any conflicts between class time and religious observance. It is the student’s responsibility to inform the instructor of these conflicts within the first two weeks of the semester. Missing a class due to travel plans associated with a particular holiday does not constitute an excused absence.
Preparation for laboratory experiments

Attend lab lectures and read carefully the entire text on the experiment you are going to perform. Also read any assigned readings. Complete the prelab assignment problems before you come to the lab. You must upload solutions to the prelab problems and purpose on LATTE before the start of the lab.

Write out in your notebook or glue a copy of your print out with: a) title, date, prelab assignment and purpose b) an outline of the experimental procedure leaving about a half of the right hand side of the notebook page for observations. Bring to your lab meetings the lab manual, notebook and a scientific calculator. Write your name on all these items.