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**CHEM 1100 Lecture Spring 2021 Sections: WALF WBLF WEAL WEBL WECL WEDL WEEL WEGL WEJL**

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DESCRIPTION*Last revised Jan. 25, 2021.*

This is the first semester of a two-semester General Chemistry course for science majors. The course includes 3 components: Lecture, Recitation, and Laboratory. All components are scheduled to be conducted fully online in Spring 2021. Each component of the course, including topics, schedules, assignments, tests, assessments, and quizzes are described in the following sections.

The lecture component of the course introduces the fundamental concepts of Chemistry and explores them by examples and through practice problems. The lecture course is organized around 12 one and a half hours online meetings generally on Wednesdays from 11:00 AM to 12:30 PM (see the Lecture Schedule below). Prior to each meeting, students complete assignments, which include watching a series of lecture videos and completing a short self-assessment test. The online meetings will focus on discussing topics from the lecture assignment and working through problems introduced during the video lectures as suggested by the students. The lecture component includes two graded online midterm exams and a final exam.

The recitation and laboratory components are conducted separately for each section of the course by appointed instructors. Recitations meet weekly for approximately 50 minutes and are generally intended as interactive help sessions in a smaller class setting (each section is composed of approximately 25/30 students, compared to over 200 students in the lecture). At approximately every other recitation meeting, a short graded online quiz will be administered. Laboratory experiments will be conducted remotely. Remote "virtual" chemistry laboratory experiments consist of laboratory videos and collected data. There will be a total of 12 in-person virtual laboratory experiments. Students are responsible for preparing and submitting lab reports for grading based on the material provided. As part of the laboratory components, two laboratory quizzes will be administered. More information about recitation and laboratory components will be forthcoming from your instructor.

Learning Objectives

Upon completion of this course, students should:

- Understand the basic physical principles underlying chemistry and be able to apply them both to qualitatively explaining phenomena and quantitatively predicting or interpreting outcomes.
- Be able to perform simple chemical techniques and apply chemical theory in the laboratory setting.
- Understand and be able to explain fundamental ideas in the practice of science, including the nature of scientific evidence, the scientific method, and appropriate practices with respect to record-keeping, safety, and treatment of data.
- Students should be able to apply principles of chemistry to understanding its role in other fields (e.g. biology) while understanding its underpinnings in physics and mathematics.

Specific learning objectives for each module of the course are listed with the corresponding module --see [Course Documents](#)

Required Texts

- [Chemistry 2e, P. Flowers, OpenStax, 2020](#)

Chemistry from OpenStax, Print ISBN 194717262X, Digital ISBN 1947172611,

Good news: your textbook for this class is available for free online! If you prefer, you can also get a print version at a very low cost. Your book is available in web view and PDF for free. You can also choose to purchase on iBooks or get a print version via the [Brooklyn College campus bookstore](#) or from OpenStax on Amazon.com.

You can use whichever formats you want. Web view is recommended -- the responsive design works seamlessly on any device. If you buy on Amazon, make sure you use the link on your book page on [openstax.org](#) so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable and not as high-quality.) The book is also available for free from Amazon Kindle.

- [Experiments in General Chemistry](#), M. N. Kobra, Ed., Fourth edition. Kendall/Hunt, Dubuque, IA, 2012 (2017).

This is the laboratory manual. Order it from the [Brooklyn College campus bookstore](#). Do not buy a used copy. Pages from this book are removed and used up during the course.

Required Items

- Reasonably fast access to the Internet to stream video (1 Mbit upload/download or better).
- A desktop, laptop, or tablet to access the CUNY Blackboard and Blackboard Collaborate Ultra systems. A video camera and a microphone are recommended to interact with the class instructor.
- A valid e-mail registered with Blackboard.
- Texas Instruments calculator TI-30X or a similar inexpensive scientific calculator with equivalent features.

Grading

The course percent grade is calculated as a weighted average as follows:

- 30% two midterm tests
- 20% recitation quizzes
- 18% laboratory reports
- 7% laboratory quizzes
- 25% final exam

The course letter grade is assigned based on the percent course grade according to the following scale:

| | |
|----------------|----|
| 95% or higher: | A+ |
| 95% to 87%: | A |
| 87% to 85%: | A- |
| 85% to 82%: | B+ |
| 82% to 72%: | B |
| 72% to 70%: | B- |
| 70% to 68%: | C+ |
| 68% to 62%: | C |
| 62% to 58%: | C- |
| 58% to 50%: | D |
| less than 50%: | F |

Online resources

- Course information and instructional material for the lecture will be posted in the [Course Documents](#) section of this Blackboard class page
- Weekly assignments will be posted in the [Assignments](#) section of this Blackboard class page
- All announcements for the lecture will be posted in the [Announcements](#) section of this Blackboard class page
- The schedule of lecture meetings will be posted on the [Calendar](#) section of this Blackboard class page
- A [discussion board](#) for the lecture component is available to interact with the instructor and fellow students
- Information and instructional material specific to the recitation and laboratory component will be provided on the Blackboard page of each class section

Students are expected and assumed to check the Blackboard class pages for changes and announcements at least daily.

Supplemental online resources

- [The BC Learning Center](#)
- [Old BC Chemistry practice exams](#)
- [Chemistry Department Homepage](#). Some practice exams are posted under [Course Syllabi](#)
- [Pre-Health Program website](#)
- [Lab instruction videos](#)

Counseling

- Coordinator for General Chemistry: [Prof. Mark Kobrak](#)
- Undergraduate Chemistry Advisor: [Prof. Aneta Mieszawska](#)
- Health Professions Counseling: [Prof. Steven Silbering](#)
- [General College Advisement](#)

Academic Integrity

The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy and the Brooklyn College procedure for policy implementation can be found at www.brooklyn.cuny.edu/bc/policies. If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the student admits the violation, the faculty member MUST report the violation. Students should be aware that faculty may use plagiarism detection software.

Disability Accommodations

In order to receive disability-related academic accommodations, students must first be registered with the Center for Student Disability Services. Students who have a documented disability or suspect they may have a disability are invited to set up an appointment with the Director of the Center for Student Disability Services, Ms. Valerie Stewart-Lovell at (718) 951-5538 or vstewart@brooklyn.cuny.edu. Once registered with the Center for Student Disability Services, please provide your professor with the course accommodation form and discuss your specific accommodation with him/her.

Student Bereavement Policy

Students who experience the death of a loved one during the semester may consult the [College Student Bereavement Policy](#).

Non-Attendance Due to Religious Beliefs

Students who are unable to attend class due to religious observations should consult the front matter of the [Brooklyn College Undergraduate Bulletin](#) for the college's policy which conforms to state law, and contact the lecturer to discuss the issue. Students must come forward with the issue in a timely manner.

Important Dates

- Friday, January 29: First day of Spring 2021 classes
- Thursday, February 4: Last day to add a course
- Monday, May 17: Last day to withdraw from a course with a "W" grade

- Tuesday, May 18: Reading Day
- Wednesday, May 19: Final Examinations Begin
- Tuesday, May 25: Final Examinations End / End of Spring Semester

The full academic calendar, including many other important dates, is available on the [Office of the Registrar's website](#).

College Policies and Regulations

Students should read the "Academic Regulations and Procedures" in the Brooklyn College Undergraduate Bulletin or Graduate Bulletin for a complete listing of academic regulations of the College. These may be found on the [Academic Calendars, Course Schedules, and Bulletins page](#) of the Registrar's website.

LECTURE AND RECITATION

LECTURE

Textbook

- [Chemistry 2e, P. Flowers, OpenStax, 2020](#)

Lecturer Contact Information and Office Hours

[Prof. Emilio Gallicchio](#) (he/him/his)

E-mail: egallicchio@brooklyn.cuny.edu

Virtual Office Room: [BlackBoard Ultra](#)

Cell: 646-552-7136

Preferred mean of contact: **E-mail**

Lecturer office hours

- Mon 3:00 PM--4:00 PM
- Tue 5:30 PM--6:30 PM
- Thurs 11:00 AM--12:00 PM

Office hours are held in the [instructor's office hour Blackboard Ultra meeting room](#).

Including the scheduled office hours above, I will try my best to hold 1 hour of office hours every day of the week, Monday to Friday, at times posted weekly on the [Course Calendar](#). There will be a minimum of 3 hours of office hours weekly according to the schedule above. Changes in schedule will be announced. The [Course Calendar](#) will reflect the actual schedule of office hours scheduled for the week. Office hours sessions will follow a public forum format. Contact me directly by e-mail to make an appointment to discuss personal issues.

Discussion Board

A [Discussion Board](#) is available to post questions and answers and interact with the lecturer and fellow students. All chemistry-related questions and most course administration questions, except those of a personal nature, should be posted on the Discussion Board. Subscribe to the [CHEM 1100 Discussion Board](#) thread to receive notifications.

Lecture Videos

- For each week in which the course is in session, I will provide **lecture videos** for each module of the course (see below).
- The lecture videos are meant to be watched and studied asynchronously **before** the corresponding synchronous lecture/discussion session (see below).
- **Self-assessment tests** are provided with each module for you to probe your understanding and mastering of the material. The self-assessment tests should be taken soon after watching the corresponding lecture video and **before** the corresponding synchronous lecture/discussion session. Questions pertaining to the self-assessment tests should be posted on the class lecture [Discussion board](#). The grades on the self-assessment tests are not included in the course percent grade, however, I will track the completion of the tests to follow students' progress and engagement.

Synchronous Lecture/Discussion Schedule

- During the synchronous sessions, I will mostly go over problems and discuss specific topics as requested by you, the students, on the class [Discussion Board](#). I will sometimes use this time to present particularly important new material that requires specific interactivity.
- Synchronous sessions will be held on Blackboard Collaborate Ultra at the official class times (generally on Mondays 6:30-8:00 PM)
- The times of two of the sessions will be used to conduct the midterm lecture exams (see below).
- See below and the [Course Calendar](#) for a detailed schedule of synchronous lecture sessions.
- I expect that students will join the synchronous lecture sessions after having completed the assignments specified for each session. The assignments include reading assignments from the textbook, watching lecture videos, and completing a self-assessment test.
- The grades on the self-assessment tests are not included in the course percent grade, however, I will track the completion of the tests to follow students' progress and engagement. I recommend taking the self-assessment test once before the synchronous session and again after the session. Self-assessment tests can be taken as many times as desired. They are one of the ways to prepare for online exams.
- I will sometimes ask for feedback from the students during the synchronous sessions. Given the large class size, I expect that feedback will be acquired using the Chat and Polling features of Blackboard Collaborate Ultra.
- For the students unable to attend the synchronous sessions, I will do my best to record them and post the video soon after the end of the session. However, be mindful that technical difficulties with Blackboard beyond my control might prevent the acquisition of recordings. Do your best to attend the live synchronous sessions and take notes.

Lecture Examinations

1. **FIRST MIDTERM EXAM:** Wednesday, March 10, 2021, 11:00 AM-12:30 PM on Blackboard
2. **SECOND MIDTERM EXAM:** Wednesday, April 11, 2021, 11:00 AM-12:30 PM on Blackboard
3. **FINAL EXAM:** Wednesday, May 19, 2021, 10:30 AM-12:30 PM on Blackboard

No makeup exams are given for missed midterm tests. In case of a justified absence (i.e. a doctors' note), the grade on a missed midterm test will be calculated from the weighted average of the other midterm test and the final exam (with a 40% weight on the midterm and a 60% weight on the final).

Lecture Course Schedule and Assignments

- The lecture course is subdivided into weekly modules listed below and posted in [Assignments](#)
- Each module has a series of assignments to be completed by the date indicated
- The sequence of topics follows the textbook for the most part, but not exactly. For example, we will cover Chemical Nomenclature, presented early in the textbook, later in the course.
- A number of topics presented in the textbook are not covered by this course. Conversely, we will discuss some topics in somewhat more depth than covered in the textbook.
- While the two are closely aligned, the course is defined by the information presented by me, not by the textbook.

(tentative schedule subject to change)

| Module | Topics | Due Date |
|--|--|--------------|
| 1 | Basic Concepts, Measurements, Dimensional Analysis | Wed, Feb 3 |
| 2 | Elements, Compounds, Ions, the Periodic Table, Chemical Formulas, and Chemical Equations | Wed, Feb 10 |
| 3 | Moles, Empirical Formulas, Basic Reaction Stoichiometry | Wed, Feb. 17 |
| 4 | Advanced reaction stoichiometry, Reactions in Solution | Wed, Feb 24 |
| 5 | Molarity, Solution Stoichiometry, Quantitative Analysis | Wed, Mar 3 |
| First Midterm Exam, Wed Mar 10, 11:00 AM, Covers Modules 1 to 5 | | |
| 6 | Thermochemistry | Wed, Mar 17 |
| 7 | Ideal Gases | Wed, Mar 24 |
| 8 | Quantum Mechanics, Atomic Structure, Periodic Properties | Wed, Apr 7 |
| 9 | Chemical Bonding, Molecular Structure | Wed, Apr 14 |
| Second Midterm Exam, Wed Apr. 21, 11:00 AM. Covers Modules 6 to 9 | | |
| 10 | Chemical nomenclature, Strength of Bonds, Polarity | Wed, Apr 28 |
| 11 | Intermolecular Forces, Phase Transitions, Phase Diagrams | Wed, May 5 |
| 12 | Solutions, Colligative Properties | Wed, May 12 |
| Final Exam, Wed. May 19, 10:30 AM. Cumulative | | |

RECITATIONS

Recitation sessions are administered by appointed instructors weekly for each section of the course individually. The schedule and modality of recitations will be communicated by the recitation instructors on the respective Blackboard pages. Here are some general rules and guidelines:

- The aim of the recitations is to provide help to students with specific topics presented in the lecture in a smaller class setting and in a problem-solving format. No new concepts are introduced in recitations unless in special circumstances.
 - Recitations meet weekly online in a synchronous interactive format following the sequence of topics introduced in the lecture (see above). The recitation instructor might provide recordings of the recitation meetings.
 - Students are expected to complete--or attempt to complete--the assigned homework problems (see above) before each recitation session.
 - Students are encouraged to propose topics to be covered in upcoming recitation sessions.
 - A minimum of 5 graded recitation quizzes will be administered during some of the recitation sessions according to a schedule set by the recitation instructor.
- Generally, six recitation quizzes are assigned and an average recitation quiz grade is calculated from the best five.

Recitation Schedules

Be aware of your recitation and course schedule on Cunyfirst. Recitation meeting times vary depending on your section. As of the start of classes, the schedule is as follows:

| Section | Instructor | Recitation Schedule |
|---------|--------------------------------------|-----------------------|
| WARF | Mathias, Joann | 9:00 AM- 9:50 AM Tu |
| WBRF | Sheenam, FNU | 2:15 PM- 3:05 PM Th |
| WEAR | Azimi, Solmaz | 2:15 PM- 3:05 PM Wed |
| WEBR | Bennett, Seth | 9:00 AM- 9:50 AM Th |
| WECR | Cobos, Samantha | 9:00 AM- 9:50 AM Tu |
| WEDR | Mathias, Joann | 2:15 PM- 3:05 PM Mon |
| WEER | Wu, Joe | 11:00 AM-11:50 AM Mon |
| WEGR | Kelebeyev, Aleksandr | 9:00 AM- 9:50 AM Wed |
| WEJR | Kelebeyev, Aleksandr | 9:00 AM- 9:50 AM Fri |

Grading

Grades on recitation quizzes contribute to the course percent grade as described above.

LABORATORY

CHEMISTRY LABORATORY

Laboratory Manual

- [Experiments in General Chemistry](#), M. N. Kobrak, Ed., Fourth edition. Kendall/Hunt, Dubuque, IA, 2012 (2017).

This is the laboratory manual. Order it from the [Brooklyn College campus bookstore](#). Do not buy a used copy. Pages from this book are removed and used up during the course.

Virtual Laboratory Experiments and Laboratory Reports

[Virtual laboratory experiments](#) are assigned by the laboratory instructor according to the sequence below. Students are expected to turn in a laboratory report for each experiment as established and communicated by the instructor.

Each experiment generally involves watching a video of the experiment and complete a lab report. [Lab videos and other materials are available online](#). The laboratory manual contains a detailed description of each lab experiment, and of the chemical concepts that it helps to establish. The lab manual also has datasheets and lab report templates used to prepare each lab report. Your lab instructor will establish the procedures and the schedule to turn in lab reports.

1. Experiment 1: Density and Measurement
2. Experiment 2: Introduction to Gravimetric Analysis
3. Experiment 3: Synthesis of Zinc Iodide
4. Experiment 4: Basics of Chemical Reactions
5. Experiment 5: Volumetric Analysis: Acid-Base Titration
6. Experiment 6: Introduction to Calorimetry
7. Experiment 7: Evaluation of the Gas Law Constant
8. Experiment 8: Determining Atomic Emission by Spectroscopy
9. Experiment 9: Synthesis of Aspirin
10. Experiment 10: Spectrophotometric Analysis of Aspirin
11. Experiment 11: Intermolecular Forces and Physical Properties
12. Experiment 12: Determination of Molecular Weights by the Method of Freezing-Point Depression

Laboratory Quizzes

- Two graded laboratory quizzes will be administered as set by the laboratory instructor
- The main purpose of the laboratory quizzes is to establish the authenticity of the submitted lab reports

Grading

Grades on laboratory reports and laboratory quizzes contribute to the course percent grade as described above.