

CH 121 - GENERAL CHEMISTRY

Fall 2020 Syllabus, Section 400, CRN 12282

Credit hours: 5

Instructor Information

Marita Barth

Session

9\23 to 12\4

Course Description

A general chemistry sequence for students who have had no previous training in chemistry and for those whose college aptitude test scores indicate the need for a more elementary introduction to chemistry. Entering students are expected to have a working knowledge of high school algebra, logarithms, and scientific notation. Lec/lab/rec. (CH 122, CH 123 are Bacc Core Courses)

Course Credits

This course combines approximately 150 hours of instruction, online activities, and assignments for 5 credits.

Communication

Please post all course-related questions in the Q&A Discussion Forum so that the whole class may benefit from our conversation. Please contact me privately for matters of a personal nature. I will reply to course-related questions within 24-48 hours. I will strive to return your assignments and grades for course activities to you within about five days of the due date.

Evaluation of Student Performance

Quizzes (19.47%)

Introductory Quiz **10 points**
This quiz covers material in the Syllabus as well as in the Start Here and Course Information modules.

CH 121 Pre-Assessment **10 points**
This quiz consists of questions taken from material throughout CH 121, as well as questions designed to gauge your thoughts with regard to studying chemistry.

You are not expected to study for the pre-assessment, but you are expected to put forth your best effort.

Chapter 1 Quiz **10 points**
This quiz is based on material in Chapter 1: Essential Ideas

Chapter 2 Quiz **10 points**
This quiz is based on material in Chapter 2: Atoms, Molecules, & Ions

Chapter 3 - Part 1 Quiz **10 points**
This quiz is based on material in Sections 3.1-3.4 in Chapter 3.: Electronic Structure and Periodic Properties of Elements

Chapter 3 - Part 2 and Chapter 4 - Part 1 Quiz **10 points**
This quiz is based on material in Sections 3.5-3.7 in Chapter 3.: Electronic Structure and Periodic Properties of Elements and in Sections 4.1-4.3 in Chapter 4: Chemical Bonding and Molecular Geometry

Chapter 4 - Part 2 Quiz **10 points**
This quiz is based on material in Part 2 of Sections 4.4-4.5 of Chapter 4: Chemical Bonding and Molecular Geometry

Chapter 4 - Part 3 and Chapter 5 Quiz **10 points**
This quiz covers material in Section 4.6 of Chapter 4 and in Sections 5.1-5.3 of Chapter 5: Advanced Theories of Bonding

Chapter 6 - Part 1 Quiz **10 points**
This quiz covers material in Sections 6.1-6.2 of Chapter 6: Composition of Substances and Solutions

Chapter 6 - Part 2 Quiz **10 points**
This quiz is based on material in Part 2 of Chapter 6: Composition of Substances and Solutions - Section 6.3

Chapter 7 - Part 1 Quiz **10 points**
This quiz is based on material in Section 7.1 of Chapter 7: Stoichiometry of Chemical Reactions.

Chapter 7 - Part 2 Quiz **10 points**
This quiz covers material in Sections 7.3 and 7.4 of Chapter 7: Stoichiometry of Chemical Reactions

Homework Totals (17.7%)

Chapter 1 - Part 1 **2 points**
The Chapter 1 - Part 1 Homework covers sections 1.1-1.2 in the text.

Chapter 1 - Part 2 **8 points**
The Chapter 1 - Part 2 Homework covers sections 1.3-1.6 in the text.

Chapter 2 **10 points**
The Chapter 2 Homework covers sections 2.1-2.4 in the text.

Chapter 3 - Part 1 **10 points**
The Chapter 3 - Part 1 Homework covers sections 3.1-3.4 in the text.

Chapter 3 - Part 2 and Chapter 4 - Part 1 **10 points**
The Chapter 3 - Part 2 and Chapter 4 - Part 1 Homework covers sections 3.5-3.7 and 4.1-4.3 in the text.

Chapter 4 - Part 2 **10 points**
The Chapter 4 - Part 2 Homework covers sections 4.4-4.5 in the text.

Chapter 4 - Part 3 and Chapter 5 **10 points**
The Chapter 4 - Part 3 and Chapter 5 Homework covers sections 4.6 and 5.1-5.3 in the text.

Chapter 6 - Part 1 **10 points**
The Chapter 6 - Part 1 Homework covers sections 6.1-6.2 in the text.

Chapter 6 - Part 2 **10 points**
The Chapter 6 - Part 2 Homework covers sections 6.3 in the text.

Chapter 7 - Part 1 **10 points**
The Chapter 7 - Part 1 Homework covers section 7.1 in the text.

Chapter 7 - Part 2**10 points**

The Chapter 7 - Part 2 Homework covers sections 7.3-7.4 in the text.

Labs (9.73%)**Lab 1 - Lab Techniques****5 points**

This lab is an introduction to the online lab site and will familiarize students with how instrumentation in the labs works and how experiments are designed.

Lab 2 - Linear Regression**5 points**

This lab introduces students to the use of spreadsheets in analyzing data from scientific experiments.

Lab 3 - Standard Deviations**5 points**

This lab introduces some basic statistics used in evaluating data

Lab 4 - Absorbance**10 points**

This lab has students apply concepts learned in the first three labs, creating a graph of data with a trendline and using the information obtained to quantify the concentration of an unknown solution

Lab 5 - NMR**10 points**

This lab uses NMR to investigate molecular structure. Students will use their knowledge of molecular geometry to evaluate the data.

Lab 6 - Combustion**10 points**

In this lab, students will combust both a known and an unknown substance, and use the data obtained to determine the empirical formula of each.

Lab 7 - TLC and Synthesis**10 points**

In this lab, students will learn about chromatographic separation of compounds, and use the process to investigate reaction stoichiometry

Unit Assessments (53.1%)**Unit Assessment 1: Chapters 1 and 2 (Remotely Proctored)****75 points**

Unit Assessment 1 covers material from the Chapter 1 and Chapter 2 Quizzes

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Unit Assessment 2: Chapter 3 and Chapter 4 - Part 1**75 points**

Unit Assessment 2 covers material from the Chapter 3 - Part 1 and Chapter 3 - Part 2/Chapter 4 - Part 1 Quizzes

Unit Assessment 3: Chapter 4 -Parts 2/3 and Chapter 5**75 points**

Unit Assessment 3 covers material from the Chapter 4 - Part 2 and Chapter 4 - Part 3/Chapter 5 Quizzes

Unit Assessment 4: Chapter 6**75 points**

Unit Assessment 4 covers material from the Chapter 6 - Part 1 and Chapter 6 - Part 2 Quizzes

Unit Assessment 5: Chapter 7

Unit Assessment 5 covers material from the Chapter 7 - Part 1 and Chapter 7 - Part 2 Quizzes

Schedule of Topics and Assignments

Week of	Reading(s):	Due: (Pacific Time)
9/21		Due 9/25 at 11:59pm: Introductory Quiz (p. 1) CH 121 Pre-Assessment (p. 1) Due 9/25 before midnight: Chapter 1 - Part 1 (p. 1)
9/28		Due 10/2 at 11:59pm: Chapter 1 Quiz (p. 1) Due 10/2 before midnight: Chapter 1 - Part 2 (p. 1) Lab 1 - Lab Techniques (p. 2)
10/5		Due 10/9 at 11:59pm: Chapter 2 Quiz (p. 1) Due 10/9 before midnight: Chapter 2 (p. 1) Lab 2 - Linear Regression (p. 2)
10/12		Due 10/12 before midnight: Unit Assessment 1: Chapters 1 and 2 (Remotely Proctored) (p. 2) Due 10/16 at 11:59pm: Chapter 3 - Part 1 Quiz (p. 1) Due 10/16 before midnight: Chapter 3 - Part 1 (p. 1) Lab 3 - Standard Deviations (p. 2)

10/19	Due 10/23 before midnight: Chapter 3 - Part 2 and Chapter 4 - Part 1 Quiz (p. 1) Chapter 3 - Part 2 and Chapter 4 - Part 1 (p. 1)
10/26	Due 10/26 before midnight: Unit Assessment 2: Chapter 3 and Chapter 4 - Part 1 (p. 2) Due 10/30 at 11:59pm: Chapter 4 - Part 2 Quiz (p. 1) Due 10/30 before midnight: Chapter 4 - Part 2 (p. 1) Due 10/31 before midnight: Lab 4 - Absorbance (p. 2)
11/2	Due 11/6 at 11:59pm: Chapter 4 - Part 3 and Chapter 5 Quiz (p. 1) Due 11/6 before midnight: Chapter 4 - Part 3 and Chapter 5 (p. 1) Lab 5 - NMR (p. 2)
11/9	Due 11/9 before midnight: Unit Assessment 3: Chapter 4 -Parts 2/3 and Chapter 5 (p. 2) Due 11/13 before midnight: Chapter 6 - Part 1 Quiz (p. 1) Chapter 6 - Part 1 (p. 1)
11/16	Due 11/20 at 11:59pm: Chapter 6 - Part 2 Quiz (p. 1) Due 11/20 before midnight: Chapter 6 - Part 2 (p. 1) Lab 6 - Combustion (p. 2)
11/23	Due 11/23 before midnight: Unit Assessment 4: Chapter 6 (p. 2) Due 11/29 at 11:59pm: Chapter 7 - Part 1 Quiz (p. 1) Due 11/29 before midnight: Chapter 7 - Part 1 (p. 1)
11/30	Due 12/4 at 11:59pm: Chapter 7 - Part 2 Quiz (p. 1) Due 12/4 before midnight: Chapter 7 - Part 2 (p. 2) Lab 7 - TLC and Synthesis (p. 2)
12/7	Due 12/7 before midnight: Unit Assessment 5: Chapter 7 (p. 2)

Grading Scale

Grade	Percent Range
A	92-100
A-	89-91
B+	86-88
B	82-85
B-	79-81
C+	76-78
C	72-75
C-	69-71
D+	66-68
D	62-65

D-	60-61
F	<60

Course Expectations

Grading

Success in this course often depends on the amount of time devoted to studying the material. This is a 5-credit course, and each credit is meant to reflect about 30 hours of effort over the course of the term (this works out to ~15 hours per week in a 10-week term). We recommend that you prepare to devote ample time to the study of the course while it is in progress. Good luck!

Your point total is obtained by adding points from the exams, online homework, quizzes, and labs. These component point totals are indicated below:

Unit Assessments: 300 points

Homework: 100 points

Quizzes: 110 points

Labs: 55 points

Total: 575 points

Completion of Work

- Students are expected to be aware of all due dates as published in this syllabus, and complete work in a timely fashion. Late quizzes and exams are not accepted; late homework and labs may be completed for partial credit as outlined in the homework section below.
- Students are expected to complete their own work as described in each portion of the 'Course Components' section of this syllabus.
- Students must not attempt to mask their location in completion of coursework. As such, students may not access the course website(s) through a VPN when completing any assessed course work without express instructor permission. Accessing any assessed course work using a VPN may result in a score of zero on that coursework and a report to Student Conduct and Community Standards as an incidence of academic dishonesty.

Communications

- Students are encouraged to communicate with the instructors and teaching assistants as often as questions on the material arise. Please review the Emails Guidelines document for this course.
- Students are expected to regularly check email for communications from their instructors. Students should check their OSU email account daily, or configure their account to forward to an email account that will be regularly checked.
- Course announcements will be posted at least weekly. Students should either configure Canvas to receive ASAP (or daily) notification of new announcements, or should plan on checking the announcements for the course early each week.

Technical Aspects

- As an online course, it is the student's responsibility to have access to adequate computing resources to utilize course materials and complete course work. This includes having access to a computer with a webcam and good internet connection to complete proctored unit assessments.
- Multiple websites are used in completion of course materials. These sites may require students to download (free) plug-ins or otherwise configure their computer in order to function. Students should plan on accessing and configuring these sites as early as possible to allow time to seek technical support if necessary.
- Technical issues are not considered a valid reason for missing due dates/times. If you do have technical issues, please report the issue to both the relevant site's technical support and to the instructor as soon as possible. Please be as specific as possible when describing the issue, including the text of any error messages and screen captures when appropriate.

Incompletes

Incomplete (I) grades will be granted only in emergency cases. Incompletes can only be granted to students who are passing the course at the time the incomplete is granted, so if you have a circumstance that has arisen that might prevent you from completing the coursework, please don't wait; let us know right away so that we can discuss the options available to you.

Course Components

Text

- **Chemistry: Atoms First** is available free through OpenStax. The text can be accessed online through the link provided. It can also be downloaded as .pdf or ordered as a print copy from the OpenStax site (<https://openstax.org/details/books/chemistry-atoms-first-2e/>).

Homework

- Homework will be completed via CHEM101. Access to the homework site is through the course Canvas site. Instructions for registration and details about how homework grades appear in Canvas are provided in the Start Here - Course Information module, on the 'Course Information - Homework Information' page.
- Homework assignments will be due weekly.
- Each homework assignment will display as being worth 100 points at the CHEM101 site. For a student to earn full credit on a homework assignment (which will be 10 course points for most assignments), 90 of the 100 possible points must be earned on that assignment at the CHEM101 site. If a student does not earn 90 of the 100 points by the due date, the assignment score will be prorated accordingly.
- Late homework questions can be completed for up to half credit. This can be done without affecting the score on questions completed on-time. Scores for homework assignments that have some work completed late will be updated at the end of the term.
- Students are expected to do their own work on homework assignments. Students are allowed and encouraged to seek assistance in understanding how to approach and/or calculate the answers to homework problems. Students may not, however, obtain answers for the homework problems from other sources. Students who complete homework assignments using answers obtained from other sources will be reported to Student Conduct and face penalties on their assignments, as will any student who provided them with answers.

Online Labs

- Online Chem Labs will be accessed through the online Canvas site.
- There are seven labs associated with CH121. These are graded as a combination of completeness and correctness. For a lab to be considered complete, a genuine attempt must have been made at all of the questions. Answers such as 'I don't know' or strings of characters are not sufficient for a lab to be considered complete.
- Students may do late labs for up to half credit until the final exam window opens in the course. For students to receive credit for late labs, they must contact the instructor via email to convey which lab(s) they have completed late.
- Students are expected to do their own work on laboratory assignments. Students are allowed and encouraged to seek assistance in understanding how to approach and/or calculate the answer to the questions on the labs. Students who complete laboratory assignments using answers obtained from other sources will be reported to Student Conduct and face penalties on their assignments, as will any student who provided them with answers.

Study Aids

Study aids include study guides, videos, worksheets, practice exams, etc.

- *Study guides* break down each chapter into sections, and are intended to help you group the different course components together in a coherent fashion. Study guides include a checklist of items to do while studying a particular portion of the test, provide learning objectives, and questions to think about during study of the material to help focus on important topics.
- *Video modules* provide short video tutorials or demos on numerous topics. We cannot anticipate or solve all technical access issues, as local computer configurations and internet access vary greatly. If you have trouble viewing the videos, here are a few tips that may help:
 - Paste the video link directly in your browser address bar rather than opening the access page inside of the Canvas window.
 - Be sure that you have upgraded to the most recent version of the browser software you are using.
- *Practice worksheets* are available and are keyed.
- Study aids (study guides, practice worksheets, video modules, and practice exams) are important tools to help you understand the material in the course, but will not be collected or graded.

Quizzes

- The Introductory Quiz and CH121 Pre-Assessment are located in the Pre-Assessment Quizzes module. Chapter Quizzes are located within each Chapter's module.
- The pre-assessment for the course is located in the Pre-Assessment Quizzes module. The pre-assessment consists of questions on material throughout the course; credit is awarded based on completion.
- Since credit on the Pre-Assessment is based solely on completion, please answer the questions to the best of your ability without reading the material in advance or referring to any other materials.
- The Introductory Quiz is based on information in the syllabus and in the Course Information modules. You may take the Introductory Quiz as many times as necessary for full credit. Please review the feedback after each attempt for important information.
- Weekly quizzes can be located in the individual chapter modules. Quizzes for each chapter are graded based on correctness. You have one attempt at each chapter quiz, so please be sure that you're prepared to take each quiz before you open it.
- Quizzes will become unavailable after the due date. Please see the grade sheet for due dates.
- Each student will have their lowest quiz score dropped from their final grade.
- It is strongly recommended that you record your calculations for the quiz questions, and be sure that you understand how to arrive at the correct answer for each quiz question.

- Students are expected to do their own work on quizzes. Students may not obtain answers for the quiz questions from other sources. Students who complete quizzes using answer obtained from other sources will be reported to Student Conduct and face penalties on their quizzes, as will any student who provides another student with answers.

Unit Assessments

- There will be five unit assessments in the course, each covering two weeks of material.
- **Each unit assessment will be taken via Canvas and must be proctored.** The proctoring for this course will be via Proctorio, a service that is free for students.
- **To take the unit assessments, students will need to use a computer with a webcam and reliable internet access.**
- Each unit assessment must be taken during the time period specified previously on the **Grade Sheet** page of the syllabus.
- Each unit assessment cannot be retaken and cannot be stopped once started.
- Each unit assessment must be completed within 80 minutes. The assessment will autosubmit at the end of this 80-minute period.
- If a student has a conflict with the time window for any of the unit assessments, they need to contact the instructor as early as possible (in most cases, before the assessment window) to discuss.
- A missed unit assessment will receive a score of zero.
- Each student will have their lowest unit assessment score dropped from their final grade.
- Provided materials: the following materials will be available for each assessment as a link within the assessment:
 - A periodic table
 - The equation sheet for that assessment - this will be published in advance of the assessment so that students can familiarize themselves with it.
 - A short document of notes compiled from student suggestions on the relevant discussion board. Students are encouraged to actively participate in these discussions of what information would be most valuable to have access to during the assessments.
- Allowed materials:
 - A scientific calculator (programmable calculators, graphing calculators, and cellphone-based calculators will **not** be allowed)
 - A dry erase board and dry erase markers
 - Any use of materials not on this list (including accessing of outside websites or other online resources) will result in a non-replaceable score of 0 on the assessment, and will be reported to Student Conduct as an incident of academic dishonesty.
- For the duration of the assessment window, students may not communicate contents of the exam or exam answers to any other individual in any format. Students also may not receive such information prior to taking their exam. Any violations of this will be reported to Student Conduct and result in exam penalties.

Expectations for Student Conduct

Student conduct is governed by the university's policies, as explained in the Student Conduct Code (<https://beav.es/codeofconduct> (<https://beav.es/codeofconduct/>)). Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university's regulations regarding civility.

Guidelines for a Productive and Effective Online Classroom

Students are expected to conduct themselves in the course (e.g., on discussion boards, email) in compliance with the university's regulations regarding civility. Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to be expected. In all you say and do for this course, be professional. Please review the discussion board guidelines posted in Canvas, and bring any communications you believe to be in violation of this class policy to the attention of your instructor.

Academic Integrity

Integrity is a character-driven commitment to honesty, doing what is right, and guiding others to do what is right. Oregon State University Ecampus students and faculty have a responsibility to act with integrity in all of our educational work, and that integrity enables this community of learners to interact in the spirit of trust, honesty, and fairness across the globe.

Academic misconduct, or violations of academic integrity, can fall into seven broad areas, including but not limited to: cheating; plagiarism; falsification; assisting; tampering; multiple submissions of work; and unauthorized recording and use.

It is important that you understand what student actions are defined as academic misconduct at Oregon State University. The OSU Libraries offer a tutorial on academic misconduct (<https://guides.library.oregonstate.edu/c.php?g=286121&/#38;p=3896378>), and you can also refer to the OSU Student Code of Conduct (<https://beav.es/codeofconduct/>) and the Office of Student Conduct and Community Standard's website (<https://>

studentlife.oregonstate.edu/studentconduct/student-info/) for more information. More importantly, if you are unsure if something will violate our academic integrity policy, ask your professors, GTAs, academic advisors, or academic integrity officers.

Proctored Exams

This course requires that you take exams under the supervision of an approved proctor. Proctoring guidelines and registration for proctored exams are available online through the Ecampus testing and proctoring website. It is important to submit your proctoring request as early as possible to avoid delays.

Technical Assistance

If you experience any errors or problems while in your online course, contact 24-7 Canvas Support through the Help link within Canvas. If you experience computer difficulties, need help downloading a browser or plug-in, or need assistance logging into a course, contact the IS Service Desk for assistance. You can call (541) 737-8787 or visit the IS Service Desk (<https://oregonstate.teamdynamix.com/TDClient/1935/Portal/Requests/ServiceDet?ID=22911/>) online.

Inclusivity

In an ideal world, science would be objective. However, science is a human endeavor and is historically built on a small subset of privileged voices.

We acknowledge that it is possible that there may be both overt and covert biases in the material due to the lens with which it was written, even though the material is primarily of a scientific nature. Integrating a diverse set of experiences is important for a more comprehensive understanding of science. Please contact us if you have any suggestions to improve the quality of the course materials.

We (like many people) are still in the process of learning about diverse perspectives and identities. If something was communicated in the class (by anyone) that made you feel uncomfortable, please talk to us about it. As a participant in course discussions, you should also strive to honor the diversity of your classmates. Furthermore, we would like to create a learning environment for our students that supports a diversity of thoughts, perspectives, and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc.). To help accomplish this:

- **Pronouns:** If you have a name and/or set of pronouns that differ from those that appear in your official records, please let us know!
- **Religious Observances:** Please let your instructor know if your class deadlines interfere with any of your religious and/or spiritual practices so that we can make necessary arrangements.
- **Statement of Accessibility:** All students have the right to learn from and participate in the classroom. We designed this course with accessibility in mind, and are always open to hearing ways to make it more inclusive and accessible. Please contact your instructor if you have accessibility concerns.

Statement Regarding Students with Disabilities

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval, please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Accessibility of course materials

All materials used in this course strive to be fully accessible. Since some materials and resources are provided by external vendors, the accessibility statements from those vendors is also provided. If you require accommodations, please contact Disability Access Services (DAS).

Canvas, the learning management system through which this course is offered, provides a vendor statement certifying how the platform is accessible to students with disabilities. Please also review the accessibility statements from OpenStax (<https://openstax.org/accessibility-statement/>), Knewton Alta (<https://www.knewton.com/accessibility/>), and SmartSparrow (<https://www.smartsparrow.com/solutions/highered/>).

Ecampus Reach Out for Success

University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success.

Ecampus students are always encouraged to discuss issues that impact your academic success with the Ecampus Success Team. Email ecampus.success@oregonstate.edu to identify strategies and resources that can support you in your educational goals.

If you feel comfortable sharing how a hardship may impact your performance in this course, please reach out to me as your instructor.

For mental health

Learn about counseling and psychological resources for Ecampus students. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255).

For financial hardship

Any student whose academic performance is impacted due to financial stress or the inability to afford groceries, housing, and other necessities for any reason is urged to contact the Director of Care for support (studentassistance@oregonstate.edu or 541-737-8748).

Life outside the classroom

We have tried to account for the fact that your life outside the classroom may impact your participation at times in course design. Regardless of these built-in safety guards, if you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to communicate with your instructor. We want to be a resource for you. If you prefer to speak with someone outside of the course, the Dean of Student Life is an excellent resource.

Student Evaluation of Courses

During Fall, Winter, and Spring term The online Student Evaluation of Teaching system opens to students the Wednesday of week 8 and closes the Sunday before Finals Week. Students receive notification, instructions and the link through their ONID. They may also log into the system via Online Services. Course evaluation results are extremely important and used to help improve courses and the hybrid learning experience for future students. Responses are anonymous (unless a student chooses to "sign" their comments, agreeing to relinquish anonymity) and unavailable to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.

Please Note

This syllabus is subject to change with notice from the instructor.