CH 125: General Chemistry  
Dr. Marita C. Barth

This General Chemistry course is a bridge course, allowing students who have taken one semester of General Chemistry (often called Gen Chem I) at another institution to complete their General Chemistry series with OSU. A student that takes CH 125, then CH 123, will earn 7 quarter-credits, which will transfer to a semester school as 4.7 semester credits including labs, and will be considered the equivalent of Gen Chem II.

The prerequisite for CH 125 is one of the following:

- One semester of General Chemistry at another institution
- CH 121 and CH 124 at OSU

Students who need a full year of General Chemistry should take CH 121/122/123 instead of this bridge course.

This course combines approximately 60 hours of instruction, online activities, and assignments for 2 credits.

Course Outline:

<table>
<thead>
<tr>
<th>Chapter 12</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 13</td>
<td>Chemical Kinetics</td>
</tr>
<tr>
<td>Chapter 14</td>
<td>Chemical Equilibrium</td>
</tr>
</tbody>
</table>

Course Learning Objectives:

The successful student in CH124 will demonstrate mastery of basic chemical concepts and principles covered in this course as measured by performance on exams, quizzes, homework, and labs:

a) Solutions
   - Be able to explain how a solution forms on the molecular level
   - Be able to calculate and use the concentration units: molarity, molality, percent composition by mass, and mol fraction
   - Be able to define the term “colligative properties”, and explain the effect solutes have on solution properties

b) Kinetics
   - Be able to explain what is meant by 'rate of reaction', and express the rate of a reaction in terms of the rate of change of any species in the reaction
   - Be to explain and use rate laws, including determining a rate law from experimental data
   - Be able to use integrated 1st order rate equation to relate the concentration of a species to the time of reaction
   - Be able to explain the effects of temperature on reaction rates
   - Be able to explain reaction mechanisms and the effect of catalysts on reactions

c) Equilibrium
   - Be able to explain the concept of dynamic equilibrium
   - Be able to explain LeChatelier’s Principle and use it to predict the effects of changes made to a system at equilibrium
   - Be able to correctly write an equilibrium constant, and apply the principles of equilibrium to a variety of quantitative and qualitative problems.
CH 125e Grade Sheet:

You might want to print out the grade sheet on the following page to help you keep track of your class requirements.

All times listed are for the Pacific Time zone. If you are in a different time zone, please be sure you’ve adjusted accordingly. If not otherwise specified, all items are due by 5 PM Pacific Time.

<table>
<thead>
<tr>
<th>Action Item</th>
<th>Time/Date</th>
<th>Points</th>
<th>Your Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exams</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td>Thursday/Friday of Week 5</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td><strong>Homework</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction to Mastering Chemistry</td>
<td>Friday Week 1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chapter 12 Homework</td>
<td>Wednesday Week 5</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Chapter 13 Homework</td>
<td>Wednesday Week 5</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Chapter 14 Homework</td>
<td>Wednesday Week 5</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td><strong>Labs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab 1a - Error &amp; Standard Deviation</td>
<td>Friday Week 1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Lab 1b - Spreadsheets</td>
<td>Friday Week 2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Lab 2 - Freezing Point Depression</td>
<td>Friday Week 3</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Lab 3 - Osmotic Pressure</td>
<td>Friday Week 4</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Lab 4 - Kinetics</td>
<td>Wednesday Week 5</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>Quizzes / Pre-Quizzes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introductory Quiz</td>
<td>Friday Week 1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CH125 Pre-Quiz</td>
<td>Friday Week 1</td>
<td>10</td>
<td></td>
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<tr>
<td>Chapter 12 Quiz</td>
<td>Wednesday Week 5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Chapter 13 Quiz</td>
<td>Wednesday Week 5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Chapter 14 Quiz</td>
<td>Wednesday Week 5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>Final Score</strong></td>
<td></td>
<td>260</td>
<td></td>
</tr>
</tbody>
</table>
## Suggested Timeline / Topic Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics/Reading Assignment</th>
<th>Laboratory Assignments</th>
</tr>
</thead>
</table>
| 1    | Examine the CH 125 Canvas site  
**Begin Chapter 12** (Physical Properties of Solutions)  
Textbook Units 12.1 - 12.7 | Register at [http://masteringchemistry.com](http://masteringchemistry.com)  
Register at [http://next.onlinechemlabs.com/](http://next.onlinechemlabs.com/)  
Find an exam proctor and sign up at: [ecampus.oregonstate.edu/services/proctoring/](http://ecampus.oregonstate.edu/services/proctoring/)  
Lab 1a: *Error and Standard Deviation*  
Homework: Introduction to Mastering Chemistry |
| 2    | **Finish Chapter 12** (Physical Properties of Solutions)  
Textbook Units 12.1 - 12.7  
**Begin Chapter 13** (Chemical Kinetics)  
Textbook Units 13.1 - 13.7 | Lab 1b: *Spreadsheets*  
Lab 5: *Freezing Point Depression* |
| 3    | **Continue Chapter 13** (Chemical Kinetics)  
Textbook Units 13.1 - 13.7 | Lab 6: *Osmotic Pressure* |
| 4    | **Finish Chapter 13** (Chemical Kinetics)  
Textbook Units 13.1 - 13.7  
**Start Chapter 14** (Chemical Equilibrium)  
Textbook Units 14.1 - 14.9 | Lab 7: *Kinetics* |
| 5    | **Finish Chapter 14** (Chemical Equilibrium)  
Textbook Units 14.1 - 14.9 | Proctored Final Exam in **Week 5** (Comprehensive!) |

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Course Components:

- **Text**
  - If you choose to purchase the book from a source other than the OSU Bookstore, please be sure that you are buying a copy that includes a valid code for Mastering Chemistry. If you do not, you will have to purchase Mastering Chemistry access separately.

- **Homework**
  - Located at masteringchemistry.com
  - Due dates are listed both on the Mastering Chemistry site, and on the grade sheet above. Homework that is completed late, but before the start of the final exam window may be submitted for up to half-credit
  - To earn full credit (12 points) for each Chapter’s assignment, you must get at least 9 of the 12 points possible based on Mastering Chemistry’s grading system. If you score less than 9 points on a Chapter’s assignment, your grade will be prorated.

- **Online labs**
  - Labs are an integral part of the course, and are graded.
  - There are 5 labs (2 introductory and 3 core labs) associated with CH 125. Introductory labs (1a & 1b) will be graded on completeness. 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 to for a lab to be considered complete.
  - You must complete labs 1a & 1b even if you completed them in a previous term.
  - The core labs will be graded on a combination of completeness, correctness in numerical answers, and correctness in conceptual answers. If you don’t understand something in the lab, it is strongly recommended that you contact the Lab TA or Instructor for assistance well before the due date.
  - Late labs will not be accepted.

- **Study aids** (study guides, video, worksheets, practice exams)
  - 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 questions to think about during study of the material to help focus on important topics, and suggest problems from the book to work through for practice.
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:

- Some video files are large, so allow sufficient time for downloads to complete (a single file could take several minutes).
- Paste the video page 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.

A practice final exam will be posted on Canvas. This provides excellent practice, and we strongly recommend that you take the practice exam under test conditions before attempting your exam.

Study aids (study guides, 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
  
  - Quizzes are assigned and graded.
  - The Introductory Quiz is located in the “Week One Quizzes” module.
  - The Pre-Quiz is located under the “Week One Quizzes” module.
  - Chapter Quizzes are located in each chapter’s module.
  - The Pre-quiz consists of twenty-one questions; credit is awarded based on completion. Since credit on the pre-quiz 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.
  - Quizzes for each chapter consist of five questions and are graded based on correctness. You have one attempt at each 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 above for due dates.
  - 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.

- Final
  
  - The final exam requires a proctor. Your proctor must be registered with ECampus; you should set this up as soon as possible, or you will not be able to take your final. Your professor cannot do this for you. Info about acceptable proctors and a proctor registration form can be found at: http://ecampus.oregonstate.edu/services/proctoring/
The final exam is taken via the Canvas interface. You will need to take the exam on a computer with reliable internet access.

The final exam must be taken during the assigned exam window. The final will only be available on the course website during this time period; there are no make-up exams or alternate test times.

Materials allowed:
- A calculator (programmable calculators and cell phone-based calculators will not be allowed)
- A printed exam cover sheet (located in the “Course Documents” module in Canvas). This includes a periodic table.
- Blank scratch paper, pens and/or pencil
- One 3” by 5” card with handwritten or typed notes on both sides
- Any use of materials not on this list (including accessing of websites or other online resources) will result in a non-replaceable score of 0 on the exam, and will be reported to student conduct as an incident of academic dishonesty.

Exam scores can be viewed shortly after completion by clicking "My Grades" in the Course Tools section of the class website.

Grading:

Success in this course often depends on the amount of time devoted to studying the material. This is a 2-credit course, and each credit is meant to reflect about 30 hours of effort over the course of the term (this works out to ~12 hours a week in a 5-week term). We recommend that you prepare to devote ample time to the study of this 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 in the following table:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Exam</td>
<td>150</td>
</tr>
<tr>
<td>Homework</td>
<td>40</td>
</tr>
<tr>
<td>Quizzes</td>
<td>30</td>
</tr>
<tr>
<td>Labs</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>260</strong></td>
</tr>
</tbody>
</table>
• Your course grade is determined entirely from the total number of points accumulated. The following table provides the minimum number of points required to earn specific letter grades.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points /260</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>239</td>
<td>92%</td>
</tr>
<tr>
<td>A-</td>
<td>231</td>
<td>89%</td>
</tr>
<tr>
<td>B+</td>
<td>224</td>
<td>86%</td>
</tr>
<tr>
<td>B</td>
<td>213</td>
<td>82%</td>
</tr>
<tr>
<td>B-</td>
<td>205</td>
<td>79%</td>
</tr>
<tr>
<td>C+</td>
<td>198</td>
<td>76%</td>
</tr>
<tr>
<td>C</td>
<td>187</td>
<td>72%</td>
</tr>
<tr>
<td>C-</td>
<td>179</td>
<td>69%</td>
</tr>
<tr>
<td>D+</td>
<td>172</td>
<td>66%</td>
</tr>
<tr>
<td>D</td>
<td>161</td>
<td>62%</td>
</tr>
<tr>
<td>D-</td>
<td>156</td>
<td>60%</td>
</tr>
<tr>
<td>F</td>
<td>Less than 156</td>
<td>&lt;60%</td>
</tr>
</tbody>
</table>

Instructor Contact Information:

Instructor: Dr. Marita C. Barth  
marita.barth@oregonstate.edu

ECampus Support: Kim Thackray  
kim.thackray@oregonstate.edu

Incompletes and Withdrawals:

• No incomplete grades are awarded in this course.
• Please note the deadlines for dropping courses and for course withdrawals (see http://catalog.oregonstate.edu/ChapterDetail.aspx?Key=148).
• The instructors and TAs are willing and eager to help you succeed in this course, and can also discuss your likely grade outcomes and options during the appropriate time window. Since enrollment space is limited, and course materials and assistance are available to all students throughout the term, late requests for drops or withdrawals will not be approved.

Accommodations for Students with Disabilities:

Accommodations are a collaborative effort between students, faculty, and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.
Academic Dishonesty:

You will be expected to conduct yourself in a professional manner. Academic dishonesty such as plagiarism and cheating will not be tolerated. Therefore, students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

* cheating - use or attempted use of unauthorized materials, information or study aids,
* fabrication - falsification or invention of any information,
* assisting - helping another commit an act of academic dishonesty,
* tampering - altering or interfering with evaluation instruments and documents, or
* plagiarism - representing the words or ideas of another person as one's own.

For more information about academic integrity and the University's policies and procedures in this area, please refer to the Student Conduct website at:

studentlife.oregonstate.edu/studentconduct/offenses

This syllabus is subject to change with notice. Please bring any errors to the instructor’s attention.