Chemistry 112 Section 01 – Principles of Chemistry II Lecture (Fall 2018)

Co-requisite: CHEM 112L  
Pre-requisites: CHEM 111, CHEM 111L, MATH 111/120 or equivalents

Instructor:  
Dr. Jay G. Forsythe  
Office: SSMB 112  
Phone: 843-953-5052  
Email: forsythejg@cofc.edu  
Office Hours: Mon 10 AM – 12 PM, Fri 10 AM – 12 PM, or by appt.

Lecture Time and Location: MWF, 8:00 – 8:50 AM, SSMB 138

Final Exam Time and Location: Wednesday, December 5, 12:00 – 3:00 PM, SSMB 138

Student Learning Outcomes:

- To describe colligative properties and give specific examples.
- To explain the concept of equilibrium and apply it to chemical reactions including acid/base chemistry, precipitation reactions, and oxidation-reduction reactions.
- To define entropy and Gibbs energy. Apply these with respect to chemical reactions and evaluate how these affect the spontaneity of a chemical or physical process.
- To apply a kinetic analysis to chemical and physical processes (including rates, mechanisms, and activation energies).
- To apply the principles of thermodynamics and equilibrium to electrochemistry.

General Education Learning Outcomes: These will be assessed in the co-requisite laboratory course CHEM 112L.

- To apply physical / natural principles to analyze and solve problems.
- To explain how science impacts society.

Attendance and Participation: It is expected you will attend all class periods, and it is your responsibility to follow up on missed notes if you miss class. While in class, it is expected that you will actively participate. Please refrain from texting, online games, social media, etc.

Communication: Major class announcements and handouts will be discussed in class and sent via e-mail. Course materials will be provided in class and will also be available on OAKS.

Required Materials:

- ALEKS online course prep
- Scientific calculator with log and exponential functions. No information may be stored on or written on calculators for exams; such acts will be considered cheating.

Disability Services: If you are a student with a documented disability who will require accommodations in this course, you must provide the proper documentation in the form of a Professor Notification Letter (PNL) by August 29. If you are certified to have extra time on tests and quizzes, this will need to be arranged with the SNAP office so that you can take it there. I will need the envelope for this test one week before a test so that I can have it delivered to the SNAP office in time for you to take it there. The same applies to the final exam. No exceptions.

Honor Code: Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when suspected, are investigated. Each incident will be examined to determine the degree of deception involved.
Incidents where the instructor determines the student’s actions are related more to a misunderstanding will be handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student’s file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This status indicator will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. Students should be aware that unauthorized collaboration—working together without permission—is a form of cheating. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

Students can find the complete Honor Code and all related processes in the Student Handbook at [http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php](http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php)

**Course Evaluation:** Course evaluations will be completed on the last day of lecture. I will leave the room early so you can fill out the electronic forms objectively. Please take them seriously.

**Recommended Study Practices:** Working (and re-working) problems and going over class notes are the best ways to prepare for exams. Book problems will not be collected or graded, but are essential in preparing for exams and should be done throughout the course. In particular, problem sets should be useful as they are written similar to test questions. It is much more efficient to work 30-60 minutes a day than to cram right before an exam. Also, the Student Learning Center (SLC) is a good resource and has science-specific assistance ([http://csl.cofc.edu/](http://csl.cofc.edu/)).

**ALEKS Course Prep:** This online prep assignment was designed to ensure students from different major and course backgrounds are ready to start the course. ALEKS goes at the pace of each individual student – if you are a little rusty in chemistry, it may take a while. If you are not, it should not take long. Regardless of how long it takes, it is graded on completion and is worth 5% of your total grade for the semester. This assignment must be completed by Wednesday, August 29 at 11:00 PM. You will take an initial assessment and then go from there. Points earned are based on topic completion and not specific assessments. Please let me know if you have any issues with ALEKS. Instructions to begin ALEKS are provided on Page 4.

**Problem Sets / Quizzes:** In addition to book problems, Problem Sets and Quizzes will be assigned from time to time. Problem Sets should be worked in groups, and are open-book and open-note. Quizzes must be worked alone, without book or notes. Together, these will comprise 15% of your total grade.

**Tentative Course Outline:** Topics listed below may change depending on weather or lecture pace. Please refer to your instructor for the specific topics covered on each exam.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Book Chapters &amp; Sections</th>
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<tbody>
<tr>
<td>Entropy and Gibbs Free Energy</td>
<td>14.1 – 14.6</td>
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<tr>
<td>Equilibrium</td>
<td>15.1 – 15.6</td>
</tr>
<tr>
<td>Acids, Bases, and Buffers</td>
<td>16.1 – 17.3</td>
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<tr>
<td>Solubility</td>
<td>17.4 – 17.6</td>
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<tr>
<td>Kinetics</td>
<td>19.1 – 19.8</td>
</tr>
<tr>
<td>Electrochemistry / Redox Processes</td>
<td>18.1 – 18.8</td>
</tr>
<tr>
<td>Nuclear Chemistry</td>
<td>20.1 – 20.6</td>
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**Tentative Course Calendar:** Dates and assignments below may change depending on weather or other factors. In particular, the number of Problem Sets may change depending on lecture pace. Please refer to your instructor for changes to this calendar.

<table>
<thead>
<tr>
<th>Mon</th>
<th>Wed</th>
<th>Fri</th>
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<tbody>
<tr>
<td>8/22 – Lecture</td>
<td>8/24 – Course Overview</td>
<td>8/26 – Lecture</td>
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<tr>
<td>8/27 – Lecture</td>
<td>8/29 – ALEKS Due / Lecture</td>
<td>8/31 – Lecture</td>
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<tr>
<td>9/03 – Lecture</td>
<td>9/05 – Problem Set</td>
<td>9/07 – Lecture</td>
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<td>9/10 – Lecture</td>
<td>9/12 – Lecture</td>
<td>9/14 – EXAM #1</td>
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<td>9/17 – Lecture</td>
<td>9/19 – Problem Set</td>
<td>9/21 – Lecture</td>
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<td>9/24 – Lecture</td>
<td>9/26 – Lecture</td>
<td>9/28 – Lecture</td>
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<tr>
<td>10/01 – Lecture</td>
<td>10/03 – Problem Set</td>
<td>10/05 – Lecture</td>
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<td>10/08 – Lecture</td>
<td>10/10 – Lecture</td>
<td>10/12 – EXAM #2</td>
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<td>10/15 – Lecture</td>
<td>10/17 – Midterm / Problem Set</td>
<td>10/19 – Lecture</td>
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<td>10/22 – Lecture</td>
<td>10/24 – Last W/D Day / Lecture</td>
<td>10/26 – Lecture</td>
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<td>10/29 – Lecture</td>
<td>10/31 – Problem Set</td>
<td>11/02 – EXAM #3</td>
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<td><strong>11/05 – No Class</strong></td>
<td>11/07 – Lecture</td>
<td>11/09 – Lecture</td>
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<tr>
<td>11/12 – Lecture</td>
<td>11/14 – Problem Set</td>
<td>11/16 – Lecture</td>
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<tr>
<td>11/19 – Lecture</td>
<td>11/21 – No Class</td>
<td>11/23 – No Class</td>
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<td>11/26 – Lecture</td>
<td>11/28 – Lecture</td>
<td>11/30 – EXAM #4</td>
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<td>12/03 – Lecture / Review</td>
<td>12/05 – FINAL EXAM</td>
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**Grading:** Final grades will be given based on the following point scale. The instructor has the right to increase and/or round-up grades, but is unlikely to do so.

- A  100 – 93%
- A-  92 – 90%
- B+  89 – 88%
- B   87 – 83%
- B-  82 – 80%
- C+  79 – 78%
- C   77 – 73%
- C-  72 – 70%
- D+  69 – 68%
- D   67 – 63%
- D-  62 – 61%
- F   60 – 0%

Final grades will be determined as follows:

- ALEKS Prep  5%
- Quizzes      5%
- Problem Sets 10%
- Exam I       15%
- Exam II      15%
- Exam III     15%
- Exam IV      15%
- ACS Exam (Final) 20%
- Total       100%
Welcome to Chemistry 112! As part of the Department of Chemistry and Biochemistry’s focus on student success in general chemistry, we continue with the implementation of ALEKS Prep for all students enrolled in Chemistry 112. The pace and depth of Chemistry 112 requires students to be fully proficient in a number of fundamental topics from Chemistry 111.

### Important Information about the ALEKS Prep Assignment

- ALEKS Prep is a required part of the overall course grade (5% of the total course grade)
- You must purchase direct access for $30 to continue the assignment. (This must be done online! There is NO other place to get this access!)
- ALEKS Prep will be available until Wednesday, August 29 at 11 pm. At this time, the data will be recorded for inclusion in the overall course grade from your individual lecture instructor.

### Registration for ALEKS Prep

To register and begin the preparatory assignment, please carefully follow the directions for signing up. The website to begin at is:

www.aleks.com

From there, log in and you can add a new course using the code below. If you did not do the Chem 111 ALEKS Prep, click on “New Student? Sign up now.” The required student class code to get into the correct section (called Chemistry 112 Prep) is:

FQLJN-3GGV9

### General Information about ALEKS Prep

ALEKS Prep is designed to help identify where you as an individual student might need help. To most effectively use this preparatory assignment, it is suggested that you spend 30-60 min a day several days a week working on the required parts. There will be sections that require multiple attempts to ensure a satisfactory level of mastery of the content. It is also suggested that you continuously review the material before the semester; going through the material only one time will not achieve maximum results for you. Note that completion of ALEKS Prep does not guarantee any particular level of success during the course. All students must ultimately take ownership of their learning in Chemistry 112.

There are two parts to ALEKS Prep, all of which must be completed to receive full credit

- **Initial Knowledge Check** – this is a measure of what you know initially and what you need to learn
- **Learning Mode** – “completing the pie” – this is where you will focus on the things you need to learn as identified in the Initial Knowledge Check

### Contact Information for Help or Other Questions

Dr. Jason Overby, Chemistry ALEKS Prep Coordinator: overbyj@cofc.edu