

**CHEMISTRY 109 C & D – GENERAL CHEMISTRY II**  
**COURSE SYLLABUS**  
**SPRING 2018**

**INSTRUCTOR:**

Dr. Alice H. Suroviec  
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Office: SCI 304A

Phone: 706- 238-5869 (also by appointment)

**OFFICE HOURS:**

MTRF 1 – 4pm

**LECTURE:** Section C: MWF 10:00 – 10:50 am MAC 113

Section D: MWF 11:00 – 11:50 am MAC 115

**REQUIREMENTS:**

*Text: Principles of Chemistry: A Molecular Approach; 3<sup>rd</sup> Edition N. Tro*

**ALEKS:** Each of you will need an access code. You will be required to use the ALEKS website to complete your homework.

**Calculator:** A scientific calculator with  $\ln x$ ,  $e^x$ ,  $\log x$ ,  $10^x$  and  $y^x$  functions is essential. Programmable calculators such as Texas Instruments model TI-83 are not allowed.

**No sharing of calculators will be allowed on exams or quizzes.**

**COURSE DESCRIPTION:** This is the second of a two-semester sequence, Chemistry 108 and Chemistry 109, which together comprise an overview of General Chemistry. In Chemistry 109, the principles and theories matter and reactions of various classifications of matter are further examined. Specific topics covered include: principles of solubility and the colligative properties; chemical kinetics; chemical equilibrium; acids, bases and equilibria involving weak acids/or bases; equilibria involving slightly soluble or insoluble species; chemical thermodynamics; electrochemistry; complex ions and nuclear chemistry. The laboratory component of this course consists of hands-on exercises which investigate the principles of: colligative properties; chemical kinetics; preparation of buffer solutions; volumetric and colorimetric analysis of systems involving weak acid/bases; the synthesis and analysis of a transition metal.

**PURPOSE OF THE COURSE:** The Berry College chemistry program is designed to provide a basic background for students wishing to pursue a career in chemistry or other related professions. Chemistry 109 is a continuation of Chemistry 108. These courses together will provide a rudimentary foundation for the other chemistry classes offered here at Berry College as well as other science courses that need an understanding of nature at its atomic level.

**STUDENT LEARNING OUTCOMES:** Students will have a firm understanding of the core principles of chemistry. A student completing this course will be able to use and interpret chemical language, symbols and data. They will be comfortable and competent in the use of modern technology for the acquisition, analysis and presentation of chemical data and information. Upon completion of this course students will possess good problem-solving skills and be able to apply the skills both independently and collaboratively. Finally, students will be able to gather experimental data safely and accurately using a several laboratory instruments and methods and apply their knowledge of chemistry to the explanation and interpretation of new or unfamiliar chemical information.

**ASSESSMENT MEASURES:** Upon completion of this course students will have demonstrated knowledge of the concepts and language used in chemistry to a 60% level as measured by homework, quizzes, tests and laboratory. Additionally, a comprehensive final exam written by the American Chemical Society will be given that will measure the level of understanding of the material. Laboratory skills will be assessed in the lab through lab reports.

**METHODS OF INSTRUCTION:** Chemistry 109 will be a predominantly lecture based course (using Power Point, white board and handouts) with a textbook that the majority of the material comes from. Students are expected to come to class have read the material assigned the previous class that will be covered that day's lecture. You will also be asked to sit in your study groups as a portion of each days lecture will be done in small group form where small group will work on problems assigned in lecture. Questions in class as well as visits to office hours are encouraged

**COURSE WEBPAGE:** The website for this course is <https://sites.berry.edu/asuroviec/chm-109/> This page contains links to the course syllabus, PowerPoint slides, as well as other class information. Every effort is made to keep this page as up to date as possible.

**STUDY GROUPS:** During the first week of class each of you will be assigned to a study group of up to 4 students. Those that do not have a preference will be assigned a group. In class problems will be periodically assigned and group quizzes will be given on most Fridays.

**ATTENDANCE POLICY:** It is expected that class attendance will be 100% and that full attention will be given to any subject while present in class. The student will be held responsible for the material presented and any assignments made during a class session s/he was not able to attend. While attendance is not part of the grade in this course, it is necessary to do well. A student who has been absent continuously for one week will be reported to the Registrar and possibly dropped from the course.

**LABORATORY:** Laboratory experiments are an essential element of any introductory course in chemistry. Laboratory work begins during the week for **January 8<sup>th</sup>**. Bring a pen, a bound lab notebook and your lab manual. You are required to attend each of your lab sessions. A separate lab syllabus will be provided during the first meeting of your lab. **NOTE: You must receive greater than a 59.9% in lab to receive credit for this course.**

**EXAMINATIONS:** There will be three regular examinations plus a final exam. The dates for the three regular exams are: **Wednesday January 31<sup>st</sup>, Wednesday March 21<sup>st</sup>, and Monday April 16<sup>th</sup>**. These dates are firm, and exams will be given during class time. Make-up exams will only be allowed for well-documented illnesses or absences approved in advance. Excuses must be presented in writing. Exams will not be moved so plan ahead.

**FINAL EXAMINATION:** The nationally standardized test that is produced by the American Chemical Society for **Section C on Friday April 27<sup>th</sup> at 11am and for Section D on April 26<sup>th</sup> at 11am**. Your grade on this exam will be determined by your percentile ranking on it. Please note: This multiple-choice final encompasses the second semester of general chemistry.

**GRADES:** The course grade will be based on the total points accumulated from the 3 regular exams, the final exam, quizzes, homework assignments and the general chemistry lab. Each of these are weighted as follows:

|  |                |
|--|----------------|
| Exams 1 – 3 (The exam average must be greater than a 59.9% to pass the course) | 45% (15% Each) |
| Final Exam   | 20%            |
| Lab (The lab grade must be higher than a 59.9% to pass the course)             | 10%            |
| Homework   | 15%            |
| Quizzes  | 10%            |
| Total  | 100%           |

Final Grades will be determined by total points accumulated and weighted by the table above. The final grading scale is shown below:

|            |    |
|------------|----|
| 93–100%    | A  |
| 90-92%     | A- |
| 87-89%     | B+ |
| 83-86%     | B  |
| 80-82%     | B- |
| 77-79%     | C+ |
| 73-76%     | C  |
| 70-72%     | C- |
| 67-69%     | D+ |
| 60-66%     | D  |
| Below a 60 | F  |

**QUIZZES:** At the *end* of some class periods, a short 10-point quiz will be given, except on exam days and the day following Spring Break. These quizzes will be closely related to the problems assigned as homework. Most Fridays the quiz will be a group quiz to be completed by your study group. I will allow you to take the quiz early, with my approval, but **NO** late quizzes will be given. At the end of the semester the lowest quiz score will be dropped and the remainder of the quiz scores used to compute the quiz grade.

**HOMEWORK:** At the end of most class periods I will give a homework assignment to be completed by the next period.

*Reading:* The reading assignment will be based on the material to be covered in the next lecture.

*Problem Sets:* Problems will be assigned from the material that is being covered in class. Several of these problems will be graded on the online homework website ALEKS ([www.aleks.com](http://www.aleks.com)). These problems will be worth varying points and you will have multiple chances to enter the correct answer to receive full credit.

**EXTRA CREDIT:** The extra credit opportunity for this class is to watch TED Talks. To receive the extra credit, request a TED talk link from Dr. Suroviec. You will have one week to complete a summary of the video and email it back to Dr. Suroviec. For every two (2) summaries (i.e. number 2, 4) your lowest quiz score will be converted to a 10. The maximum number of quizzes that may be replaced is **2. THIS IS THE ONLY EXTRA CREDIT THAT IS AVAILABLE IN THIS COURSE.**

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**TUTORING AND ADDITIONAL HELP:** Chemistry is often a difficult topic and at times we all need a new way of looking at the same problem. Therefore this semester there are several tutoring options that you can use either for the entire course or only at times when you might be struggling.

*Tutorial Availability:* If you would like to talk about better studying techniques or a peer tutor, please make an appointment with Academic Support Center (233-4080) or find the information that you need here: <http://berry.edu/asc/>

*Keys to doing well:* General Chemistry II is often a difficult for many students. The level of expectation is much higher than it was for General Chemistry I. Therefore, I suggest doing the following to do well in this course.

1. Study every day for 1-2 hours. Start doing this immediately either by yourself or with a group.
2. Read the assigned pages of the text. This will introduce you to the material that we will cover the next class period
3. Come to class every day

**FERPA:** Berry College's statement of compliance with the 1974 Federal Family Educational Rights and Privacy Act (FERPA or the Buckley Amendment) states: "Grades should not be distributed or posted in any fashion that permits identification of the student by anyone other than the student." I will only post grades on VikingWeb and only hand exams back individually.

**ADDITIONAL ACCOMMODATIONS:** Students with disabilities who believe that they may need accommodations in this course are encouraged to contact the Academic Support Center in Krannert Room 329 (ext. 4080) as soon as possible to ensure that such accommodations are implemented in a timely fashion.

**ACADEMIC INTEGRITY:** Each student is expected to adhere to the policies outlined in the college's academic handbook. Cheating of any kind will not be tolerated. As in all of my classes, students will be asked to sign an integrity pledge on each quiz/exam. The pledge reads as follows:

"I affirm that I have neither committed nor witnessed a violation of academic integrity in the completion of this quiz/examination."

Any student found to have violated academic integrity will be subject to the following:

**First Offense:** No credit for the particular quiz/exam and a report filed to the Academic Dean's office.

**Second Offense:** Removal from the course, automatic failure in the course and a report filed to the Academic Dean's office.

**TENTATIVE COURSE SCHEDULE**

| MONTH    | DATE | MATERIAL TO BE COVERED  | ALEKS                | READING FOR THE WEEK |
|----------|------|---|----------------------|----------------------|
| January  | 8    | Chapter 11 – Liquids and Solids.                                  |                      | Chapter 11           |
|          | 10   |   |                      |                      |
|          | 12   | Chapter 12 – Solutions  | Pre-requisite review |                      |
| January  | 15   | <b>NO CLASS: MLKJ DAY</b>   |                      | Chapter 12           |
|          | 17   | Chapter 13 – Chemical Kinetics                                    | Objective 1          |                      |
|          | 19   |   |                      |                      |
| January  | 22   |   | Objective 2          | Chapter 13           |
|          | 24   |   |                      |                      |
|          | 26   |   | Objective 3          |                      |
| January  | 29   | <b>Exam 1: Chapter 11 - 13</b>                                    | Objective 4 (A)      | Chapter 14           |
| February | 31   |   |                      |                      |
| February | 2    |   |                      |                      |
| February | 5    | Chapter 14 – Chemical Equilibrium                                 | Objective 5          |                      |
|          | 7    |   |                      |                      |
|          | 9    |   |                      |                      |
| February | 12   | Chapter 15 – Acids and Bases                                      | Objective 6          | Chapter 15           |
|          | 14   |   |                      |                      |
|          | 16   |   | Objective 7 (A)      |                      |
| February | 19   |   | Objective 8          |                      |
|          | 21   |   |                      |                      |
|          | 23   |   |                      |                      |
| February | 26   | Chapter 16 – Acid/Base Equilibrium                                | Objective 9 (A)      | Chapter 16           |
| March    | 28   |   |                      |                      |
| March    | 2    |   | Objective 10         |                      |
| March    | 5    |   | Objective 11         |                      |
|          | 7    |   |                      |                      |
|          | 9    |   |                      |                      |
| March    | 12   | <b>NO CLASS: SPRING BREAK</b>                                     |                      |                      |
|          | 14   | <b>NO CLASS: SPRING BREAK</b>                                     |                      |                      |
|          | 16   | <b>NO CLASS: SPRING BREAK</b>                                     |                      |                      |
| March    | 19   | <b>Exam 2: Chapters 14 - 16</b>                                   | Objective 12 (A)     | Chapter 17           |
|          | 21   |   |                      |                      |
|          | 23   |   |                      |                      |
| March    | 26   | Chapter 17 – Spontaneity of Reaction                              | Objective 13         | Chapter 18           |
|          | 28   |   |                      |                      |
|          | 30   | <i>NO CLASS: GOOD FRIDAY</i>                                      |                      |                      |
| April    | 2    | Chapter 18 – Redox and E-Chem                                     | Objective 14 (A)     |                      |
|          | 4    |   |                      |                      |
|          | 6    |   | Objective 15         |                      |
| April    | 9    |   | Objective 16 (A)     |                      |
|          | 11   |   |                      |                      |
|          | 13   |   |                      |                      |
| April    | 16   | <b>Exam 3: Chapters 17 – 18</b><br>Chapter 19 – Nuclear Chemistry | Objective 17 (A)     | Chapter 19           |
|          | 18   |   |                      |                      |
|          | 20   |   |                      |                      |
| April    | 23   | Review Day  | Open Pie             |                      |
| April    | 26   | <b>Section C 11am</b><br><b>Section D 11am</b>                    |                      |                      |
|          | 27   |   |                      |                      |