

CHEM 112 – General Chemistry II  
Fall 2017, Sections 011-018

- Prerequisites:** MATH 111, 115 or higher and a grade of C or better in CHEM 111 or CHEM 141.  
Students who do not meet the prerequisites will be administratively dropped from the class.
- Instructor:** Prof. Aaron Vannucci      Office: Horizon 015      Phone: 803-576-6071  
Email: vannucci@mailbox.sc.edu
- Office Hours:** Mon. and Wed. 10:30 AM – 12:00 PM or email to schedule an appointment
- Website:** <http://www.vrg-uofsc.com/Teaching.html> Grades on Blackboard: <https://blackboard.sc.edu>.
- Required Materials:**
- *Chemistry: Principles & Practice*, 3rd Edition, Reger, Goode and Ball, Chapters 12–18.  
Mobile, electronic access to the text is available through OWL.
  - *Chemistry 112: Lecture Notes and Lab Manual*, Reger, Freeman, Goode, Taylor-Perry
  - OWL Access Code (see below)
  - iClickers will not be used in this class.
- Lecture:** T Th 1:15-2:30 AM JONES 210
- Attendance is essential for earning a good grade. Important information and changes in the class schedule will be presented in lecture. Students are responsible for getting notes and information from any missed lectures. The lecture schedule and copies of the slides can be found at
- <http://www.vrg-uofsc.com/Teaching.html>
- Attendance is required and will be taken every day. Attendance of all class meetings is expected. Students are expected to attend each scheduled class meeting, to be on time, and to be prepared for each class session. The University attendance policy specifies that students may miss up to 3 class meetings (10% of class time) without penalty. The 4th absence will result in a grade penalty of one letter grade. The 5th absence will result in a deduction of 2 letter grades. Homework cannot be made up, nor the deadline extended. Exams cannot be made up; the final exam will be used to replace one missed or low exam. Note: Students using cell phones or other electronic devices during class will be marked absent for the day. Absent mind, absent student.
- If you need to enter or leave the classroom during the lecture, consider using the rear doors to minimize disruption.
- OWL:** Online Web-based Learning (OWL) version 2 is the online homework system used in this class. Set up an account as soon as possible at to <https://login.cengagebrain.com/course/E-X7FG5MN7CKTPR> Links to additional resources are on the course website listed above. Assignments start immediately and are due weekly. 50% credit will be given for late work. Supplemental Material is a complement to the textbook and lecture. No credit is given.

We do not directly operate the OWL system. Use the support button on the OWL page for any technical problems.

Discussing problems with other students, TAs and the instructor is often a helpful way to study. However, it is much harder to work a problem independently than to watch someone else solve the problem. After a discussion, do a similar problem independently to be sure you understand it.

**Recitation:** Recitations start the week of August 28<sup>th</sup>. Attendance is required. Graded quizzes will be given, and problem solving will be practiced. Your recitation TAs for this course are Victoria Bobo ([mbobo@email.sc.edu](mailto:mbobo@email.sc.edu)), and Ryan Key ([keyrj@email.sc.edu](mailto:keyrj@email.sc.edu)).

**Supplemental Instruction:** Supplemental Instruction (SI) sessions are available three times a week. Your SI leader is Tanner Coleman ([tc Coleman@email.sc.edu](mailto:tc Coleman@email.sc.edu))

**Laboratory:** Chem 112L is a required co-requisite of this class, but it is administered and graded separately. Information can be found on Blackboard. Contact Amy Taylor-Perry ([taylor4@mailbox.sc.edu](mailto:taylor4@mailbox.sc.edu), PSC 117, 803-777-1540) for all questions about Chem 112L.

**Hazardous Weather:** If the University of South Carolina is closed for reasons stated in policy HR 1.18, students will be excused from class. Exams may be moved to new class times. All schedule changes will be posted on Blackboard.

**Disabilities:** Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the Office of Student Disability Services: 777-6142, TDD 777-6744, email [sasds@mailbox.sc.edu](mailto:sasds@mailbox.sc.edu), or stop by LeConte College Room 112A. All accommodations must be approved through the Office of Student Disability Services.

**Midterm Exams:** OWLv2 contains exercises of increasing complexity to guide you to the level of the tests. The tests will be most similar to the End of Chapter problems or the questions in the textbook. Sample exams will be posted at <http://www.vrg-uofsc.com/Teaching.html>

There will be three midterm exams:

- Exam I: Tuesday, 9/19
- Exam II: Tuesday, 10/17
- Exam III: Thursday, 11/16

For each exam, please bring:

- 1) calculator (check battery)
- 2) pencils
- 3) picture ID card

A sheet of standard formulas and physical constants will be provided. No notecards will be allowed for exams. All other notes, books, programs or other prepared materials may not be used during the test. Calculators may not be shared. All other electronics, including cell phones, must be inaccessible and out of view. Visible electronics are presumed to be in use and will be penalized accordingly.

There are no make-up exams. One-half of the Final Exam score will be substituted for one missing or low scoring midterm exam. Only one such substitution is allowed.

**Final Exam:** Thursday, December 12<sup>th</sup> at 12:30 PM

The final exam is comprehensive and required.

**Course  
Grade:**

**Score calculation**

Exam I:	100 pts
Exam II:	100 pts
Exam III:	100 pts
Final Exam:	200 pts
OWL	75 pts
Quizzes	75 pts
<b>Total</b>	<b>650 pts</b>
Extra Credit	up to 25 pts

**Approximate grading scale**

A	>585 pts
B+	584–565 pts
B	564–520 pts
C+	519–500 pts
C	499–455 pts
D+	454–435 pts
D	434–390 pts
F	<389 pts

The grading scale may be adjusted based on overall class performance. Following exams, approximate letter grades may be discussed. However, final grades will be assigned on the basis of point totals.

All required elements of the course are to be completed within the normal term. Failure to complete all the elements on time will result in a grade of F. Incompletes will only be assigned in unusual circumstances.

**Academic  
Dishonesty:**

Cheating, plagiarism, copying from old reports, and other forms of academic dishonesty in connection with any portion of this course will normally result in failure of the course. Cooperating in academic dishonesty will also result in failure. All incidents of academic dishonesty will be reported to the student's College for possible further disciplinary action.

**Cell Phones,  
etc.:**

Please turn off cell phones (not just silent) during lecture. Texting, web surfing and other activities not related to the class are not allowed during the lecture. During tests, electronics other than calculators must be out of sight and inaccessible.

**Copyright:**

All materials from this class are copyrighted. They may not be publically posted or transferred to third parties. Please contact the instructor if you wish to record the lectures.

**Topics:**

Introduction to the properties of solutions, chemical equilibrium and its application to acid/base chemistry and solubility, chemical kinetics and thermodynamics, redox reactions, and electrochemistry.

**Learning  
Outcomes:**

After completing CHEM 112, students will be able to:

- Make both qualitative and quantitative predictions of the solubility of compounds.
- Predict the physical properties of dilute solutions.
- Predict the direction and extent of chemical reactions at various temperatures using equilibrium constants and thermodynamic data.
- Calculate pH of solutions of acids and bases and pH changes in acid–base reactions.
- Determine rate laws from kinetic data and vice versa. Calculate chemical reaction rates at different temperatures.
- Balance oxidation–reduction reactions and assess the number of electrons transferred.
- Interconvert voltages, spontaneity and thermodynamic quantities in electrochemical reactions.

## Tentative Course Schedule

Day	Date	Chapter	Sections	Text Exercises
Thursday	24 Aug	Intro. Chapt. 12	Syllabus 1	12.17–40
Tuesday	29 Aug		2 3	12.41–48 12.49–62
Thursday	31 Aug		4 5	12.63–72 12.73–84
Tuesday	5 Sept	Chapt. 14	6 (only ideal) 1 2	12.85–86 14.13–28 14.29–34
Thursday	7 Sept		3 4	14.35–42 14.43–60
Tuesday	12 Sept		5 6	— 14.61–74
Thursday	14 Sept	Chapt. 15	7 1	14.75–78, 79–84 15.23–32
Tuesday	19 Sept	<b>Exam 1</b>	<b>Chapts. 12 and 14</b>	
Thursday	21 Sept		2 3	15.33–42 15.43–48
Tuesday	26 Sept	Chapt. 15	4 5	— 15.49–68
Thursday	28 Sept		6 7	15.69–94 15.95–98
Tuesday	3 Oct	Chapt. 16	8 (no 9, Lewis acids) 3	15.99–104 16.29–46
Thursday	5 Oct		1 2	16.13–18 16.19–28
Tuesday	10 Oct		4 5	— 16.47–58
Thursday	12 Oct		6 7 (no amphoteric) 8 (no complexes, no amphoteric)	16.59–64 16.65–16.68 16.65–68
Tuesday	17 Oct	<b>Exam 2</b>	<b>Chapts. 15 and 16</b>	
Thursday	19 Oct	<b>Fall Break</b>	<b>No Classes</b>	
Tuesday	24 Oct	Chapt. 13	1 2	13.21–32 13.33–42
Thursday	26 Oct		3 4	13.43–58 13.59–66
Tuesday	31 Oct		5 6	13.67–68 13.69–82
Thursday	2 Nov	Chapt. 17	1 2	17.23–34 17.35–48

Tuesday	7 Nov		3 4	17.51–56 17.57–82
Thursday	9 Nov		5	17.83–102
Tuesday	14 Nov	Chapt. 18	1 2	18.09–20 18.21–38
Thursday	16 Nov	<b>Exam 3</b>	<b>Chpts. 13 and 17</b>	
Tuesday	21 Nov		Variable or Review	
Thursday	23 Nov	<b>Thanksgiving</b>	<b>No Classes</b>	
Tuesday	28 Nov	Chapt. 18	3 4	18.39–42 18.43–54
Thursday	30 Nov.	Chapt. 18	5 6	18.55–60 18.61–70
Tuesday	5 Dec		Variable or Review	
Thursday	7 Dec		<b>Final Exam Review</b>	
Tuesday	12 Dec	<b>Final Exam</b>	<b>Chpts. 12-18</b>	<b>12:30 PM</b>