Dr. K. Kenneth Caswell
College of Arts & Sciences
University of South Florida Sarasota-Manatee

University of South Florida Sarasota-Manatee
CHM 2045L, Sections 521 and 522, 1 Credit Hour
General Chemistry I Lab
Fall 2014, SMM 2004

Only those who will risk going too far can possibly find out how far one can go. ~T.S. Elliot

Instructor: Dr. K. Kenneth Caswell
E-mail: kcaswell@usf.edu
Office: C236
Phone: 941-359-4611

Class Meetings Time/Date in Building/Room:
Lab Section 521: 2:45-5:45/M in SMM/2004
Lab Section 522: 2:45-5:45/T in SMM/2004

Office Hours: After class and by appointment

PREREQUISITES: 550 SAT Quantitative score or completion of MAC 1105 College Algebra with a C or better AND one year of high school chemistry or completion of CHM 2023 with a grade of C or better.

COURSE DESCRIPTION: Upon successful completion of this course, you will be able to understand and apply the particulate nature of matter and how particles combine to make ever more complex and multifunctional structures. As you develop connections among major chemical ideas, you will also gain an appreciation for the role chemistry plays as the central science. In addition, this course will enhance your facility with the symbolic language of chemistry and allow you to practice scientific process skills, such as critical thinking, quantitative reasoning, inquiry, problem solving, self-assessment, and communication.

COURSE TOPICS: This course will cover 13 labs (see schedule for topics).

COURSE OBJECTIVES: This course is designed in accordance with the following common outcomes in STEM Academic Learning Compacts:
- Assessment occurs on lab assignments
- Ability to analyze, interpret, and draw conclusions from scientific data
- Oral and written communication skills
- Application of knowledge
- Solving real-world problems

Also, the course design, objectives, and student learning outcomes attend to the following USFSM General Education Student Learning Outcomes:
- Students will demonstrate the ability to critically examine and evaluate scientific observations, hypotheses, or model constructions and the use of the scientific method to explain the natural world. (General Education Florida, Statewide Natural Sciences Outcome #1)
- Students will successfully recognize and comprehend fundamental concepts, principles, and processes about the natural world. (General Education Florida, Statewide Natural Sciences Outcome #2)
- Students will apply ethical perspectives and concepts to situations and justify the implications of their applications. (USFSM Pillars of Intellectual Engagement Outcome #4)
COURSE STUDENT LEARNING OUTCOMES: Upon completion of this course, successful students will demonstrate the ability to:

- Apply the principle of the scientific method as a practical problem-solving tool.
- Apply the principles of scientific measurement consistently.
- Understand and describe atomic structure, emphasizing electron configuration and chemical periodicity.
- Apply knowledge to name compounds and write formulas.
- Analyze problems involving stoichiometry, thermochemistry, molarity, density, and ideal and non-ideal gas behavior.
- Differentiate among various types of chemical reactions and balance chemical equations.
- Determine the molecular structures and polarity of given molecules or compounds.
- Distinguish among different types of bonding.
- Analyze, interpret, and draw conclusions from chemical and scientific data, in combination with credible, evidence-based information.
- Express a basic understanding of chemical principles and their application to real-world chemical and biochemical challenges and opportunities.
- Obtain a means to identify common, real-world misconceptions about chemistry, biochemistry, and science (in general).
- At a procedural level, employ critical, divergent, and creative thinking tools to innovate solutions to personal, community, and societal needs and challenges.
- Clearly comprehend the relationship of chemistry and science with society.

Additional emphasis in this course will focus on developing fundamental ideas carefully, learning strategies for successful problem solving (in both the general and the mathematical sense), and understanding how these skills can be used to view nature and the world from a chemical science perspective. Furthermore, students will contribute to a teaching/learning community that demonstrates how imagination, creativity, innovation, and science can make the world a better place.


CANVAS: This class will use Canvas (my.usf.edu) to post all course materials, including announcements, media, and grades. Your successful completion of this course requires that you check Canvas regularly for updates. Information on how to use Canvas is available at http://usfsm.edu/e-learning-services/student-resources/

COMPUTER LAPTOP USE: USFSM requires all students to have laptops to bring with them to class. Students are invited to bring their laptops to class whenever they wish (except exam days) for note taking and course-related research purposes. Any student suspected of checking Facebook or other social media, playing games, or using their computer for other non-course related activities will lose this privilege for the remainder of the semester.

PLAGIARISM SOFTWARE: The University of South Florida has an account with an automated plagiarism detection service, Turnitin, which checks student assignments for plagiarism. Dr. Caswell reserves the right to ask students to submit their assignments to Turnitin through Canvas.

With this software, assignments are compared automatically with a database of journal articles, web articles, and previously submitted papers. The instructor receives a report showing exactly how a student’s paper was plagiarized. Please remove your name from the body and file name of your paper and replace it with your USF ID# (e.g., U12345678 Essay 1.docx) before submitting it to Turnitin. Pursuant to the provisions of the Family Educational Rights and Privacy Act (FERPA), students are requested to use their school ID numbers to maintain their confidentiality and keep their personal contact information (i.e., name, address, telephone) from being disclosed to vendors or other outside agencies. By your submission, you agree to release your original work for review for academic purposes to Turnitin.

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GRADING, EVALUATION, AND ATTENDANCE POLICIES

ATTENDANCE AND CLASS PARTICIPATION: Attendance is mandatory and is part of your class participation grade. Lab work requires that you be prepared, in the lab, and able to contribute meaningfully to an investigative relationship with lab partners. In-class group work, quizzes, discussions, and labs will assess whether students are attending, actively participating, and obtaining the requisite process skills. Thus, students must come to class prepared; preparation includes, but is not limited to, completing pre-lab reading and research investigations posted to Canvas. Class participation is essential for success. If students come to class unprepared to contribute meaningfully to the in-class, group work, discussions, and labs, the instructor will make the requisite adjustment to the class participation grade. Also, as a means to assess whether students are prepared to contribute meaningfully, a quiz will be administered five minutes after the scheduled class start time. Each student will be graded on her or his individual work and active participation as part of group work/discussions. For class discussions, students are required to research, collect, and present contextually relevant sources. In-class work (e.g., quizzes, labs) cannot be made up; students may miss one lab session without their grade being negatively affected. In other words, students may drop one day of in-class participation assessments. For each additional class day missed, students’ final course grades will be reduced by one letter grade. Pre-lab investigations are posted on Canvas under the Files tab in the Pre-Lab Investigations folder. Students must complete and bring with them to the lab that week’s Pre-Lab Investigation (see schedule). Students who come to lab without a completed Pre-Lab Investigation will not be considered prepared for, will not be allowed to participate in, and will not receive any credit for that day’s lab. There are 12 Pre-Lab Investigations, each of which is worth 15 points: 12 pre-labs x 15 points per pre-lab = 180 points. There are 12 quizzes, each worth 10 points: 12 quizzes x 10 points per quiz = 120 points. Thus students may earn a total of 300 points for their attendance and class participation grades, equivalent to 30% of the total course grade.

EXAMS: There are no exams in this course.

LABS: There are 12 Labs and a Final Investigation and Assessment (see schedule). Each lab is worth 50 points: 12 labs x 50 points = 600 points. The Final Investigation and Assessment is a cumulative practical that will assess whether students have learned the basic skills of the previous 12 labs. This Final Investigation and Assessment is worth 100 points, so students may earn a total of 700 points for their Labs grade, equivalent to 70% of the total grade.

GRADING: No S/U grades will be assigned in this course. An incomplete grade will be granted only when, due to circumstances beyond the control of the student, a very small portion of the required work remains undone, and the student is otherwise passing the course.

The grading scale is as follows:

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<thead>
<tr>
<th>Letter Grade</th>
<th>Score</th>
<th>Letter Grade</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>1000-950</td>
<td>C+</td>
<td>790-750</td>
</tr>
<tr>
<td>A</td>
<td>940-900</td>
<td>C</td>
<td>740-700</td>
</tr>
<tr>
<td>B+</td>
<td>890-850</td>
<td>D</td>
<td>690-600</td>
</tr>
<tr>
<td>B</td>
<td>840-800</td>
<td>F</td>
<td>590-0</td>
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USFSM AND USF SYSTEM POLICIES

ACADEMIC DISHONESTY: The University of South Florida considers any form of plagiarism or cheating on exams, projects, or papers to be unacceptable behavior. Please be sure to review the university’s policy in the USFSM Catalog (http://usfsm.edu/catalog/), the USF System Academic Integrity of Students (http://usfsm.edu/catalog/academics/academic-integrity-of-students/), and the USF System Student Code of Conduct (http://usfsm.edu/catalog/academics/student-code-of-conduct/).

DISRUPTION OF ACADEMIC PROCESS POLICIES: The University of South Florida does not tolerate behavior that disrupts the learning process. The policy for addressing academic disruption is included with Academic Dishonesty; please be sure to review the university’s policy in the USFSM Catalog (http://usfsm.edu/catalog/), the USF System Academic Integrity of Students (http://usfsm.edu/catalog/academics/academic-integrity-of-students/), and the USF System Student Code of Conduct (http://usfsm.edu/catalog/academics/student-code-of-conduct/).

CONTINGENCY PLANS AND UNIVERSITY-WIDE EMERGENCY PROCEDURES: In the event of an emergency, it may be necessary for USFSM to suspend normal operations. During this time, USFSM may opt to continue delivery of instruction through methods that include but are not limited to: Canvas, Elluminate, Skype, and e-mail messaging and/or an alternate schedule. It is the responsibility of each student to monitor the Canvas site for each class for course-specific communication, and the main USFSM and College websites, e-mails, and MoBull messages for important general information. The USF hotline at (800) 992-4231 is updated with pre-recorded information during an emergency. See the Campus Police Website (http://usfsm.edu/campus-police/) for further information.

DISABILITY ACCOMMODATION: Students are responsible for registering with the Office of Students with Disabilities Services (SDS) to receive academic accommodations. Reasonable notice must be given to the SDS office (typically five working days) for accommodations to be arranged. It is the responsibility of the student to provide each instructor with a copy of the official Memo of Accommodation. Contact Information: Disability Coordinator, 941-359-4714 (http://usfsm.edu/disability-services/).

FIRE ALARM INSTRUCTION: At the beginning of each semester, please note the emergency exit maps posed in each classroom. These signs are marked with the primary evacuation route (red) and secondary evacuation route (orange) in case the building needs to be evacuated. See Emergency Evacuation Procedures (http://usfsm.edu/facilities/safetypreparedness/).

RELIGIOUS OBSERVANCES: USFSM recognizes the right of students and faculty to observe major religious holidays. Students who anticipate the necessity of being absent from class for a major religious observance must provide notice of the date(s) to the instructor, in writing, by the second week of classes.

WEB PORTAL INFORMATION: Every newly enrolled USF student receives an official USF e-mail account. Students receive official USF correspondence and Canvas course information via that address.

GENERAL INSTRUCTION FOR STUDENTS

- Lectures may be recorded with the instructor’s permission; however, tapes or notes for this course may NOT be sold or posted on the Internet.
- You are encouraged to share notes with fellow students, except during exams.
- Facebooking, texting, and playing of video games are NOT allowed in class.
- Academic Support Services: Information Commons provides students with individual and group study spaces, computers, printers, and various media equipment for temporary use. Information Commons is staffed with a librarian, learning support faculty, tutors, and technology and e-learning specialists. Students challenged by the rigors of academic writing, mathematics, or other course content are urged to contact their professors early in the semester to chart out a plan for academic success, and/or regularly use the tutoring services provided by the Learning Support Services, which are provided at no cost to students.

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<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>In-Class Topic Coverage and Exams</th>
<th>Homework</th>
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</thead>
<tbody>
<tr>
<td>Aug 25</td>
<td>M</td>
<td>First Day of Classes Fall 2014 Semester</td>
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<tr>
<td>Aug 25, 26</td>
<td>M, T</td>
<td>Lab: Orientation and Safety</td>
<td>HW: Pre-Lab 1 Due in Class</td>
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<tr>
<td>Sept 1, 2</td>
<td>M, T</td>
<td>Labor Day; No Labs</td>
<td></td>
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<tr>
<td>Sept 8, 9</td>
<td>M, T</td>
<td>Lab: Atomic Emission Spectra and Bohr’s Theoretical Model</td>
<td>HW: Pre-Lab 2 Due in Class</td>
</tr>
<tr>
<td>Sept 15, 16</td>
<td>M, T</td>
<td>Lab: Energy &amp; Electromagnetism: Irradiance Measurements</td>
<td>HW: Pre-Lab 3 Due in Class</td>
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<td>Sept 22-23</td>
<td>M, T</td>
<td>Lab: Structure of Molecules</td>
<td>HW: Pre-Lab 4 Due in Class</td>
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<td>Sept 29, 30</td>
<td>M, T</td>
<td>Lab: A Gravimetric Analysis of Phosphorus in Fertilizer</td>
<td>HW: Pre-Lab 5 Due in Class</td>
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<td>Oct 6, 7</td>
<td>M, T</td>
<td>Lab: Recycling Aluminum</td>
<td>HW: Pre-Lab 6 Due in Class</td>
</tr>
<tr>
<td>Oct 13, 14</td>
<td>M, T</td>
<td>Lab: Qualitative Analysis-Detection of Metal Cations</td>
<td>HW: Pre-Lab 7 Due in Class</td>
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<td>Oct 20, 21</td>
<td>M, T</td>
<td>Lab: Qualitative Analysis-Identification of a Single Salt</td>
<td>HW: Pre-Lab 8 Due in Class</td>
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<tr>
<td>Oct 27, 28</td>
<td>M, T</td>
<td>Lab: Qualitative Analysis of Household Chemicals</td>
<td>HW: Pre-Lab 9 Due in Class</td>
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<tr>
<td>Nov 1</td>
<td>S</td>
<td>Last Day to Drop With a “W”; No Refund &amp; No Academic Penalty</td>
<td>HW: Pre-Lab 10 Due in Class</td>
</tr>
<tr>
<td>Nov 3, 4</td>
<td>M, T</td>
<td>Lab: Calorimetry: Heat of Fusion and Specific Heat</td>
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<tr>
<td>Nov 10, 11</td>
<td>M, T</td>
<td>Veterans’ Day; No Lab</td>
<td>HW: Pre-Lab 11 Due in Class</td>
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<tr>
<td>Nov 17, 18</td>
<td>M, T</td>
<td>Lab: Iron Deficiency Analysis</td>
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<td>Nov 24, 25</td>
<td>M, T</td>
<td>Lab: Gasimetric Analysis of a Carbonate</td>
<td>HW: Pre-Lab 12 Due in Class</td>
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<tr>
<td>Dec 1, 2</td>
<td>M, T</td>
<td>Lab: Final Investigation and Assessment</td>
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