Instructor: Gary R. Kinsel  
Email: gkinsel@chem.siu.edu  
Office: Neckers 224

Lecture: 3:00 – 3:50 pm MWF  
Location: Neckers 440  
Office Hrs: 2-3 pm WF

Laboratory Location: Neckers 408  
Laboratory TA: TBD  
Lab TA Office: Neckers TBD  
Office Hrs: TBD

Lecture Textbook: Chemistry in Context 8th Ed  
Lab Textbook: Chemistry in Context Laboratory Manual 8th Ed

NOTE: You can purchase an ebook (http://www.mheducation.com/highered/product.0073531375.html) or a hard copy. There are many sites/sources that may allow you to purchase/acquire books more cheaply. It is the student’s choice to purchase an ebook or a hard copy of the text book and lab book. **However, success in this course is nearly impossible without these books.**

***Note: Everything on this sheet is subject to change with notice***

Note to students: Eating, drinking, sleeping (or snoring), talking or any activity during lecture or lab that distracts or disturbs other students will not be tolerated. If you have something to say, then please raise your hand and say it loud and share with the whole class. These rules will be taken very seriously. Announcements regarding exam dates and changes in the syllabus will be made prior to start of the lectures. The tentative dates for exams are provided below. It is to your advantage to attend and participate in class.

Arithmetic and algebra: Students in CHEM 106 are expected to know and be able to use simple arithmetic and algebra concepts. These concepts WILL NOT be covered in the class.

Calculator: You must have your own scientific calculator during exams, labs, and for homework. Calculators will not be provided, and they may not be shared. No graphing calculators or calculators that store equations or other data will be allowed.

Safety in the class and laboratory: Safety is utmost important both in lectures and labs. Detailed information on safety is given below (pages 5-6).

GRADING

Exams: Seven 50 minute, multiple choice exams will be given throughout the semester. The tentative dates for the exams are given below. The lowest exam grade will be dropped. Thus, the best six out of seven exams will be counted towards the final grade. Each exam is worth 10%, for a total of 60% of the grade.

Exams Dates: 1/29, 2/12, 2/26, 3/11, 4/1, 4/15 and 4/29

Final Exam: The final exam will be comprehensive and multiple-choice. Any student who does not take the final exam will receive a zero for the final exam. The final exam is scheduled during the final exam period as listed in the Final Exam Schedule on Salukinet. The final exam is worth 15% of your grade.

Labs: There will be six labs during the course. Your lowest lab score will be dropped. Therefore, your best five scores out of six will be counted towards your final grade. The labs are worth 25% of your grade. Your TA will provide you more information on labs and will also provide you grades on your labs.

Make-up Policy: Because you will be allowed to drop one exam and a lab, **no makeups for any exams, including the final exam, or labs will be offered.** If you miss an exam or a lab, that lab or exam will be dropped and will not be counted towards your final grade. **No exceptions will be made.** In cases of
health or family emergencies you MUST see and talk to me in person (no emails please). I will determine if you can be excused for an exam or a lab with proper paperwork and evidence.

**Disputed Grades:** You will have 48 hours after the score for an exam is posted on the D2L website for you to dispute the score. *After that, all scores are final.*

**No Lectures/Labs on:** March 14-18 (Spring Break).

**Homework:** There will be no graded homework. However, students are strongly encouraged to work the problems and questions at the end of each chapter. The answers to many questions/problems can be found in the back of the textbook. Please contact me by email if you need solutions to other problems.

**Final Grade Scheme:** Final grades will be determined as follows:
1. Best six out of seven exams (10% each): 60%
2. Best five out of six lab scores: 25%
3. Final exam: 15%

**Grading:**
- A: 100-85%
- B: 84.9-75%
- C: 74.9-60%
- D: 59.9-50%
- F: <50%

Please note the university policy regarding incompletes (INC) which states: “An INC is assigned when, for reasons beyond their control, the students engaged in passing work is unable to complete all the requirements for the class”. In other words, under no circumstances will an INC be given to a failing student to prevent the student from receiving an F.

**Website:** [https://salukinet.siu.edu/](https://salukinet.siu.edu/)
Information related to this course will be regularly posted to the university Desire 2 Learn (D2L) website. You should check this site regularly for updates on schedules, exams, grades, etc.

**Cheating/dishonesty policy:** Any form of cheating/dishonesty will result in judicial proceedings in accordance with Southern Illinois University's policy on academic dishonesty. Everyone/anyone involved in cheating or dishonesty will be given ZERO for that particular exam/lab and under some circumstances the student(s) may be given an F in the class. Any instance of cheating will also be reported to the Department Chair and the Dean of the College.

**COURSE NOTES**
Unless announced otherwise, we plan to cover ~ 6-12 chapters and contemporary topics related to Chemistry and Society. This will, however, depend on the pace of the lectures and time constraints (exceptions will be announced in the class). Your textbook's title "Chemistry in Context, 8th Ed" reveals the overall format and contents of a typical CHEM 106 lecture, and the scope of the entire class.

In CHEM 106 lectures we will discuss (a) concepts of chemistry and (b) the applications of these concepts to everyday life. In other words, we will focus on chemistry and its impact on society and policies. Therefore, a typical 50-minute lecture period will consist of a mix of "pure chemistry" topics (i.e. the periodic table, atoms, molecules, and bonds) as well as "chemistry context" topics (i.e. air pollution, global warming, acid rain, nuclear power issues, alternative energy sources as well as polymer- and nutrition-related issues in today's society). Your textbook will be an important source for "pure chemistry concepts" in CHEM 106 lectures. It is therefore to your advantage to (a) purchase the textbook and (b) bring it to class each lecture. Your textbook will also be a primary source for "chemistry context" CHEM 106 material, but it is not the sole source. I also plan to use multimedia (such as videos, movies, internet, webcasts, news paper, and class-room demonstrations) during the course of this class. More announcements will be provided in the class.
STUDENT LEARNING OBJECTIVES
Listed below are the CHEM 106 Learning Objectives. In light of the previous discussion in this syllabus, the objectives are categorized as "Pure Chemistry Learning Objectives" and "Context Learning Objectives". The sequence of chapters that will be covered during this course may differ from the order presented in the text book.

Chapter 1: The Air We Breath
Chemistry: Atoms & Molecules; the Periodic Table
Context: Air Quality Issues in the 21st Century

Chapter 2: Protecting the Ozone Layer
Chemistry: The Electromagnetic Spectrum; Energy, Frequency and Wavelength
Context: Chlorofluorocarbons (CFCs) and their Contribution to Ozone Depletion

Chapter 3: The Chemistry of Global Warming
Chemistry: Drawing Molecules; the Concept of the Mole; Carbon Cycle
Context: Current Human-Related Activities that Contribute to Global Warming; the Future of Fossil Fuels

Chapter 4: Energy, Chemistry, and Society
Chemistry: Defining Energy Changes in Chemical Reactions and Bond Energies
Context: Oil Refinery Operations and Currently-Used Reformulated Gasolines

Chapter 5: The Water We Drink
Chemistry: Commonly-Employed Concentration Units and Specific Heats
Context: Comparisons of Tap Water and Bottled Water; Water Treatment Plant Strategies

Chapter 6: Neutralizing the Threat of Acid Rain
Chemistry: Acidity, Basicity, and pH Scales; Chemistry of Combustion
Context: Clean Coal Technologies; Effects and Politics of Acid Rain

Chapter 7: The Fires of Nuclear Fission
Chemistry: Isotopes; Nuclear Particles; Radioactivity and Nuclear Power Plants
Context: Hazards of Radioactivity; Effects and Politics of Waste Generated by Nuclear Power Plants and the Proposed Options to Dispose Nuclear Waste

Chapter 8: Energy from Electron Transfer
Chemistry: Battery Operation; Oxidations and Reductions; Fuel Cells; Photovoltaic Cells
Context: Alkaline Batteries; Hybrid Vehicles; the Hydrogen Economy; Solar Energy Options

Chapter 9: The World of Plastics and Polymers
Chemistry: Principles of Polymerization; Polyethylene and Polyamides
Context: "Paper or Plastic?" and the Origin of Plastics

Chapter 10: Manipulating Molecules and Designing Drugs
Chemistry: An Introduction to Organic Chemistry
Context: Aspirin and Modern Drug Design; the Abortion Pill; Drug Testing and Approval

Chapter 11: Nutrition: Food for Thought
Chemistry: An Introduction to Biochemistry; Carbohydrates, Fats and Proteins
Context: Cholesterol and Diet Issues; Vitamins and Minerals

Chapter 12: Genetic Engineering and the Chemistry of Heredity
Chemistry: Genetic Engineering and Processes of life; Nucleic acid, Proteins and Enzymes
Context: Processes that make life possible

LABORATORY
Laboratory-Related Objectives: The CHEM 106 experiments listed in the laboratory schedule are designed to be closely integrated with the CHEM 106 lecture topics. The collective objective of the CHEM 106 laboratory experience is for you to familiarize yourselves with the activities that working experimental chemists are engaged in. But the specific objectives of each experiment are closely related to the broader objectives of CHEM 106.
SAFETY:
IMPORTANT NOTE!!! IT IS STUDENT’S RESPONSIBILITY TO WEAR SAFETY GOGGLES AND APPROPRIATE CLOTHING AT ALL TIMES WHILE WORKING IN THE LAB (NO SKIN CAN BE SHOWING BELOW THE CHEST). YOU WILL BE ASKED TO LEAVE THE LAB IF YOU DO NOT FOLLOW THESE AND FOLLOWING RULES.

1. Before you start working in the lab, please note the locations of the fire extinguishers, eyewash station, emergency exits, and emergency shower.
2. YOU MUST WEAR SAFETY GOGGLES OR SAFETY GLASSES AT ALL TIMES IN THE LAB. Regular prescription glasses do not provide sufficient protection against chemicals in the lab. Avoid wearing contact lenses during labs.
3. Please wear proper clothing in the lab. Shorts or loose clothing are NOT ALLOWED. NO SKIN MAY BE SHOWING BELOW THE CHEST.
4. Please confine long hair. Footwear should completely cover the top of the foot—NO SANDALS WILL BE ALLOWED.
4. Please wear protective gloves as directed by your TA.
5. NO EATING OR DRINKING OR CHEWING IN THE LAB AT ANY TIME. You are NOT allowed to bring food, snacks (including chewing gum), and drinks into the lab. No smoking is allowed on campus.
6. Please assume all unfamiliar chemicals are dangerous. Please do not handle them if you have suspicion or have doubts about chemicals.
7. Report any accidents to the TA immediately. Chemicals spilled on your skin or in your eyes should be flushed with copious amounts of water. The TA will arrange for transportation and medical attention.
8. Experiments in which flammable, toxic or noxious chemicals are used should be performed in the fume hood as directed by the TA.
9. If a student is pregnant, she should notify the TA about this issue. Some chemicals may have dangerous effects during pregnancy.
10. Regularly check your glassware for chips or cracks; discard broken or chipped glassware in the special containers available in the lab. Do NOT throw them in regular trash containers. The broken glassware should be discarded in the proper containers assigned for glass and other sharp objects.
11. Please do not smell, inhale, or consume food and chemicals while in the lab. If you have (a) medical condition(s) that require(s) you to take medicine/food, please let your TA know about this. You may take your medicine/food outside of the lab.

General Laboratory Procedures and Rules:
1. You are only allowed to do work as assigned by your TA. You MAY NOT work without supervision.
2. Your TA will provide instructions at the beginning of each lab period concerning waste disposal. Don't dump/throw anything down the drain or put anything in the trash unless you are specifically told to do so.
3. Discard excess reagents into proper containers. Never return them into the reagent bottles. Don't put pipettes into the reagent bottles.
4. Use distilled water when directed.
5. At the end of each lab period, please clean up after yourself. Wipe up spills; re-cap reagents; DO NOT leave trash on the countertops, in the sink or on the floor.

Individual Apparatus
1. During the first lab period, please check the contents of your locker against the list provided. Immediately replace any missing or broken apparatus. This replacement is FREE ON THE FIRST DAY ONLY. Therefore, carefully check each and every item in your locker. After this check, you will pay for replacing any apparatus that you break or loose during the semester. You will be billed through the Bursar’s office.
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2. Special equipment or apparatus needed for a single lab period may be checked out of the stockroom using a green slip. Please return this equipment at the end of the lab period. If it is not returned, you will be charged for it.

3. All apparatus is the property of the Department of Chemistry and Biochemistry, Southern Illinois University, Carbondale, IL and may not be removed from the premises.

I have read the above rules and agree to abide by them. I understand that if I fail to do this I will not be allowed to participate in the laboratory.

Lab Schedule: Please note that you will perform six experiments in the lab according to the following schedule. The labs are listed in the lab manual as: Investigation 1; Investigation 6; Investigation 8; Investigation 10; Investigation 14; and Investigation 19.

Section 1: Neckers 408, Tuesdays, 8 am - 10.50 am: 1/26, 2/9, 2/23, 3/8, 3/29, 4/12
Section 2: Neckers 408, Tuesdays, 8 am - 10.50 am: 2/2, 2/16, 3/1, 3/22, 4/5, 4/19
Section 3: Neckers 408, Tuesdays, 11 am - 1.50 pm: 1/26, 2/9, 2/23, 3/8, 3/29, 4/12
Section 4: Neckers 408, Tuesdays, 11 am - 1.50 pm: 2/2, 2/16, 3/1, 3/22, 4/5, 4/19
Section 5: Neckers 408, Thursdays, 8 am – 10.50 am: 1/28, 2/11, 2/25, 3/10, 3/31, 4/14

Please note that there are no make-up laboratory periods.

EMERGENCY PROCEDURES
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT, http://www.bert.siu.edu/) program. Emergency response information is available on posters in buildings on campus, available on BERT's website at www.bert.siu.edu, Department of Safety's website www.dps.siu.edu (disaster drop down) and in Emergency Response Guideline pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency. The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.

The Department of Public Safety (DPS) has a comprehensive website outlining procedures for various emergencies, including an active shooter as was asked yesterday, as well as a variety of contact information. Their website is http://www.dps.siu.edu/

Please be sure to look over their emergency procedures and be sure to program appropriate numbers in your phone in the event of an emergency.