

CHEM 1030

Fundamentals of Chemistry and Lab

Instructor Information:

Name:

Office phone:

Office location:

Office hours:

E-mail address:

Course Description

An introduction to the fundamental concepts of General, Organic and Biological Chemistry. Topics include measurements, energy and matter, atoms and elements, compounds and their bonds, chemical reactions and quantities, gases, solutions, acids and bases, saturated and unsaturated hydrocarbons, organic compounds, carbohydrates, lipids, amino acids, proteins and enzymes, and metabolic and energy pathways.

Credit: 4 credits, 3 class hours, 3 lab hours

Prerequisite: Completion of all competencies in Learning Support reading, writing and math.

Course Outcomes and Topics

Upon successful completion of this course, the students will:

- Prepare/conduct chemical reactions/experiments in the laboratory using safe laboratory techniques; identifying all measurable quantities, collecting data, recognizing sources of error, identifying limitations of measuring devices, and preparing valid conclusions supported by laboratory data.
- Use computer-interfaced equipment.
- Identify a question/problem, formulate a hypothesis, test the hypothesis and formulate a conclusion using organizational, tabulation and summarization skills.
- Apply the fundamental concepts, processes and calculations of General, Organic and Biological Chemistry highlighting their usage and importance in industrial and medical applications.

Lecture Topics

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|---------------------|----------------------|----------------------|
| • Scientific method | • Polarity | • Alkenes |
| • Measurements | • Chemical reactions | • Alkynes |
| • Conversions | • The Mole | • Functional groups |
| • Energy | • Gas properties | • Isomers |
| • Matter | • Solutions | • Addition reactions |
| • Periodic table | • Solubility | • Aromatic compounds |
| • Atomic structure | • Acids | • Organic compounds |
| • Isotopes | • Bases | • Carbohydrates |
| • Bonding | • pH scale | • Lipids |
| • Nomenclature | • Buffers | • Amino acids |
| • Molecular shapes | • Alkanes | • Proteins |

- Enzymes
- Nucleic acids
- Protein synthesis
- Metabolic pathways

Lab Topics

- Measurement and Density of Liquids and Solids
- Freezing and Melting of Water
- Endothermic and Exothermic Reactions
- Atomic Structure
- Formula Writing
- Writing Reactions
- Mole Ratio
- Properties of Gases
- Pressure-Temperature Relationship in Gases
- Effect of Temperature on the Solubility of a Salt
- Acid-Base Titration
- Naming Organic compounds
- Synthesis/Analysis of Aspirin
- Making Soap
- Tests for Identifying Biochemical Molecules
- Protein and DNA Structure

Required Materials

- *Principles of General, Organic and Biological Chemistry* by Janice Smith, 2nd edition, (Published by McGraw Hill), ISBN: 9780077961428
- *Fundamentals of Chemistry: A Laboratory Manual for CHEM 1030*, (Available in the course NSOnline class shell)
- Calculator (*preferably a scientific one...do NOT expect to use the calculator on your cell phone!*)

Course Policies

Attendance Policy

A student is expected to attend all scheduled classes and laboratories. Absences in a course may affect a student's final grade. The student is responsible for all assigned work in the course regardless of excused or unexcused absences. Tardiness may also affect a student's final grade.

Assessment and Grading (Subject to change at the instructor's discretion methods of evaluation)

The expected outcomes for the course may be assessed by various techniques including homework, quizzes, exams and a comprehensive final examination as well as lab related activities.

CATEGORY	PERCENTAGE OF FINAL GRADE
Homework	15%
Quizzes	10%
Exams	40%
Final Exam	15%
Lab Grade	20%
Total	100%

Grading scale:

A: 90 – 100%	C: 70 – 79%
B: 80 – 89%	D: 60 – 69%
F: 0 – 59%	
FA (see below)	
FN (see below)	

Per TBR policy, a student who does not officially drop or withdraw from a course, but receives a failing grade, will receive an “FA” if the last day of attendance was earlier than two-thirds into the part-of-term. That date equates to the last day to withdraw from the course.

An FN is awarded to students who never attended class.

Homework

The students will be provided with different homework assignments, which are designed by the instructor. **These assignments must be turned in by or before the due date.**

Quizzes

Ten Quizzes (10 pts each) are given during the first twenty minutes of the class time and can consist of questions relating to the lecture material covered on each chapter.

Exams

Four tests (100 pts each) will be given during the semester along with a comprehensive final (100 pts). The date of each test will be given in class no later than one week before the test will take place.

The final exam for this course is scheduled for in room .

Laboratory

Laboratory grades are assessed by the quality of laboratory worksheets (20 pts each). Note, laboratory participation affects your lab grade! Students are expected to follow the safety rules. Failure to do so will result in docking of points on lab worksheets. A short pre-lab lecture will precede the laboratory exercise. If you miss the pre-lab, you will NOT be allowed to perform the exercise and will earn a “0” for that lab. Lab worksheets are due at the end of laboratory sessions.

Makeup Policy

All assignments must be turned in by or before the due date. There are NO EXCEPTIONS. Makeup exams will NOT be given except in the case of extenuating circumstances. It is the responsibility of the student to attend class and take exams at the designated times. Exams, Labs, Homework and Quizzes cannot be made-up. To compensate for a missed exam, the score received on the final exam can be used to replace the lowest score received on one regular exam. Also, the lowest Lab worksheet score and in-class quiz score will be dropped.

Grading Errors

All grades will be entered in D2L grade sheet. It is your responsibility to check your grade online and let me know if any error has made. If the student thinks that the instructor has made an error in

his/her grade, please submit in writing (an email is fine) the reason(s) why the student thinks he/she deserves more credit along with the assignment. This request must be turned in within one week of the assignment having been returned to the student.

Help Opportunities

You are encouraged to work problems on a regular basis, and to stop by my office should you experience any difficulty or have any general questions. I also encourage you to email me questions or requests for meeting times.

Safety Issues

The instructor will go over new regulations regarding safety in lab classes. You must turn in a signed copy of the regulations, and you will have a copy to keep.

“Food and drink of any type is not permitted in the lab classrooms.

Any student found with food or drink in the lab room will be asked to immediately leave the room and will receive a grade of “0” for that day’s lab activity.”

D2L Brightspace/NSOnline and myNSCC email

It is the student’s responsibility to check D2L and MyNSCC email on a regular basis. These are the official communication channels between the college and students. Students are responsible for the information communicated through those channels. D2L contains specific course information and MyNSCC contains information important for other purposes.

Technology Statement

Nashville State's classes are considered to be web-enhanced. Faculty have an expectation that students will use a computer and the Internet to complete assignments, engage in online discussions, and access various course materials through Desire2Learn (D2L) course shells. Computers are available for student use at each campus during campus open hours.

ADA Compliance Statement

Nashville State complies with the Americans with Disabilities Act. If you wish to request any special accommodations for any courses in which you are enrolled, contact the Access Center at 615.353.3741 or 615.353.3721.

Classroom Misconduct

Nashville State Community College has a zero tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary sanctions. The Nashville State Student Code of Conduct policy is available at http://www.nsc.edu/content/resources/Student_Code_of_Conduct_Policy.pdf.

Please be aware that children are not allowed in class or unattended on campus.

Academic Misconduct

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. Students are responsible for understanding and aiding by the Academic Misconduct Policy in the Nashville State Student Code of Conduct that can be found at http://www.nsc.edu/content/resources/Student_Code_of_Conduct_Policy.pdf.

In addition to other possible disciplinary sanctions that may be imposed through regular college procedures as a result of academic dishonesty the instructor has the authority to assign an “F” or a

“Zero” for the exercise, paper, or examination or to assign an “F” for the course. Students may appeal through the appropriate college grade appeal procedures.

Academic Early Warning System

Nashville State Community College has implemented an Early Warning System to notify students via e-mail about academic problems such as poor classroom attendance, poor performance on assignments/tests, poor communication skills, late/missing assignments, and/or lack of classroom participation. *Please note that Early Warning Alerts do not affect a student’s academic standing.

RAVE Emergency Alert System

Emergency events can happen at any time and Nashville State Community College wants to be able to notify students if and when they occur. For this reason, all students have been enrolled in the free RAVE alert system. If you have not already done so, please log in at <https://getrave.com/login/nscc> to confirm and update your contact information and notification preferences. It is critical that your information be correct so that you will receive any emergency notifications. Your RAVE Username is your NSCC email address. If you've never received an email from RAVE with your password, or if you need to reset your password, select “Forgot your password?” and a new password will be emailed to you. Should the RAVE system indicate “user not found”, select Register and create your own RAVE account.

Inclement Weather Policy

Nashville State will use the RAVE alert system to send a text message to students, staff, and faculty about adjusted hours of operation and/or closings at individual campuses. All students should check the Nashville State web site home page at www.nscc.edu for announcements on campus closures, which may vary from campus to campus. Campus closures will also be announced on local television stations.

When classes are cancelled, an online assignment will be posted in NS Online. Check NS Online for a message from your instructor regarding your online assignment requirements.

Students should use their own best judgment in determining whether to report to campus during inclement weather when classes are not cancelled.

Class Cancellation Policy

If the class is cancelled, the instructor will notify all students by posting in the NSOnline/D2L course, e-mailing through NSOnline/D2L, and/or by posting a sign on the classroom door. In the event of class cancellation, students must access NSOnline/D2L to complete classwork and the assignment that will be posted in the course D2L site.