Fayetteville State University

CHEM 141 GENERAL CHEMISTRY I SYLLABUS

Semester
Section
Class Meets: TBA
Credit: 3 semester hours
(This is a 16-week lecture section.)
Additionally, MATH 129 or higher is a prerequisite for this course.

Instructor:
Texts: Chemistry, 10th or 11th Ed., by Raymond Chang
Student Solutions Manual, 9th Ed., by Brandon J. Cruickshank
Phone: TBA
E-Mail: TBA

Course Goal:

The goal of this course is to make the student aware of the physical and chemical surroundings and the impact of chemistry on society. In addition, students are trained in their basic scientific thinking and problem solving skills, in order to be prepared for the advanced science courses.

I. General Description

The elements, their compounds, and their reactions and theories involved in the foundation of modern chemistry. The course consists of ~300 minutes of lecture and 3 hours of laboratory work each week. (Prerequisite: Math 129 or higher)

II. Learning Objectives:

1. An understanding of the application of scientific method, the SI units of measurement, and dimensional analysis
2. An understanding of the development of atomic theory, periodic table, the make up of molecules and ions, and the nomenclature of inorganic compounds
3. Be able to balance chemical equations, and apply stoichiometry to chemical reactions
4. An understanding of types of chemical reactions in aqueous solution and the qualitative and quantitative technique of analysis of these reactions

III. Topical Outline:

Chemistry is the study of the composition of substances and the way that they interact. Many disciplines must draw on certain chemical principles and concepts. Chemistry touches your personal life every day in many ways. A knowledge of this science will help you to gain a better understanding of your world.
To do well in this class, you must be willing to spend time on the subject. Do the reading and homework assignments for each chapter. Do not allow yourself to get behind in this class, as it is very difficult to catch up. New material will utilize and build on what you have previously learned. DO NOT FALL BEHIND.
The following chapters will be covered in this course:

Chapter 1 – Chemistry: The Study of Change
Chapter 2 – Atoms, Molecules, and Ions
Chapter 3 – Mass Relationships in Chemical Reactions
Chapter 4 – Reactions in Aqueous Solutions
Chapter 5 - Gases
Chapter 6 - Quantum Theory
Chapter 7 – Thermochemistry
Chapter 8 - Periodic Relationships
Chapter 9 – Chemical Bonding I
Chapter 10 – Chemical Bonding II

IV. Reading Assignments:

The appropriate chapter should be read before each class period. Students are encouraged to raise questions for discussion from the reading material. The instructor may call upon students on the reading assignment.

V. Homework Assignments:

Homework will be completed by an on-line homework program. Additional problems at the end of each chapter may be assigned as homework. Homework problems are absolutely vital to learning the material and preparing for the exams. It is imperative that you understand the reasoning behind the answers, therefore work the problems as best you can before looking up the answer. Discuss the problems with classmates and see me with difficulties understanding the material.

VI. Hourly Exams:

There will be four regular exams worth 100 points each. The lowest of the four exams will be dropped. It is very important that you adequately prepare for these tests as there is no provision for “extra credit”. Additionally, it is very important that you be in attendance on the days of tests as NO “MAKE-UP” TESTS WILL BE ADMINISTERED. To receive credit on any mathematical problem, you must show your work. No credit will be given for just the answer. No “make-up” test will NOT be administered under ANY circumstances. Should you miss a test for ANY reason, a grade of “0” will be recorded for that test and it will be your dropped grade. Scientific and/or standard math function calculators may be used. Cell phones will not be allowed to be used during exams or quizzes.

VII. Final Examination: There will a comprehensive final exam.

X. The Honor Code: The work each student has done in this course is assumed to be that of the student's own effort. The student's understanding of the material is tested during examinations. The student must sign each exam to pledge the student's honor. Any evidence of cheating will result in a grade of zero for that exam. Cheating on the final exam will result a grade of “F” for the course. The violator’s name will be sent to the Honor Board.

XI. Attendance Policy: The college attendance policy for the 100 level courses is applied. This means absences of more than 3 days would result in a grade of “WF” for the course.
XII. Evaluation:

EXAMINATIONS: | Component                          | Points |
---|---|---|
    | Exam I                           | 100    |
    | Exam II                          | 100    |
    | Exam III                         | 100    |
    | Exam IV                          | 100    |
    | Final Exam                       | 100    |
    | Drop Lowest Regular Exam         | -100   |
    | Homework                         | 100    |
    | ACS Problem Solving              | 50     |
    | Journal Article Project          | 50     |

TOTAL POINTS 600

Grades: The grading scale is:

\[\begin{align*}
A &= 549 - 600 \\
B &= 489 - 548 \\
C &= 429 - 488 \\
D &= 369 - 428 \\
F &= \text{Below 369}
\end{align*}\]

REVISION OF GRADES – STUDENT RESPONSIBILITIES

The following revisions become effective on August 16, 2007.

WN GRADE DISCONTINUED:

  
  STUDENTS: Do not expect faculty to withdraw you for non-attendance. Drop or withdraw* from classes according to the deadlines published in the catalog. *See warning below about class withdrawals.

NEW TYPE OF GRADE: INTERIM GRADES – (New name for “midterm grade,” with additional purposes). Interim grades will be assigned from the first week of the semester until the deadline for class withdrawals. Interim grades are used for informational and warning purposes only; they are not part of your permanent transcript and have no effect on your GPA. Instructors may assign interim grade of F to warn students of poor academic performance or they may assign “X” or “EA” grades. (See below for explanations) After midterm, faculty will assign all students an interim grade of A – F to inform students of their academic status as of midterm.

- **INTERIM GRADE X = NO SHOW** – Assigned to students who are on a class roster, but never attend class. For warning purposes only; NOT a final grade.

  STUDENTS: Check interim grades early in the semester. If you have an X grade, either begin attending the class or withdraw* from it. *See warning below about class withdrawals. If you do not take action in response to an X grade, you will receive a final grade of FN. (See “FN” below)
INTERIM GRADE EA = EXCESSIVE ABSENCES - Assigned to students whose class absences exceed 10% of the total contact hours. For warning purposes only, NOT a final grade.

STUDENTS: Check your interim grades often. If you have an “EA” grade for a class, you are in jeopardy of failure if you do not take immediate actions. Either resume attending the class or withdraw from it. *See warning below about class withdrawals.

NEW FINAL GRADE:

FN = FAILURE DUE TO NON-ATTENDANCE – Assigned to students who are on class roster, but never attend the class. An FN grades is equivalent to an F grade in the calculation of the GPA.

STUDENTS: You must attend (or withdraw* from) all the classes for which you are enrolled. *See warning below about class withdrawals.

WARNING ABOUT CLASS WITHDRAWALS:

- When you withdraw from a class, you are wasting your money and time. You receive no refund for withdrawing from individual classes and you slow your progress toward degree completion.
- If you withdraw from or fail more than one-third of your classes, you will no longer be eligible for financial aid.
- STRIVE TO EARN CREDIT FOR ALL THE CLASSES IN WHICH YOU ENROLL; WITHDRAW FROM CLASSES ONLY WHEN IT IS ABSOLUTELY NECESSARY!
FSU Policy on Disruptive Behavior in the Classroom (Optional)

The Code of the University of North Carolina (of which FSU is a constituent institution) and the FSU Code of Student Conduct affirm that all students have the right to receive instruction without interference from other students who disrupt classes.

FSU Core Curriculum Learning Outcome under Ethics and Civic Engagement (6.03): All students will “prepare themselves for responsible citizenship by fulfilling roles and responsibilities associated with membership in various organizations.” Each classroom is a mini-community. Students learn and demonstrate responsible citizenship by abiding by the rules of classroom behavior and respecting the rights all members of the class.

The FSU Policy on Disruptive Behavior (see FSU website for complete policy) identifies the following behaviors as disruptive:

1. Failure to respect the rights of other students to express their viewpoints by behaviors such as repeatedly interrupting others while they speak, using profanity and/or disrespectful names or labels for others, ridiculing others for their viewpoints, and other similar behaviors;
2. Excessive talking to other students while the faculty member or other students are presenting information or expressing their viewpoints.
3. Use of cell phones and other electronic devices
4. Overt inattentiveness (sleeping, reading newspapers)
5. Eating in class (except as permitted by the faculty member)
6. Threats or statements that jeopardize the safety of the student and others
7. Failure to follow reasonable requests of faculty members
8. Entering class late or leaving class early on regular basis
9. Others as specified by the instructor.

The instructor may take the following actions in response to disruptive behavior. Students should recognize that refusing to comply with reasonable requests from the faculty member is another incidence of disruptive behavior.

1. Direct student to cease disruptive behavior.
2. Direct student to change seating locations.
3. Require student to have individual conference with faculty member. At his meeting the faculty member will explain the consequences of continued disruptive behavior.
4. Dismiss class for the remainder of the period. (Must be reported to department chair.)
5. Lower the student's final exam by a maximum of one-letter grade.
6. File a complaint with the Dean of Students for more severe disciplinary action.

Students who believe the faculty member has unfairly applied the policy to them may make an appeal with the faculty member’s department chair.
VII. Academic Support Resources – Smarthinking Online Tutoring (Instructions given in Smarthinking Student Handbook), Supplemental Instruction Program (SI Instructors), and Student Support Services (HTC 108, Tel. 672-1867 provide a one-on-one tutoring for students enrolling in the program- website: http://www.uncfsu.edu/sss/ ). The Learning Center in the H.T. Chick Building is available to assist students with writing, mathematics, and reading. Students can also get assistance from the instructor during the instructor’s office hours.

IX. Course Outline and Assignment Schedule

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<th>Week #</th>
<th>Topic(s)</th>
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<tr>
<td>Week 1</td>
<td>Introduction/ Course Outline/Chapter 1</td>
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<td>Week 1</td>
<td>Chapter 1-The Study of Change</td>
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<td>Week 1</td>
<td>Chapter 1 /Chapter 2</td>
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<td>Week 2</td>
<td>No Classes –Martin Luther King’s Holiday</td>
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<td>Week 2</td>
<td>Chapter 2- Atoms, Molecules and Ions</td>
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<td>Week 2</td>
<td>Chapter 2</td>
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<td>Week 3</td>
<td>Chapter 2/Chapter 3/HW CH. 1 – Due</td>
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<td>Week 3</td>
<td>Chapter 3-Chemical Reactions</td>
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<td>Week 3</td>
<td>Chapter 3</td>
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<td>Week 4</td>
<td>Chapter 3/Review/HW CH. 2 – Due</td>
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<td>Week 4</td>
<td>Exam I – CH. 1, 2, &amp; 3</td>
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<td>Week 4</td>
<td>Chapter 4- Reactions in Aqueous Solutions</td>
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<td>Week 5</td>
<td>Chapter 4/HW CH. 3 – Due</td>
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<td>Week 5</td>
<td>Chapter 4/Problem Solving</td>
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<td>Week 5</td>
<td>Chapter 5- Gases</td>
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<td>Week 6</td>
<td>Chapter 5/HW CH. 4 - Due</td>
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<td>Week 6</td>
<td>Chapter 5/Review</td>
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<td>Week 6</td>
<td>Chapter 6-Thermochemistry</td>
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<td>Week 7</td>
<td>Chapter 6/Problem Solving</td>
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<td>Week 7</td>
<td>Chapter 6/ Review</td>
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<td><strong>Week 7</strong></td>
<td><strong>Exam II- Chapter 4, 5, &amp; 6</strong></td>
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<td>Week 8</td>
<td>Chapter 7-Quantum Theory</td>
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<td>Week 8</td>
<td>Chapter 7/ Problem Solv./HW CH. 6 – Due</td>
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<td>Week 8</td>
<td>Chapter 7</td>
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<td>Week 9</td>
<td>No Classes – Spring Break</td>
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<td>Week 9</td>
<td>No Classes - Spring Break</td>
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<tr>
<td>Week 9</td>
<td>No Classes - Spring Break</td>
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Week 10  Chapter 7/Chapter 8
Week 10  Chapter 8- Periodic Relationships
Week 10  Chapter 8

Week 11  Chapter 8/HW CH. 7 – Due
Week 11  Chapter 8
Week 11  Chapter 8

Week 12  **Exam III – CH. 7 and 8**
Week 12  Chapter 9-Chemical Bonding I
Week 12  Chapter 9/Problem Solving/CH. 8 – Due

Week 13  Chapter 10- Chemical Bonding II
Week 13  Chapter 10/Journal Article - Due
Week 13  Chapter 11- Intermolecular Forces

Week 14  Chapter 11/HW CH. 9 – Due
Week 14  Chapter 11
Week 14  No Classes – Spring Holiday

Week 15  Chapter 11
Week 15  **Exam IV – CH. 9, 10, & 11**
Week 15  Review/Problem Solving/HW CH. 11 – Due

Week 16  Review
Week 16  Review
Week 16  Review/Last Day of Classes

Week 17  Final Exam Week

**X. Teaching Strategies**

There will be lecture and laboratory sessions. Various teaching techniques will be applied to improve the teaching efficiency. Teamwork and group study, as well as, individual study are recommended.

Teaching aids such as audio-visual supplements and computer-assisted instruction are available for many topics to assist you if you need additional study. Appropriate materials for each week of class are listed in the class schedule with more complete information in Section X-Bibliography and Study Aids and Appendices.
XI. Bibliography

Other than different General Chemistry textbooks, students are encouraged to use the audio-visual programs that are housed in the Media Center on the second floor of Chestnutt Library and the computer-assisted-instruction programs available on the chil server. The audio-visual programs are available as film-strip/audio-cassette or slide/audio cassette programs. A listing of AV program numbers and titles appropriate for this and the following course is given as an appendix to this syllabus.

- ChemPlus, HyperCube Inc., Waterloo, Ont., Canada, 1993
- HyperNMR, HyperCube Inc., Waterloo, Ont., Canada, 1994
- PCModel V 5.0, Serena Software, Bloomington, IN., 1993-94

The vast majority of the AV programs were developed by Communication Skills Corporation (CSC). Those which carry numbers in the 700’s are basically at high school level, which those at the 800-level (or above) are college level. The Computer programs available were developed by Compress, Inc.

XII. DISCLAIMER

To accommodate emergent circumstances, the professor reserves that right to make reasonable changes in the syllabus while the course is in progress. Any understanding between a student and the professor including, but not limited to, changes, expectations, or modifications to course requirements or procedures must be in writing and must be signed by both parties. Any questions of interpretation of course requirements or of understandings between a student and the professor will be at the discretion of the professor.