CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
CHATTANOOGA, TENNESSEE
MATHEMATICS AND SCIENCES DIVISION

COURSE SYLLABUS

Organic Chemistry I – CHEM 2010

Instructor:
Phone:
E-mail:

Class Hours/Credit Hours: 6/4
Semester: Fall only
Room:

Catalog Course Description

Aliphatic and aromatic hydrocarbons, stereochemistry, monofunctional and some polyfunctional compounds; basic separation, purification, synthesis and identification techniques emphasized in lab; for science and preprofessional majors.

Prerequisites:

CHEM 1120

Corequisites:

CHEM 2010 Laboratory

Entry Level Standards

The student should have a good understanding of general chemistry. Reading and writing on a college level is also expected. Basic mathematical skills (algebra, logarithms and ratios) are also needed.

Textbook/Materials

Wade, L. G., Jr. *Organic Chemistry,* 7th ed. Pearson Prentice Hall 2010.

Topics:

1. Atomic Structure
2. Molecular and Ionic Structures
3. Acids and Bases
4. Structure and Properties of Organic Molecules
5. Structure and Stereochemistry of Alkanes
6. The Study of Chemical Reactions
7. Stereochemistry
8. Alkyl Halides: Nucleophilic Substitution and Elimination
9. Structure and Synthesis of Alkenes
10. Reactions of Alkenes
11. Alkynes

Outcomes

PSLO 5: Issues in today's world require scientific information and a scientific approach to informed decision making. Therefore, the goal of the Natural Science requirement is to guide students toward becoming scientifically literate. This scientific understanding gained in these courses enhances students' ability to define and solve problems, reason with an open mind, think critically and creatively, suspend judgment, and make decisions that may have local or

global significance. To achieve this the student will demonstrate and ability to achieve the following **Course Learning Outcomes:**

CSLO 1. Conduct an experiment, collect and analyze data, and interpret results in a laboratory setting.
CSLO 2. Analyze, evaluate and test a scientific hypothesis.
CSLO 3. Use basic scientific language and processes, and be able to distinguish between scientific and non-scientific explanations.
CSLO 4. Identify unifying principles and repeatable patterns in nature, the values of natural diversity, and apply them to problems or issues of a scientific nature.
CSLO 5. Analyze and discuss the impact of scientific discovery on human thought and behavior.

PSLO 4: To expand students' understanding of mathematics beyond the entry level requirements for college and to extend their knowledge of mathematics through relevant mathematical modeling with applications, problem solving, critical thinking skills, and the use of appropriate technologies. To achieve this the student will demonstrate and ability to achieve the following **Course Learning Outcomes:**

CSLO 2. Use mathematics to solve problems and determine if the solutions are reasonable.
CSLO 3. Use mathematics to model real world behaviors and apply mathematical concepts to the solution of real-life problems.
CSLO 4. Make meaningful connections between mathematics and other disciplines, in this case chemistry.

PSLO 1: The goal of the communication requirement is to enhance the effective use of the English language essential to students' success in school and in the world by way of learning to read and listen critically and to write and speak thoughtfully, clearly, coherently, and persuasively. To achieve this the student will demonstrate and ability to achieve the following **Course Learning Outcomes:**

CSLO 5. Make written and/or oral presentations employing correct diction, syntax, usage, grammar, and mechanics
CSLO 6. Manage and coordinate basic information gathered from multiple sources for the purposed of problem solving and decision-making.

Indicators

Upon successful completion of the course a student should be able to:

1) Be able to define: modern organic chemistry, vitalism, ionic bonding, covalent bonding, formal charges, resonance structures, Arrhenius acid, Arrhenius Base, Brønsted-Lowry Acid, Brønsted-Lowry Base, Lewis acid, Lewis base, electrophile, nucleophile.
2) Be able to determine if a bond is polar or nonpolar and the direction of polarity based on the electronegativity difference of the two bonded atoms.
3) Be familiar with the exceptions to the octet rule.
4) Be able to draw Lewis structures for molecules and polyatomic ions, and assign formal charge to each atom.
5) Be able to draw all resonance structures for a given molecule or ion.
6) Be able to predict the relative acidity of a series of compounds based on periodic trends and resonance stabilization of the conjugate base.
7) Be able to predict the relative basicity of a series of compounds based on periodic trends and resonance stabilization of the conjugate base.

8) Given an acid-base reaction, be able to identify the acid, the base, the conjugate acid, and the conjugate base. Be able to predict the favored direction of the reaction based on acid-base strengths.
9) Given a Lewis acid-base reaction, be able to identify the Lewis acid and the Lewis base.
10) Be able to use curved arrows to represent electron movement in a chemical reaction.
11) Given a chemical reaction, be able to classify the reactants as nucleophiles and electrophiles.
12) Be able to define and give an example: hybrid atomic orbital, sigma bond, pi bond, double bond, triple bond, constitutional isomers, bond dipole moment, molecular dipole moment, dipole-dipole forces, London forces, hydrogen bonding, miscible liquids, hydrocarbons, alkyl groups, functional group, alkane, alkene, alkyne, alcohol, ether, ketone, aldehyde, aromatic hydrocarbon, carboxylic acid, ester, amine, amide, nitrile.
13) Be able to describe the shape of sp^3, sp^2 and sp hybrid orbitals.
14) Be able to describe the molecular geometry and bond angles of an atom that is sp^3, sp^2 or sp hybridized.
15) Be able to determine the hybridization of all carbon, nitrogen, and oxygen atoms in a given compound.
16) Be able to describe a sigma bond and a pi bond. Be able to identify the covalent bonds in a single, double, and triple bond as sigma bonds or pi bonds.
17) Be able to determine the type of intermolecular forces (dipole-dipole interactions, hydrogen bonding, and London dispersion forces) present in a sample of a given compound. Know the relative strengths of these forces and how they affect boiling points and solubilities.
18) Be able to predict relative boiling points of a series of compounds based on the strength of their intermolecular forces.
19) Be able to determine whether two given structures are constitutional isomers.
20) Be able to classify a compound based on the functional group present in the structure.
21) Be able to define and draw an example: alkane, alkene, alkyne, hydrophobic, conformers, Newman projection, dihedral angle, eclipsed, staggered, gauche, anti conformation, steric strain, *cis*-*trans* isomers on a cycloalkane, chair conformation, boat conformation, twist boat conformation, half-chair conformation, axial position, equatorial position, 1,3-diaxial interactions, catalytic cracking, fused ring system, bridged bicyclic compound, bridgehead carbon atoms, spirocyclic compounds, combustion.
22) Know the nomenclature prefixes up to 20 carbons.
23) Be able to name a given alkane, alkyl halides, cycloalkane (including *cis* and *trans* isomers), or bicycloalkane using the IUPAC nomenclature system.
24) Be able to name isobutane, isopentane, neopentane, methylene halides, and the haloforms given their structures.
25) Be able to draw the structure of an alkane, alkyl halides, cycloalkane (including *cis* and *trans* isomers), or bicycloalkane given an IUPAC name.
26) Be able to draw isobutane, isopentane, neopentane, methylene halides, and the haloforms given their names.
27) Be able to list eight physical properties of alkanes and cycloalkanes including odor, taste, color, boiling points, melting points, density, polarity and solubility.
28) Be able to determine the relative boiling points of a series of alkanes.
29) Be able to describe the relative reactivity of alkanes.
30) Be able to write a balanced chemical equation for the combustion reaction of a given alkane.
31) Be able to describe the structures of cyclopropane, cyclobutane, cyclopentane, and cyclohexane including ideal bond angles and actual bond angles. Know how the actual bond angles affect the ring strain, energy and stability in each of the structures.

32) Be able to draw (using Newman projections or sawhorse structures) and label the conformations of ethane, propane, and butane. Know the relative energies and stabilities of each conformation for each compound.
33) Be able to draw the most stable conformations of cyclopropane, cyclobutane, and cyclopentane.
34) Be able to draw all of the conformations of cyclohexane and substituted cyclohexanes and determine their relative stabilities.
35) Be able to identify a cyclohexane substitutent as axial or equatorial.
36) Be able to define: homolytic cleavage, heterolytic cleavage, free radical, carbocation, carbanion, singlet carbene, reactive intermediate, *trans*ition state, reaction mechanism, thermodynamics, kinetics, activation energy, rate determining step, Hammond Postulate, inductive effect, resonance effect.
37) Be able to draw the six steps of a free radical chain mechanism (including curved arrows) for the halogenation of an alkane or cycloalkane. Label each step as an initiation step, propagation step, or termination step.
38) Given one step of a free radical chain mechanism, be able to identify it as an initiation step, propagation step, or termination step.
39) Be able to determine whether a reaction is endothermic or exothermic given the change in enthalpy, ΔH.
40) Be able to draw a reaction-energy diagram for a given reaction step or series of steps: include reactants, products, reactive intermediates, *trans*ition states, activation energy (ΔE_a), and ΔH on the diagram.
41) Know how activation energy (ΔE_a) relates to the rate of the reaction step.
42) Be able to use the Hammond postulate to predict whether a *trans*ition state complex will more closely resemble the reactant or the product. Be able to draw the *trans*ition state complex based on your predictions.
43) Be able to use a reaction-energy diagram to identify the rate-determining step for a given reaction.
44) Be able to classify a radical as methyl, primary, secondary, or tertiary.
45) Be able to determine relative stability of a series of radicals based on the inductive effect and the resonance effect.
46) Be able to predict the monohalogenation organic products formed in the halogenation of an alkane and predict their relative yields.
47) Know the hybridization of the following reactive intermediates: alkyl radicals, carbocations, carbanions, singlet carbenes.
48) Be able to classify of the following reactive intermediates as electron deficient and/or electron rich: alkyl radicals, carbocations, carbanions, singlet carbenes.
49) Know the geometry and the ideal bond angles of the following reactive intermediates: alkyl radicals, carbocations, carbanions, singlet carbenes.
50) Be able to classify of the following reactive intermediates as nucleophilic or electrophilic: alkyl radicals, carbocations, carbanions, singlet carbenes.
51) Know the net charge of the following reactive intermediates: alkyl radicals, carbocations, carbanions, singlet carbenes.
52) Given a structure, be able to identify it as one the following reactive intermediates: alkyl radicals, carbocations, carbanions, singlet carbenes.
53) Be able to draw examples of the following reactive intermediates includiing correct geometry, charge, and orbital that are empty or that contain nonbonded electron: alkyl radicals, carbocations, carbanions, singlet carbenes.
54) Be able to define and give an example: stereochemistry, superimposable, chiral, achiral, chiral

carbon, asymmetric carbon, stereoisomers, enantiomers, diastereomers, chirality, optical isomers, plane-polarized light, optical purity, enantiomeric excess, polarimeter, meso compound, racemic mixture, specific rotation, dextrorotatory, levorotatory, resolution, Cahn-Ingold-Prelog convention.

55) Be able to draw the mirror image of a given molecule and determine whether the two structures are enantiomers or the same compound.
56) Be able to label any asymmetric carbon atoms (chiral carbons) and stereocenters within a given molecule.
57) Be able to classify a molecule as chiral or achiral.
58) Be able to use the Cahn-Ingold-Prelog convention to assign *R* or *S* configuration to chiral centers.
59) Be able to name a given chiral compound including the *R* and *S* configuration for any chiral center in the molecule.
60) Be able to draw a chiral compound including the *R* and *S* configuration for any chiral center in the molecule given a name.
61) Be able to determine if a molecule is optically active.
62) Be able to describe a polarimeter.
63) Be able to determine whether two given structures are enantiomers, diastereomers, same compounds, or conformational isomers.
64) Be able to determine whether two given structures are meso compounds.
65) Know the similarities and differences in physical properties of enantiomers.
66) Know the similarities and differences in physical properties of diastereomers.
67) Be able to determine the enantiomeric excess and optical purity of a sample given the sample optical rotation and the specific rotation of an optically pure sample.
68) Be able to write the steps needed to resolve a racemic mixture of carboxlic acids.
69) Be able to write the steps needed to resolve a racemic mixture of alcohols.
70) Be able to define: primary, secondary, and tertiary alkyl halide; aprotic solvent; protic solvent; concerted reaction; electrophile; elimination; E1 reaction; E2 reaction; geminal dihalide; vicinal dihalide; halogen exchange reaction; hydride shift; Walden inversion (inversion of configuration); alkyl shift; nucleophile; nucleophilic substitution; racemization; rearrangement; retention of configuration; steric hindrance; S_N1 reaction; S_N2 reaction; substrate; Zaitsev's rule; dehydrohalogenation
71) Be able to name a given alkyl halide using the IUPAC nomenclature system.
72) Be able to name a given simple alkyl halide by its common name.
73) Be able to draw the structure of an alkyl halide given the IUPAC name or the common name.
74) Be able to classify alkyl halides as methyl, primary, secondary, or tertiary.
75) Be able to classify alkyl dihalides as geminal or vicinal.
76) Classify a given molecule or ion as a good or poor nucleophile.
77) Classify a given molecule or ion as a strong or weak base.
78) Classify a given molecule or ion as a good or poor leaving group.
79) Classify a given solvent as protic or aprotic. Name and draw the structures of protic and aprotic solvents.
80) Predict when carbocation rearrangement will occur. Draw mechanisms for carbocation rearrangements via hydride and methyl shifts.
81) Describe each of the four competing reactions (S_N2, S_N1, E2, E1), including mechanism, rate, energy diagram, regiochemistry, and stereochemistry. Describe the factors that affect the rate of each reaction, including substrate, nucleophile, solvent, and leaving group.
82) Predict the mechanism for a given reaction (S_N2, S_N1, E2, or E1). Draw the major products for the given reaction.

83) Be able to define: Zaitsev product; Hofmann product; dehydrogenation; dehalogenation; dehydrohalogenation; element of unsaturation; Bredt's Rule violation; hydrogenation; dehydration; geminal dihalide; vicinal dihalide; heteroatom; polymer
84) Describe the structure of alkenes, including hybridization, bonds, and bond angles.
85) Identify elements of unsaturation.
86) Determine the degree of unsaturation for a molecule given the structure or molecular formula.
87) Draw molecules of a given molecular formula with the appropriate degree of unsaturation.
88) Correctly name a given alkene, cycloalkene, diene, etc. using the IUPAC system of nomenclature.
89) Provide the common names for alkenes and alkenyl substituents discussed in class.
90) Draw the structure of an alkene, cycloalkene, diene, etc. given the IUPAC name.
91) Determine the number of geometric isomers for a given alkene, diene, triene, etc.
92) Classify a given alkene as *cis*, *trans*, *E*, or *Z*.
93) Determine the relative stabilities of a series of alkenes using heats of hydrogenation or molecular structure.
94) Predict trends in physical properties for a series of alkenes.
95) Draw the Zaitsev and Hofmann products for a given reaction.
96) Describe the conditions under which the Zaitsev or Hofmann product will be favored.
97) Identify atoms that are anti-coplanar or *trans*-diaxial to one another.
98) Describe the preparation of alkenes from alkyl halides (dehydrohalogenation), including regiochemistry and stereochemistry. Predict the major product of a dehydrohalogenation reaction. Draw the mechanism(s) for a dehydrohalogenation reaction.
99) Describe the preparation of alkenes from alcohols (dehydration), including regiochemistry and stereochemistry. Predict the major product of a dehydration reaction. Draw the mechanism for a dehydration reaction.
100) Be able to define: syn addition; anti addition; electrophilic addition; halonium ion; chloronium and bromonium ion; polymerization; electrophilic addition; stereospecific reaction; Markovnikov *vs* anti-Markovnikov addition; peroxide effect; hydrogenation; hydration; halogenation; hydrohalogenation; homogeneous and heterogeneous catalysis; oxidative cleavage; hydroxylation; epoxidation; hydroboration; alpha *vs* beta elimination; oxymercuration-demercuration; alkoxymercuration-demercuration; carbene addition; cationic polymerization; addition polymer.
101) Be able to state Markovnikov's Rule. Explain the chemical principles responsible for the predicted regioselectivity.
102) Be able to classify the following as Markovnikov Addition or Anti-Mrkovnikov addition reagents: HX, HBr with H_2O_2, H_2O with H_2SO_4, oxymercuration-demercuration, hydroboration-oxidation.
103) Be able to predict the major product (including regiochemistry and stereochemistry) for the electrophilic addition reagents: HX, HBr with H_2O_2, H_2O with H_2SO_4, oxymercuration-demercuration, hydroboration-oxidation, catalytic hydrogenation, X_2, X_2 with nucleophile, glycol formation, oxidative cleavage reactions.
104) Be able to draw a mechanism using curved arrows for each of the following reactions: HX, HBr with H_2O_2, H_2O with H_2SO_4, oxymercuration-demercuration, hydroboration-oxidation, catalytic hydrogenation, X_2, X_2 with nucleophile, glycol formation.
105) Be able to propose the synthetic steps necessary to synthesis a target molecule given one or more starting compounds.
106) Be able to define: alkyne, acetylide ion, enol, tautomerism, Lindlar's catalyst.
107) Be able to describe the structure of alkynes, including hybridization, bonds, and bond angles.
108) Be able to name a given alkyne, diyne, enyne, etc. using the IUPAC system of nomenclature.
109) Be able to draw the structure of an alkyne, diyne, enyne, etc. given the IUPAC name.

110) Be able to classify an alkyne as terminal or internal.
111) Know the methods for the preparation of alkynes from alkenes, including regents and intermediate compounds.
112) Know the acidity of terminal alkynes, conditions which will lead to the formation of acetylide ions, and the basicity of acetylide ions.
113) Know the reactivity of an acetylide ion, and the conditions under which it will act as a base or a nucleophile.
114) Be able to draw the mechanism for the formation of an acetylide ion and its subsequent reaction with an exchangeable hydrogen, a primary alkyl halide, an aldehyde or a ketone.
115) Be able to write the synthetic steps necessary to synthesize a target molecule given acetylene and other starting compounds.
116) Know the method for isomerizing an internal alkyne to a terminal alkyne. Also be able to draw the mechanism for this *trans*formation.
117) Know the method for isomerizing a terminal alkyne to an internal alkyne. Also be able to draw the mechanism for this *trans*formation.
118) Be able to predict the major product(s) (including regiochemistry and stereochemistry) for the following conditions: HX, HX with H_2O_2, X_2, H_2O with H_2SO_4 and $HgSO_4$, hydroboration-oxidation, catalytic hydrogenation, diketone formation, oxidative cleavage.
119) Be able to draw the mechanism for the following addition reactions of alkynes: HX, HX with H_2O_2, X_2, H_2O with H_2SO_4 and $HgSO_4$, hydroboration-oxidation, catalytic hydrogenation, diketone formation.
120) Be able to write the mechanism for acid-catalyzed keto-enol tautomersim.

Upon successful completion of the laboratory, a student should be able to:
121) Perform a variety of laboratory skills and techniques.
122) Operate safely and effectively in the chemical laboratory.
123) Make careful observations and record data gathered in the laboratory.
124) Recognize and/or establish relationships between various pieces of data gathered in the laboratory.
125) Recognize a variety of chemical and physical properties of the substances used in the laboratory

Required Assessments:

Assessment Names and Descriptions:

1. Laboratory reports. Two laboratory reports will be evaluated. One laboratory report will focus on the student's ability to conduct an experiment, collect and analyze data, and interpret results in a laboratory setting. The second report will focus on analyzing, evaluating and testing a scientific hypothesis.
2. Exams or Parts of Exams. Select problems from one or more exams will be used to assess either 1) the students use of basic chemical language and processes as well as to identify repeatable patterns in chemistry and apply them to problems or issues of a chemical nature; or 2) to demonstrate the student's ability to make connections between mathematics and chemistry by solving mathematics problems which model to real-world behaviors or solve real-world problems.
3. Exams or Parts of Exams. Select problems from one or more exams will be used to assess either 1) the students use of basic chemical language and processes as well as to identify repeatable patterns in chemistry and apply them to problems or issues of a chemical nature; or

2) to demonstrate the student's ability to make connections between mathematics and chemistry by solving mathematics problems which model to real-world behaviors or solve real-world problems.

CSLO/Assessment Alignment:

PSLO 5	CSLO #1	CSLO #2	CSLO #3	CSLO #4	CSLO #5
Assessments	Laboratory Reports	Laboratory Reports	Exams or Parts of Exams	Exams or Parts of Exams	Laboratory Reports
PSLO 4	CSLO #2	CSLO #3	CSLO #4		
Assessments	Parts of Exams	Parts of Exams	Parts of Exams		
PSLO 1	CSLO #5	CSLO #6			
Assessments	Laboratory Reports	Laboratory Reports			

Grade Distribution

A. **Testing Procedures**: 60% of grade
   The hour exams will count for 40% or the grade and the final exam will count for 20%.
B. **Quizzes:** 7.5% of grade
C. **Homework:** 7.5% of grade
D: **Laboratory:** 25% of grade

Grading Scale

Grades will be assigned according to the following grading scale:

90-100	A
80-89.99	B
70-79.99	C
65-69.99	D
00-64.99	F

Course Delivery Format

Faculty may require on-line activities and assignments to include on-line tests and submission of all written and on-line communications. The extent of on-line activities/assignments may vary by course but will be specified on the syllabus.

Standard Format – This format is the traditional format and may use an online format to provide access to "static" materials which include the syllabus, course material, contact information, and presentations. Faculty must make available when requested a copy of syllabus and any other instructor provided course materials, including their contact information. Faculty may require on-line activities and assignments to include online tests and submission of all written and on-line

communications. The extent of on-line activities/assignments may vary by course but will be specified on the syllabus.

VIII. College Policies

This class is governed by the policies and procedures stated in the current Chattanooga State Student Handbook. Additional or more specific guidelines may apply.

ADA Statement

Students who have educational, psychological, and/or physical disabilities may be eligible for accommodations that provide equal access to educational programs and activities at Chattanooga State. These students should notify the instructor immediately, and should contact Disabilities Support Services within the first two weeks of the semester in order to discuss individual needs. The student must provide documentation of the disability so that reasonable accommodations can be requested in a timely manner. All students are expected to fulfill essential course requirements in order to receive a passing grade in a class, with or without reasonable accommodations.

Disruptive Students

The term "classroom disruption" means – student behavior that a reasonable person would view as substantially or repeatedly interfering with the activities of a class. A student who persists in disrupting a class will be directed by the faculty member to leave the classroom for the remainder of the class period. The student will be told the reason(s) for such action and given an opportunity to discuss the matter with the faculty member as soon as practical. The faculty member will promptly consult with the division dean and the college judicial officer. If a disruption is serious, and other reasonable measures have failed, the class may be adjourned, and the campus police summoned. Unauthorized use of any electronic device constitutes a disturbance. Also, if a student is concerned about the conduct of another student, he or she should please see the teacher, department head, or division dean.

Affirmative Action

Students who feel that he or she has not received equal access to educational programming should contact the college affirmative action officer.

Academic Integrity/Academic Honesty

In their academic activities, students are expected to maintain high standards of honesty and integrity. Academic dishonesty is prohibited. Such conduct includes, but is not limited to, an attempt by one or more students to use unauthorized information in the taking of an exam, to submit as one's own work, themes, reports, drawings, laboratory notes, computer programs, or other products prepared by another person, or to knowingly assist another student in obtaining or using unauthorized materials. Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions, which may be imposed through the regular institutional procedures as a result of academic misconduct, the instructor has the authority to assign an "F" or zero for an activity or to assign an "F" for the course.

The instructor reserves the right to modify this syllabus in writing during the course of the semester.

IX. Instructor Policies

1. **Team Activities -** It becomes increasingly clear that many students learn best by doing. In addition, the ability to work with others is an important skill to develop. Thus we will use a variety of **in-class team activities** or out-of-class activities to help you master the materials in the course.
2. **Time and Effort -** In order to do well in chemistry, you must put in significant time and effort. You will probably be confused some of the time, ***and this is normal!!*** We will attempt to keep the confusion under control. **The biggest mistake students make in chemistry is not realizing the amount of time and effort required in this difficult course.** To be successful in chemistry, you will devote more hours studying outside of class than you spend in class. Typically, you should plan on spending at least two hours outside of class for each hour spent in class. Chemistry is also a truly cumulative science. That is, you must study and review and keep up with the material on a regular basis. *Soon* after class, you are expected to read the applicable material in your text after the activities are covered in class. You may need to reread the material a second time to fully grasp it. You should work through the sample problems in the text and through any additional material given to you by your instructor. You should do the homework problems that are suggested by your instructor. We cannot emphasize strongly enough the importance of keeping up with the material. We will cover material at a fairly rapid, but reasonable, pace. It is very easy to postpone studying until a test is at hand. **DON'T DO IT.** New material builds on old material and tends to have a snowball effect. If you wait until the day before a test to begin studying, the chances of doing well are slim. Let us encourage you to keep up with the material on a routine basis (please, please, please). You should review the material we have covered as soon as possible after class…certainly do not let two classes go by without reviewing and studying the material!
3. **Make-ups -** If you miss an exam, your final exam percentage will also count for that exam score; no exceptions, **no make-ups**. It is in your best interest to take all exams so don't abuse this policy. If you do not miss any exams, your final exam percentage can replace your lowest exam score if it will bring up your grade. If you miss more than one exam, you will receive "0" for those additional exams; no exceptions, **no make-ups**. If you miss a quiz or homework, you will receive a "0" for that grade; no exceptions, **no make-ups**.
4. **General Laboratory Policy -** The laboratory is a very important part of this course and constitutes 25% of the final course points. You will be responsible for the material presented in the laboratory and will be tested on this material during the lecture tests, lab test, and final exam. In some cases the laboratory will serve as the main source for the presentation of material of selected topics. **Additionally, if you miss more than three lab periods you will receive an F for the course.**
5. **Test and Final Exam Policy -** There will be **no** make-up exams offered; **any** missed tests will have a grade of zero (0) recorded. The final exam percentage will be substituted for the lowest test score **if** it helps your overall average. The final exam, which is cumulative, will count for 20% of your grade.
6. **Class Attendance -** You should treat your courses here at the college as you would any other job. You are expected to attend all classroom sessions. **Even if you are absent, you will be held responsible for any assignments, activities, materials, or announcements made in class.** Thus if you are absent, you should always make an effort to check the course schedule at the end of this document, check on eLearn, and contact your classmates to find out what you missed. Employers are extremely intolerant of absences or tardiness at work and it should be no different in the classroom. Students who miss classes find that it becomes more difficult to make a passing grade with each class missed. **Poor attendance is the most frequent cause of**

failure in this course. Thus, your instructor will monitor your attendance. Your instructor may choose to use attendance as part of your course grade.

7. Class begins at the scheduled time and you are expected to be ready for class to begin then. If you are habitually late to class, your instructor may choose to lower your course grade for excessive tardiness. If you are late to class, please be mindful of the other students and the instructor, by slipping in quietly and taking a seat.
8. It is important that you arrange your schedule so that you can get to lecture in a timely fashion and stay for the entire period. Late arrivals or early departures are a disruption to the course and show a lack of consideration for your instructor as well as your fellow students.
9. If you miss a class, **you will receive a "0" for any classroom activity, exam, or lab exercise covered that day. Even if you are absent, you will be held responsible for any assignments, activities, materials, or announcements made in class.** It is your responsibility to find out any assignments or changes made to the schedule. However, any questions you have concerning the class can be discussed with your instructor at any time during the semester.
10. **Withdrawing from the course -** It is your responsibility to withdraw from this course should you stop attending. If you are on the final roster and have stopped attending class, expect to receive an **"F"** for the course. Consult the current Academic Calendar on Chattanooga State's website for dates concerning withdrawals, fee refunds, and other important dates.