I. 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: Level 2 placement in English, Math and Reading.

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

- Carbohydrates
- Lipids
- Amino acids
- Proteins
- Enzymes
- Nucleic acids
- Protein synthesis
- Metabolic pathways

**Lab Topics (which may include)**
- 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

**III. Required Materials**

**IV. Course Policies**

**Attendance Policy**
Each Instructor will provide information regarding his/her attendance policy. Failure to attend class will result in a final course grade of “FA” or “FN” (see explanation below) depending on the individual instructor’s course policy.

FA= failure, attendance-related (unofficial withdrawal) Last recorded date of attendance required
FN= failure, never attended class (unofficial withdrawal)

**Assessment and Grading: ***Subject to change at the instructor's discretion***

The expected outcomes for the course will be assessed by various techniques which may include in-class assignments, group discussions, class participation, group work, quizzes, exams, oral presentations, written reports, and a comprehensive final examination.

Grading scale:
A: 90 – 100%
B: 80 – 89%
C: 70 – 79%
D: 60 – 69%
F: 0 – 59%

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.

Student Communication Channels
It is the student’s responsibility to check NS Online (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. NS Online contains specific course information and MyNSCC contains information important for other purposes.

V. ADA 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 Students Disabilities Office. Such Services must have proof of documentation that is not over 3 years old. Contact the Disabilities Coordinator at 353-3721.

VI. Classroom Behavior
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 instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or in conduct which violates the general rules and regulations of the College.
Disruptive behavior in the classroom may be defined as, but is not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.).

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

Academic Dishonesty (Honor Code)

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. “Plagiarism may result from: (1) failing to cite quotations and borrowed ideas, (2) failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words” (A Writer’s Reference 331). Academic dishonesty may be defined as, but is not limited to, intentionally trying to deceive by claiming credit for the work of another person, using information from a web page or source without citing the reference, fraudulently using someone else’s work on an exam, paper, or assignment, recycling your own work from another course, purchasing papers or
materials from another source and presenting them as your own, attempting to obtain exams/materials/assignments in advance of the date of administration by the instructor, impersonating someone else in a testing situation, providing confidential test information to someone else, submitting the same assignment in two different classes without requesting both instructor’s permission, allowing someone else to copy or use your work, using someone else’s work to complete your own, altering documents, transcripts or grades, and forging a faculty/staff member’s signature. 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.

NOTE: This syllabus is meant simply as a guide and overview of the course, the topics, the objectives, the general assessments, and some standard college policies. Some items are subject to change or revision at the instructor’s discretion. Each instructor will further clarify their criteria for grading, classroom procedures, attendance, exams and dates, etc.