Nashville State Community College
STEM Division
Chemistry Program

2020 Master Course Syllabus
CHEM 1110 – General Chemistry I

(*This master course syllabus template is a general guide for providing an overview of each course offered at Nashville State. Each instructor will further clarify specific criteria for grading, classroom procedures, attendance, exams and dates, etc. on their individual course syllabus. Prompts for individual adaptations are italicized and in parentheses; faculty should remove or replace these prompts when creating master syllabi and their own individual syllabi if they have not been removed previously*.)

This syllabus sets forth the expectations for course content, work, and grading as well as expectations for student performance and conduct. The syllabus does not constitute a contract between the student and the instructor or the College. The information contained here is subject to change at any time. Students will be notified if any changes are made. Though changes are possible, it is expected that the course will be conducted as described in this syllabus.

Course Information:

Course Title: CHEM 1110 – General Chemistry I
Credits: 4
Class Hours: 3 class hours, 3 lab hours

Course Description:

An in-depth study of the fundamental concepts of chemistry. Topics include matter and measurement, atomic and molecular structure, nomenclature, formulas and equations, stoichiometry, aqueous reactions, gases, thermochemistry, periodic trends, molecular geometry, and chemical bonding.

Prerequisite: Level 2 placement in English and Reading, and Initial Level 2 placement or higher in Math, or MATH 1000 (MATH 1130 - College Algebra highly recommended).

Instructor Information:

Name:
Email:
Office Phone:
Office Location:
Office Hours:

Required Textbook(s) & Other Materials:

Textbook:

Chemistry: The Central Science printed edition, eText edition and New Mastering Chemistry access code by Brown et al, 14th edition (Pearson), **ISBN**: 9780134809694.

OR
Chemistry: The Central Science eText edition **only** and New Mastering Chemistry access code by Brown et al, 14th ed, **ISBN**: 0134553128.

Lab Manual: *Experiments for General Chemistry I – Laboratory Manual for CHEM 1110*, (Freely available in the NSOnline course shell).

Access Code: New Mastering Chemistry access code by Brown et al, 14th ed, ISBN: 0134553128

Supplies: A scientific calculator
[No electronic, internet capable devices are allowed on exams (i.e. no cell phone calculators)]

Once enrolled, all students should verify that they have the correct textbook and materials information by consulting the D2L/NS Online shell for the course. If you are registered with the Access Center and require an alternate format for the textbook and other course materials, please contact the Access Center at 615-353-3721, 615-353-3741, or accesscenter@nscc.edu.

Digital Course Materials (DCM):

To ensure the lowest cost for students, this course includes a materials fee. This means that some or all of the required textbooks and materials for this course are available through your *NS Online* course shell. When you register for this course, the charge will appear on your account. If you decide you do not want to purchase the course materials embedded in *NS Online*, you can opt out of the program until September 6th, 2020. If you opt out, you will be responsible for obtaining the required course materials on your own.

Course Outcomes:

Upon successful completion of this course, students should be able to:

- Identify and define the steps involved in the scientific method.
- Explain matter, its properties, its transformations, and its two classifications based on composition and state.
- Define the concepts of precision, accuracy, significant figures, and scientific notation.
- Apply the rules of chemical nomenclature, writing formulas, balancing equations, writing electron configuration, and periodic trends.
- Apply dimensional analysis and algebraic equations to solve density, molarity, titration, stoichiometry, gas law and calorimetry calculations.
- Describe the rules for determining Lewis Structures, VSEPR structures, bond angles, and polarity for various molecules and compounds.

Course Competencies:

The following are detailed course competencies intended to support the course outcomes:

- Evaluate scientific discovery in terms of its scientific merit and its ethical and global implications.
- Carry out chemical reactions/experiments in the lab, identify all measurable quantities, collect data, recognize sources of error, identify limitations of measuring devices, and develop a valid conclusion based on the lab data.
- Demonstrate safe lab techniques.

- Demonstrate proficiency in the use of computer technology.
- Develop the process skills of science such as observing, measuring, collecting data, analyzing data, testing hypothesis, and controlling variables.
- Identify a question/problem, formulate a hypothesis, test the hypothesis, and formulate a conclusion.
- Plan, execute, and interpret an experiment following the tenets of the scientific methodology.
- Show competence in technical writing and in the communication of scientific information.
- Define matter and its two classifications based on composition and state.
- Label as extensive/intensive properties, chemical/physical properties, chemical/physical changes.
- Apply dimensional analysis to solve chemical problems.
- Define and apply metric prefixes, metric relationships, SI units, and units of concentration.
- Define accuracy, precision, and significant figures as related to experimental data and in solving chemical problems.
- Describe the relationships between atoms, molecules, and ions.
- Recognize subatomic particles; identify atomic number, mass number, number of protons, electrons and neutrons; identify elements by symbols, atomic number, and mass number.
- Describe and use the rules of chemical nomenclature, formulas, equations, and stoichiometry.
- Convert observable laboratory reactions to balanced equations.
- Explain the general concepts of atomic structure and bonding.
- Provide mathematically derived solutions to problems designed to illustrate the theory under study and solve density, molarity, dilution and titration problems.
- Describe various types of chemical reactions; predict if reactions will occur given a set of reactions and, if so, predict the products.
- Describe the general characteristics of acids and bases.
- Classify a substance as an electrolyte.
- Distinguish between exothermic and endothermic reactions.
- Distinguish between kinetic energy and potential energy.
- Solve problems of heat, enthalpy of reactions, and Hess's Law.
- Describe physical states of substances using kinetic molecular theory.
- Define properties of gases and solve gas law, density and partial pressure problems.
- Solve problems of heat, enthalpy of reactions, and Hess's Law.
- Write the electronic structure for an atom or ion.
- Write and interpret the quantum numbers for a specific electron.
- Explain how the periodic table arises from the repeatable patterns in the electron configurations of the elements.
- Define and illustrate how certain properties of elements (atomic size, ionization energy, metallic character, electronegativity and electron affinity) change across a row or down a column of the periodic table.
- Describe the rules for determining Lewis Structures, VSEPR structures, bond angles, and polarity for various molecules and compounds.
- Describe or illustrate the concept of chemical bonding and determine hybridization.

The following are general education competencies intended to support the course outcomes:

- Conduct an experiment, collect, and analyze data, and interpret results in a laboratory setting.
- Analyze, evaluate and test a scientific hypothesis.

- Use basic scientific language and processes, and be able to distinguish between scientific and non-scientific explanations.
- Identify unifying principles and repeatable patterns in nature, the values of natural diversity, and apply them to problems or issues of a scientific nature.
- Analyze and discuss the impact of scientific discovery on human thought and behaviour

Topics to Be Covered:

- Matter
- Measuring
- Atomic Theory and Atomic
- Structure
- The Periodic Table
- Nomenclature
- Stoichiometry
- Aqueous Reactions
- Gases
- Thermochemistry
- Electronic Structure
- Periodic Properties
- Chemical Bonding
- Molecular Geometry

Course Assessments:

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

The following performance assessments will be used:

Three to Four Exams	40%
Final Exam	15%
Laboratory work	25%
Homework/Quizzes/Discussion	20%

Grading Policy:

(*Each instructor will provide policy*)

Late Work Policy & Make-up Procedures for Missed Assignments and Work:

(*Each instructor will provide policy*)

Attendance Policy

The College is not an attendance taking institution as defined by 34 CFR 668.22(b)(1) in the Code of Federal Regulations; however, students are expected to attend all scheduled classes and laboratories.

- Absences in a course may affect a student's final grade.
- Tardiness may also affect a student's final grade.
- Students are responsible for all work/tests that occur during any missed class session(s) regardless of reason(s) for absence.
- Students who are sick or not well enough to attend class must notify the instructor as soon as possible before the scheduled class time, unless incapacitated or unable to do so. In that case, students must contact the instructor as soon as reasonably possible.
- If a student has an unavoidable conflict with a scheduled class session, students must notify the instructor, preferably before the class session, or as soon as possible.

For purposes of financial aid continued attendance is determined via engagement in the course. This can be accomplished in several ways including, but not limited to, continued attendance and/or participation in on-ground class sessions, participating in D2L as prompted (e.g., responding to an instructor's email, posting to a discussion board), and/or completing and submitting assignments.)

To the extent that attendance is kept in this class it is not for the purpose of the College but is instead associated with the instructor's individual grading rubric. The attendance policy for this class is: *(add attendance policy).*

Grading Scale:

Letter Grade	Percentage Range
A	90-100
B	80-89
C	70-79
D	60-69
F	Below 60

FA

According to NSCC policy, an FA is awarded to students who do not officially withdraw from a course and do not attend after the cut-off date provided in the academic calendar. Please refer to the current academic calendar available on the Nashville State web site, looking for the date that indicates it is the "Last Day to Earn F for Attendance (FA)." Students who stop attending on or before this date receive an FA; students who stop attending after this date receive an F.

For online courses, attendance is defined by submission of assignments. Students who fail a course and whose last assignment is submitted on or before the FA date will earn an FA for the course. Students who fail a course and whose last assignment is submitted after the FA date will earn an F for the course. An FN is assigned to students who do not submit any assignments.

(*While the above information should appear in all syllabi, faculty are encouraged to make additional statements that would clarify the policy for students and provide the applicable FA date for their section.)*

FN

An FN is awarded to students who never attended class.

Technology Statement

- All classes at the College are web enhanced.
- It will be essential for students to have access to a computer and an internet connection to complete assignments, engage in online discussions, and access various course materials through D2L/NS Online course shells.
- Students may also be required to use free video conferencing platforms (ex: Zoom, Teams) for classes and meetings.
- Students will be responsible for appropriate dress while on video, to ensure a distraction free environment (mute sound as needed) and to ensure their background is neutral for others to view.
- If you have questions or concerns regarding access to a computer or internet resources, please contact your instructor. Additional information available: https://www.nscc.edu/current-students/student-online-resources/access-to-internet-and-technology.
- Certain publisher materials may not work on cellphones.

Computer Labs

Computers are available for student use at each campus during campus open hours. Open computer lab availability for Fall 2020 may vary from campus to campus.

Students should check NSCC website for current hours of operation.

D2L/NS Online and myNSCC

It is students' responsibility to check D2L/NS Online course shells for all enrolled courses and myNSCC, including student email, on a regular basis. These are the official communication channels between the college and students, who are responsible for the information communicated through those channels. D2L/NS Online contains specific course information and myNSCC contains information important for other purposes.

ADA Compliance Statement

Nashville State complies with the Americans with Disabilities Act (ADA). If you require accommodations for any courses in which you are enrolled, contact the Access Center at 615.353.3741 or 615.353.3721, or e-mail accesscenter@nscc.edu. If you are registered with the Access Center and require an alternate format for the textbook and other course materials, please contact the Access Center.

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 measures. Please review the Nashville State Student Code of Conduct policy. Please be aware that children are not allowed in class or to be left unattended on campus.

Academic Misconduct

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. Students are responsible for understanding and abiding by the Academic Misconduct Policy in the

Nashville State Student Code of Conduct. In addition to other possible disciplinary measures that may be applied 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.

(*Each instructor will outline his/her expectations for academic integrity and provide individualized information about consequences for academic misconduct.*)

Academic Early Alert System

Nashville State Community College uses an Early Alert System to let students know of a faculty member's concern in one or more of these academic areas: lack of attendance, lack of classroom participation, late or missing assignments, and/or poor performance on assignments/tests. *Please note that Early Alerts do not affect a student's academic standing. If you receive an Early Alert email, please see your instructor and your academic advisor as soon as possible.

RAVE Emergency Alert System

Emergency events can happen at any time, and Nashville State Community College wants 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://www.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.

Student Wellness

- The general well-being of students is an important component of their academic success. With this in mind, Nashville State Community College has several resources available to provide support when needed:
    - Students with general, non-academic questions and concerns about COVID-19 may email virusinfo@nscc.edu.
    - Five free telephone therapy sessions are available via Agape Counseling by calling 615-781-3000.
    - Online tutoring is available via NetTutor within the D2L course shells.
    - A comprehensive list of online student resources may be found at https://www.nscc.edu/current-students/student-online-resources
    - A comprehensive list of student support services may be found at https://www.nscc.edu/current-students/on-campus-resources/student-support-services

Equity Statement

Nashville State Community College has a relentless commitment to the transformation of our institution through the intentional design of college experiences that expect and promote excellence from students, faculty, staff and administration. We consider equity to be an obligation of higher education.

We strive to ensure that each student receives what that student needs to be successful, with goals of success beyond the classroom. We do this through an evidence-based and collaborative effort, understanding that our student population has diverse needs that must be addressed. We recognize that this effort may not always be comfortable and that partnering with students is the driving force to overcome barriers to success.

Inclement Weather & Campus Closings

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

Even when campuses are closed, students are still responsible for completing all assigned work. When classes are cancelled, faculty will post online assignments and any additional instructions in the D2L/NS Online course shell. Check D2L/NS Online for a message from your instructor regarding your online assignment requirements. Faculty have discretion over adjusting deadlines or due date for assignments, but students are responsible for completing all assigned work by the due date established by the instructor**.**

Class Cancellation Policy

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

Communication Statement

In this time of uncertainty due to COVID-19, communication between student and faculty is key. At times, situations arise for one or both that makes that communication difficult or delayed. This can include but is not limited to health issues and/or problems with technology. If you have attempted to contact your instructor, and have waited the turnaround time as outlined in the syllabus but have not yet received a response, please reach out for additional support using this survey:

https://forms.gle/rM7rxFarksRFeA3b8