Contents

Course Information ............................................................................................................................................... 3

Course Title: Gen College Chem I/Lab: SC1 ........................................................................................................... 3
Course Prefix, Number & Section: ...................................................................................................................... 3
Credits: ............................................................................................................................................................. 3

Course Description: ........................................................................................................................................... 3
Guaranteed Transfer (GT) Pathways Course Statement: .................................................................................... 3
Prerequisite(s)/Co-requisites: ............................................................................................................................. 3
Semester and Year: ............................................................................................................................................ 3

Meeting Location, Times, and Days .................................................................................................................... 3
Start Date: ....................................................................................................................................................... 3
End Date: ............................................................................................................................................................ 3
Last date to drop with a refund: .......................................................................................................................... 3
Last date to withdraw: .......................................................................................................................................... 3
Date and Time of Final Exam: ............................................................................................................................ 3

Instructor Information ......................................................................................................................................... 3

Name: ............................................................................................................................................................... 3
Phone: ............................................................................................................................................................... 3
E-mail: .................................................................................................................................................................. 3
Office Location: ................................................................................................................................................... 3
Office Hours: ........................................................................................................................................................ 3

Course Information ............................................................................................................................................. 3

Required Course Materials ................................................................................................................................. 4
NATURAL & PHYSICAL SCIENCES (N&PS) CONTENT CRITERIA – GT-SC1 ....................................................... 4
COMPETENCIES & STUDENT LEARNING OUTCOMES FOR GT-SC1 .............................................................. 4
Course Competencies ........................................................................................................................................... 4
Topical Outline ..................................................................................................................................................... 5
Course Policies and Procedures .......................................................................................................................... 7
Evaluation/Grading Criteria ................................................................................................................................ 7
- The grade given will be the better of the two grades determined above ......................................................... 7

Percent Grade ..................................................................................................................................................... 7
Topical Outline/Calendar/Schedule ....................................................................................................................... 8
Chapter ................................................................................................................................................................. 8
Chapter Name ..................................................................................................................................................... 8
Exams .................................................................................................................................................................... 8

Standard College Policies .................................................................................................................................. 9
Attendance Policy .................................................................................................................................................. 9
Course Information

Course Title: Gen College Chem I/Lab: SC1

Course Prefix, Number & Section: CHE.111.102

Credits: 5

Course Description: Includes the study of measurements, atomic theory, chemical bonding, nomenclature, stoichiometry, solutions, acid and base, gas laws, and condensed states. Laboratory experiments demonstrate the above concepts qualitatively and quantitatively. Designed for non-science majors, students in occupational and health programs, or students with no chemistry background.

Guaranteed Transfer (GT) Pathways Course Statement: The Colorado Commission on Higher Education has approved CHE 101 for inclusion in the Guaranteed Transfer (GT) Pathways program in the GT-SC1 category. For transferring students, successful completion with a minimum C– grade guarantees transfer and application of credit in this GT Pathways category. For more information on the GT Pathways program, go to http://highered.colorado.gov/academics/transfers/gtpathways/curriculum.html.

Prerequisite(s)/Co-requisites: Co-requisite: College algebra or permission of instructor.

Semester and Year: Fall, 2019

Meeting Location, Times, and Days: WRECT 106, 9:15-10:30 am, MWF and WRECT 110, 7:25-9:05 am, TR

Start Date: August 19, 2019

End Date: December 11, 2019

Last date to drop with a refund: September 5, 2019

Last date to withdraw: November 11, 2019

Date and Time of Final Exam: Wednesday December 11, 2019 7:45-9:45 am

Instructor Information

Name: Jay McLaughlin

Phone: 970-675-3254

E-mail: jay.mclaughlin@cncc.edu

Office Location: WRECT 119

Office Hours: M-R 10:45 am - 12:00 pm or by appointment

Course Information

The instructor reserves the right to make changes to the course and course policies. Any changes will be noted in the addendum.
Required Course Materials
Lab Book: Chemistry 111 Lab Book (available in the book store only)
Scientific Calculator
Access to www.chemhaven.org/che111

NATURAL & PHYSICAL SCIENCES (N&PS) CONTENT CRITERIA – GT-SC1
1. The lecture content of a GT Pathways science course (GT-SC1)
   a. Develop foundational knowledge in specific field(s) of science.
   b. Develop an understanding of the nature and process of science.
   c. Demonstrate the ability to use scientific methodologies.
   d. Examine quantitative approaches to study natural phenomena.
2. The laboratory (either a combined lecture and laboratory, or a separate laboratory tied to a science lecture course) content of a GT Pathways science course (GT-SC1)
   a. Perform hands-on activities with demonstration and simulation components playing a secondary role.
   b. Engage in inquiry-based activities.
   c. Demonstrate the ability to use the scientific method.
   d. Obtain and interpret data, and communicate the results of inquiry.
   e. Demonstrate proper technique and safe practices.

COMPETENCIES & STUDENT LEARNING OUTCOMES FOR GT-SC1
Inquiry & Analysis:
   4. Select or Develop a Design Process
      a. Select or develop elements of the methodology or theoretical framework to solve problems in a given discipline.
   5. Analyze and Interpret Evidence
      a. Examine evidence to identify patterns, differences, similarities, limitations, and/or implications related to the focus.
      b. Utilize multiple representations to interpret the data.
   6. Draw Conclusions
      a. State a conclusion based on findings.
Quantitative Literacy:
   1. Interpret Information
      a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).
   2. Represent Information
      a. Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words).

Course Competencies
1. Recognize, define, and apply the vocabulary, symbolism, and nomenclature of chemistry.
2. Interpret the computed outcome of a chemical calculation to determine its validity.
3. Apply knowledge of chemical principles to real world situations.
4. Analyze and evaluate experimental observations, statements, and data using deductive reasoning and problem solving skills.
5. Use experimental observations and data to formulate predictions, propose trends, and identify patterns of physical or chemical behavior.
6. Synthesize and apply multiple chemical principles to solve complex problems, including stoichiometry, dimensional analysis, solution concentration, and gas laws.
7. Convert descriptive, conceptual, and experimental information into mathematical equations, graphs, diagrams, and tables and use these results to formulate conclusions and to discuss implications and limitations.
8. Convert mathematical equations, graphs, diagrams, and tables into descriptive or conceptual explanations, and use these results to formulate conclusions.

9. Demonstrate problem solving ability by selecting or developing the methodology or theoretical framework to solve a variety of chemistry problems.

10. Use the principles of atomic theory, bonding theory, periodic properties, gas laws, and chemical reactivity to formulate predictions, propose trends, and identify patterns of physical or chemical behavior.

11. Write and speak clearly and logically in presentations, essays, and/or lab reports about topics related to chemistry.

12. Demonstrate the ability to select and apply appropriate forms of technology to solve problems or compile information in the study of chemistry.

13. Perform hands-on chemistry activities and labs with observations of demonstrations and simulations playing a secondary role.

**Topical Outline**

I. **Foundations of chemistry**
   A. Measurements
   B. Dimensional analysis
   C. Matter, classification of matter, physical and chemical changes,
      Properties of matter
   D. Scientific method

II. **Atomic theory and structure**
   A. History of the atom
   B. Modern atomic theory - quantum mechanics approach
   C. Electronic configuration and orbitals of atoms
   D. Periodic table and periodicity
   E. Nomenclature of inorganic compounds

III. **Chemical bonding and molecular geometry**
   A. Types of chemical bonding
   B. Periodic table and chemical bonding
   C. Polyatomic ions
   D. Octet rule, exceptions to octet rule
   E. Lewis structures
   F. VSEPR theory and valence bond theory
G. Molecular geometry and polarity

IV. Stoichiometry
   A. Chemical equations
   B. Types of chemical reactions
   C. Balancing chemical equations
   D. The mole
   E. Stoichiometry, limiting reactants, and percent yield
   F. Determination of molecular and empirical formulas
   G. Solution calculations
   H. Concentrations of solutions
   I. Solution stoichiometry

V. Gases
   A. Description of the gas state
   B. Kinetic molecular theory
   C. Gas laws
   D. Gas stoichiometry

VI. Thermochemistry
   A. Thermochemistry terminology
   B. The first law of thermodynamics
   C. Calorimetry
   D. Hess's law
Course Policies and Procedures

Expectations for satisfactory student performance
- Be on time and attend all classes and laboratory sessions.
- Read related text, and other assigned reading, prior to the class session in which it will be discussed.
- Read laboratory exercises, complete the pre-lab) and be prepared to begin laboratory procedures upon entering the lab.
- Expect to spend approximately 2 hours, for every hour spent in class, reviewing, reading, answering all homework questions, and studying. This serves to keep the student up to date with the material and does not include time needed to “cram” for exams.

Cell Phones
- Cell phones are a source of considerable distraction and disrespect. Please limit (zero) your use of the devices in class.
- Proper use of cell phones could be to record lecture, take screenshots of lecture, write down due dates.
- Improper use of cell phones includes (but is not limited too) looking up answers, texting, browsing the internet, and playing games.
- A ringing, vibrating or otherwise distracting cell phone not only distracts the owner but others around as well. The penalty for texting, phone ringing, answering your phone, or using your phone will be a 10% deduction on the next exam.
- If cell phones become problematic they will be banned in class. Any usage will result in a zero for the current homework, lab or exam.

Attendance
- Attendance is required for performance in this course. Missing class for any reason is detrimental to a student’s grade. Because of this, every three unexcused absences will result in a 5% decrease in the overall grade. Excused absences include athletic events, field trips, illness with doctors note (if you are not sick enough to go to the doctor, you are not sick enough to be excused from class), and family emergency (death etc.). To be excused the student must ensure the instructor is notified in writing and in advance.
- Laboratory exercises are essential “hands-on” experiences and cannot be made up. Absence from 3 or more laboratory sessions will result in a grade of F in the lab, and will result in failure of the class.

Course content and assessment
- Class will consist of lecture, demonstrations, movies, student presentations, and discussions. Although the text is generally followed, the student is responsible for all material covered in class and any related or assigned reading.

Homework
- Homework is optional, but highly recommended.
- Homework assignments will be given for each chapter. The assignments will be handed out in class or posted on the website.
- Homework is due 2 days after the being assigned at the beginning of class. For example Monday’s homework is due Wednesday and Wednesday’s homework is due Friday.
- At the discretion of the instructor homework may be turned in one class day late for full credit. (For example if the assignment is due Mon, then you may turn it in any time up until Tue at 7:45 am for full credit)
Homework assignments will be worth ZERO points once the graded assignment is handed back.
- Not showing up, oversleeping, excused absences etc. does not negate the due date/time.

Laboratory
- Laboratory sessions will each consist of brief lecture, activities, and review questions. Students are graded on their preparation, performance, and participation.
- Labs handed in late will receive a 20% late penalty per day. At the discretion of the instructor labs may be turned in one class day late for full credit
-Labs turned in after the graded lab is returned are worth ZERO points.

**Exams**
- Exam dates will be determined at least 1 week in advance.
- Missed tests can be made up for full credit only for excused absences and when the instructor is notified in advance and in writing. Missed exams must be made up the first day the student returns to class.
- Without prior arrangements, 25% will be deducted off your test grade per day late.
- Save your tests! There will be a final exam, the chapter tests will help you prepare for your final.

**Evaluation/Grading Criteria**
- One final grade is given for the combined performance in class and laboratory. Your grade will be calculated as either:
  - 60% Exams, 20% Homework, 20% Lab or
  - 80% Exams, 20% Lab
- The grade given will be the better of the two grades determined above.
- Current Grade can be accessed at [https://cncc.desire2learn.com/](https://cncc.desire2learn.com/) (D2L) Note: D2L only supports one grade calculation, the default is to include the homework.
- Grades are based on the standard scale:

<table>
<thead>
<tr>
<th>Percent</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
<td>A</td>
</tr>
<tr>
<td>80%</td>
<td>B</td>
</tr>
<tr>
<td>70%</td>
<td>C</td>
</tr>
<tr>
<td>60%</td>
<td>D</td>
</tr>
<tr>
<td>59% or less</td>
<td>F</td>
</tr>
</tbody>
</table>

**Cheating**
Students are expected to conduct themselves in an honest, scholarly manner in accordance with college policies. Turning in work that is not 100% original and belonging to the student will result in a ZERO (F) for that assignment. Furthermore, the student will be reported to the Dean of Instruction for further disciplinary sanctions in accordance with CNCC policies. Providing materials that are used for copying is considered cheating and will be treated as above.

**Topical Outline/Calendar/Schedule**

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Chapter Name</th>
<th>Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Matter and Measurement and Problem Solving</td>
<td>Exam 1</td>
</tr>
<tr>
<td>2</td>
<td>Atoms and Elements</td>
<td>Exam 2</td>
</tr>
<tr>
<td>3</td>
<td>Molecules, Compounds and Chemical Equations</td>
<td>Exam 3</td>
</tr>
<tr>
<td>4</td>
<td>Chemical Quantities and Aqueous Reactions</td>
<td>Exam 4</td>
</tr>
<tr>
<td>5</td>
<td>Gases</td>
<td>Exam 5</td>
</tr>
<tr>
<td>6</td>
<td>Thermochemistry</td>
<td>Exam 6</td>
</tr>
<tr>
<td>7</td>
<td>The Quantum-Mechanical Model of the Atom</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Periodic Properties of the Elements</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Chemical Bonding I: Lewis Structures</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Chemical Bonding II: Molecular Shapes, Valence Bond Theory and Molecular Orbital Theory</td>
<td></td>
</tr>
</tbody>
</table>
Standard College Policies

Attendance Policy
Students should explain the reasons for absence to their instructors. The student is responsible for making up work missed due to any absence, including those involving College-sponsored athletic, academic, or recreational trips. **Students will not be penalized for absences due to College-sponsored activities; however, instructors reserve the right to assign relevant, alternative work for missed class time due to such an activity.** Absences for extenuating circumstances or activities outside of a College-sponsored activity may be excused by the Dean of Instruction or the Vice-President of Instruction and Student Affairs with notification to the faculty.

Academic Integrity Policy
Colorado Northwestern Community College considers academic dishonesty, which includes cheating and plagiarism, to be an extremely serious offense, and will be dealt with by appropriate disciplinary action up to and including suspension. The word “cheating” refers to the acts of giving, utilizing, or receiving un-permitted aid during examinations or in the preparation of reports or any other class work that the instructor will use as a basis for evaluation. The word “plagiarism” refers to the use of another person’s work without giving proper credit to that person. When paraphrasing another person’s work (i.e., borrowing but rewording that person’s facts, opinions, or ideas), a student must give proper credit through the use of appropriate documentation. When copying verbatim another person’s work (i.e., words, phrases, sentences, or entire passages), a student must credit that person through the use of quotation marks and appropriate documentation.

Anti-Discrimination Policy
Colorado Northwestern Community College prohibits all forms of discrimination and harassment including those that violate federal and state law, or the State Board for Community Colleges and Occupational Education Board Policies 3-120 and 4-120. The College does not discriminate on the basis of sex/gender, race, color, age, creed, national or ethnic origin, physical or mental disability, veteran status, pregnancy status, religion, genetic information, gender identity, or sexual orientation in its employment practices or educational programs and activities. Colorado Northwestern Community College will take appropriate steps to ensure that the lack of English language skills will not be a barrier to admission and participation in vocational education programs.

Americans with Disabilities Act
Any student, who believes he/she has a disability, as outlined in the Americans with Disabilities Act, and would like reasonable accommodations, should set up an appointment to discuss this with the ADA Coordinator on his/her respective campus. Faculty is not allowed to provide accommodations without proper notification from the ADA Coordinator.
**Early Alert**
All instructors participate in CNCC’s Early Alert system. Every three weeks, your grades will be submitted to members of the Student Success Team. In addition, your instructor may speak to you directly about his/her concerns regarding a number of possible issues, including absence, late or missing submissions, poor or high performance on assessments, etc. The electronic Early Alert system is designed to supplement this communication and allow instructors to request additional early intervention for students from a CNCC advisor or specialist. The hope is to provide you the support you need to be successful and to share information about additional learning opportunities the college offers. Alerts can be sent throughout the semester, can be in response to positive or negative performance, and are designed to link you with support opportunities here at CNCC, such as tutoring services, honors programs, financial aid resources, etc. If you are contacted by a CNCC advisor, please speak with him/her and your instructor to find out more about the nature of the alert and the supports and services your instructor has recommended.

**Statement Regarding Mandatory Reporting**
Our College is committed to preserving a safe and welcoming educational environment for all students. As part of this effort, I have an obligation to report certain issues relating to the health and safety of campus community members. I must report to the appropriate College officials any allegation of discrimination or harassment. Sexual misconduct, which includes sexual harassment, non-consensual sexual contact, non-consensual sexual intercourse, and sexual exploitation, is considered a form of discrimination. In addition to reporting all discrimination and harassment claims, I must report all allegations of dating violence or domestic violence, child abuse or neglect, and/or credible threats of harm to yourself or others. Such reports may trigger contact from a College official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual.

If you would like more information, you may reach the Title IX Coordinator: 970-824-1102 or the EO Coordinator at 970-675-3335.

Reports to law enforcement can be made at 970-675-8467 in Rangely or 970-824-1111 in Craig.

If you would like a confidential resource, in Rangely, please contact Counseling and Advocacy at 970-629-5729 or 670-629-0709. In Craig contact Advocates Crisis Support Services at 970-824-9709 or 970-827-2400.

Further information may be found on the College web site: [Sexual misconduct title ix](#)