SYLLABUS
11931/11932 Fall 18
CHE*K121 General Chemistry I
Three Rivers Community College
Norwich, Connecticut 06360

Welcome to General Chemistry I Course. I hope you had enjoyed your summer break!

Instructor: Dr. Shaneela Nosheen

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Office hours: Upon Request. Please talk to your instructor ahead to set a meeting time.

Disabilities Notice:

If you have a disability that may affect your progress in this course, please meet with a Disability Service Provider (DSP) as soon as possible. Please note that accommodations cannot be provided until you provide written authorization from a DSP.

TRCC Disabilities Service Provider: Matt Liscum (860) 215-9265
Counseling & Advising Office
Room A-119

- Physical Disabilities
- Sensory Disabilities
- Medical Disabilities
- Mental Health Disabilities
- Learning Disabilities
- ADD/ADHD
- Autism Spectrum

BOARD OF REGENTS FOR HIGHTER EDUCATION AND CONNECTICUT STATE COLLEGES AND UNIVERSITIES POLICY REGARDING SEXUAL MISCONDUCT REPORTING, SUPPORT SERVICES AND PROCESSES POLICY

"Title IX of the Education Amendments Act of 1972 protects students, employees, applicants for admission and employment, and other persons from all forms of sex discrimination, including discrimination based on gender identity or failure to conform to stereotypical notions of masculinity or femininity. All students are protected by Title IX, regardless of their sex, sexual orientation, gender identity, part or full-time status, disability, race, or national origin, in all aspects of educational programs and activities." Please Report Student Incidents to: Maria Krug, Title IX Coordinator, Three Rivers Community College, 574 New London Turnpike Norwich, CT 06360 Room C131, (860) 215-9208, mkrug@trcc.commnet.edu

Non-discrimination policy:

Three Rivers Community College does not discriminate on the basis of race, color, religious creed, age, sex, national origin, marital status, ancestry, present or past history of mental disorder, learning disability or physical disability, sexual orientation, gender identity and expression, or genetic information in its programs and activities. In addition, the College does not discriminate in employment on the basis of veteran status or criminal record.

The following person has been designated to handle inquiries regarding the non-discrimination policies: Ken Saad, Equity and Diversity Officer, Three Rivers Community College, 574 New London Turnpike Norwich, CT 06360, (860) 215-9319, KSaad@trcc.commnet.edu.

Course: General Chemistry 1/CHE*K121

Credits: 4 credit hours (3hr lecture/3hr lab each week)

Course Description: Basic study of the principles, theories and laws of chemistry. Students study the atomic theory of matter, nomenclature, chemical formulas and reaction equations, stoichiometry, the gas laws and the kinetic molecular theory, thermochemistry, atomic structure, periodicity of the elements, chemical bonding and molecular structure. This course is the first half of an introduction to the fundamentals of chemistry. It is designed to give students a foundation in the principles of chemistry, and to develop mathematical and analytical skills through a strong emphasis on problem solving. You should come to all lectures having read the suggested assignment in order to best understand the lecture material. It is in your best interest to work through the assigned homework problems to ensure full comprehension of class material. Homework problems and sample exercises in the text are the best preparation for exams. I encourage you to get in touch with me concerning any problems that come up in the course. Do not put this off until the day before an exam, but rather get in touch with me as soon as problems arise so that you will not fall behind.
Students also have the opportunity to study and explore many of these topics in the associated laboratory course, CHE 121 Lab, which must be taken concurrently with CHE 121 Lecture.

Prerequisites: MAT* K186 with a "C" grade or better.

Text: *Chemistry The Central Science*, 14th ed., Brown, LeMay, Bursten, Murphy, Woodward, Stoltzfus; Pearson Publishing.

Lab Manual: *CHE 121 General Chemistry I Laboratory Exercises*, M. Carta, Academy.

Other Required Materials: Chemical safety goggles which are indirectly vented for splash and impact protection, scientific calculator.

Class Attendance Policy:

Attendance of all class activities in lecture and laboratory is required. Absences are counted from the first meeting of class. More than four consecutive or more than six accumulative absences could result in a student receiving an "F" grade in this course. An explanation of the cause of all absences should be given to your instructor either by phone/email or personally. Any missed handouts or other supplemental material may be obtained from BlackBoard.

Academic and Classroom Misconduct:

The instructor has primary responsibility for control over classroom and/or laboratory behavior and maintenance of academic integrity and can request the temporary removal or exclusion from the classroom or laboratory of any student engaged in conduct that violates the general rules and regulations of the institution. This includes any student engaged in conduct deemed hazardous in the laboratory. Extended or permanent exclusion from lecture or laboratory activities or further disciplinary action can only be effected through appropriate procedures of the institution. Plagiarism, cheating on quizzes or tests, or any form of academic dishonesty is strictly prohibited. Students guilty of academic dishonesty directly or indirectly will receive a zero for the exercise or quiz or test and may receive an "F" grade for the course in addition to other possible disciplinary sanctions which may be imposed through the regular institutional procedures. Any student that believes that he or she has been erroneously accused may appeal the case through the appropriate institutional procedures if their grade was affected.

College Withdrawal Policy:

Any student who finds it necessary to discontinue this course MUST complete a withdrawal form in the Registrar's Office at the time of the withdrawal. Students may withdraw from the course any time during the 14 weeks of class to receive a "W" grade for the course (Deadline will be announced). Students who do not withdraw, but stop attending will be assigned an "F" grade in in this course. Verbal withdrawals CANNOT be accepted. If you are unable to withdraw in person, you may call the Registrar's Office and provide them with the appropriate information. Once you withdraw from the course you are no longer eligible to attend class or take any remaining quizzes or tests.

Revisions to the Syllabus:

Students are responsible for learning all of the objectives and all of the items in the course outline whether they are discussed in lecture and/or laboratory or not. The instructor reserves the right to revise the objectives, topical outline, or academic schedule contained in this syllabus without notice. However, if the revisions affect scheduled unit tests a 48-hour notice will be given for the new test date.

Exams: There will be 3 exams (1 hour each) given during the regular class/lab period. Exams must be taken at the

assigned time except under extreme circumstances. The tentative exam schedule is:

Grade Determination:

3 Unit Tests….....45%	Exam #1 25th Sep
Final exam Cumulative……25%	Exam #2 25th Oct
Online Homework/Daily lecture quizzes……10%	Exam #3 27th Nov
Lab ……..…… 20%	Tentative Finals ----13th Dec

Grade Scale: There will be no grading on the normal distribution curve.

100.00 - 93.50 = A	79.49 - 77.50 = C+	59.49 - 00.00 = F
93.49 - 90.00 = A-	77.49 - 73.50 = C	
89.99 - 87.50 = B+	73.49 - 69.50 = C-	
87.49 - 84.50 = B	69.49 - 63.50 = D+	
84.49 - 79.50 = B-	63.49 - 59.50 = D	

Make-Ups: There are no make-up hour exams. If a student misses an exam due to an accepted documented reason their final exam grade will be substituted in for the missing exam grade for the purposes of grade calculations. There are also no make-up quizzes due to absences for any reason (see exceptions for athletes, etc.). The lowest quiz score will be dropped for those students who take all quizzes. A missed quiz for any reason will be entered as a zero and as a lowest quiz score will be dropped from the computation of the quiz average. No more than one quiz may be dropped from the quiz average. Extended absences for documented reasons will be handled on a case-by-case basis. Athletes or those who are participating in an organized University sponsored function must provide acceptable documentation for an absence on a test or quiz day and must contact their instructor in advance to schedule to take the exam or quiz before it is given to the remainder of the class. Any supplemental material can be obtained from the instructor. Lab work can only be made up during the week of the missed experiment with permission of the instructor in a scheduled lab period.

Laboratory**:** The laboratory portion of this course is required and a passing grade in lab must be obtained in order to pass K121. If a student misses four or more labs throughout the semester, that student cannot receive credit for having completed the K121 even if the absences are excused and legitimate. **A failing lab grade will automatically result in a failing grade for the entire course. Late arrivals in the lecture or lab are not allowed.** Lab report should be typed and submitted on the next week of that lab. Lab report will be graded on **W**riting and formatting, **C**alculations, **A**ccuracy of results and **T**ables, graphs and summary of the lab (**WCAT**). Lab report format would be provided to you as a handout on the first day of lab.

Late lab reports:

All the lab reports are due at the start of the next scheduled meeting of the students' regular lab section. Late lab report will be subject to a 25% (5point) grade deduction (5% (1 point off per day late). Reports turned in more than one week late will receive a grade of zero.

Lab cleanup:
Before you leave the lab, you will be required to clean your station. This includes all of your glassware, equipment, tray, bench top, and your entire work area. Your lab instructor will not sign you out of lab if your work area is not clean.

Sign out:
In order for you to be able to leave lab, your instructor must sign your lab data sheets in the lab manual. If you leave the lab without your instructor signature this will result in a zero for the lab.

Online Home Assignments**:**

Problem sets will be assigned and graded using the online Mastering Chemistry system. Each student must register for K121 on the Mastering Chem.com website. "Course Name: CHE 121 Fall 2018 and Course ID is nosheen44528"

"nosheen44528". Problems sets will have a due date and they must be completed by that time. Mastering Chem problem sets are interactive learning, meaning assistance can be asked for if a student is having difficulty with a problem. These problem sets and problems at the end of the chapters in the text are very beneficial in learning the material. Students should also work additional problems at the end of each chapter until they have a good understanding of the material in preparation for exams.

Cell Phones and/or beepers:

Cellular phones and beepers are only allowed in class or lab if they are turned off or in silent mode. Under no circumstances are phones to be answered in class. When there are extenuating circumstances that require that a student be available by phone or beeper, that student must speak to the instructor prior to class, so that together they can arrive at an agreement. **A cell phone is not permitted as a substitute for a calculator.**

In-Class Etiquettes**:**

Avoid coming to class late, leaving class early, or leaving and returning during class (except for emergencies in which case you must notify the instructor). Such behaviors are unwelcome distractions and, at the discretion of the instructor, will be recorded as an absence.
Personal behavior in the classroom, including the language used, will at all times be respectful, appropriate, and professional. Disrespectful or insubordinate behavior (such as the use of foul or inappropriate language) will be deemed sufficient cause for **dismissal from the course**.

Any student who is unable, because of their religious beliefs, to attend classes or to participate in any examination, study, or work requirement on a particular day shall be excused from any such examination or study or work requirement, and shall be provided with an opportunity to make up such examination, study, or work requirement which he may have missed because of such absence on any particular day; provided however that such makeup examination or work shall not create an unreasonable burden upon such school.

Learning Portfolio:

All students are required to maintain an online learning portfolio in Digication that uses the college template.

Course Topics and Text Chapters:

	Chapter	
Introduction Matter and Energy	1	
Atoms, Molecules, and Ions	2	
Stoichiometry	3	
Reaction in Aqueous Solutions	4	
Gases	5	
Energy Relationships in Chemical Reactions	6	
Electronic Structure of Atoms	7	
The Periodic Table	8	
Chemical Bonding; The Covalent Bond	9	
Basic Concepts of Chemical Bonding	10	
Molecular Geometry and Bonding Theories (Brief)		
Colligative Properties	12	(basic concepts)

Acceptance Policy: After reading this syllabus, choosing to stay registered for this course exemplifies your acceptance of the syllabus and all policies and consequences outlined in the syllabus. If you don't agree with any of the terms in the syllabus, you are free to withdraw.

Disclaimer: The instructor has the right to change/modify this syllabus at any time with proper notification to the class.

Schedule for 31127.116311-31127-Fall 2018- Gen Chem-1 Lab

WEEK	THURSDAY
1	**8/30 Orientation/safety**
2	**9/6 Measurements and Density**
3	**9/13 Formula of a Hydrate**
4	**9/20 Stoichiometry**
5	**9/27 Acid-Base Titration (part one)**

6	**10/4 Acid-Base Titration (part two)**
7	**10/11 Gas Stoichiometry**
8	**10/18 Calorimetry**
9	**10/25 Midterm Exam**
10	**11/1 Qualitative Analysis**
11	**11/8 Molar Mass by Vapor Density**
12	**11/15 Molecular Models and Lewis Structures I**
13	**11/22 THANKSGIVING**
14	**11/29 Chemistry of Copper**
15	**12/6 Molar Mass by Freezing Point Depression**
16	**12/13 Final Exam**

Course Objectives: CHE K121- General Chemistry I

1. The student will be able to convert English to metric units and vice versa.
2. The student will learn how to report a result to the correct number of significant figures.
3. The student will learn the difference between elements, compounds, solutions and heterogeneous mixtures.
4. The student will be able to determine the number of protons, neutrons and electrons in atoms or ions of a given isotope.
5. The student will be able to distinguish between metallic and nonmetallic properties.
6. The student will be able to distinguish between mass and weight.
7. The student will become familiar with the SI units of mass, volume, length, area, pressure, density, force and energy.
8. The student will learn the proper use of volumetric equipment in the laboratory.
9. The student will learn proper use of balances to measure mass.
10. The student will be able to determine the number of atoms, ions or molecules in a given mass of substance.
11. The student will become familiar with the terms cation, anion and polyatomic ion.

12. The student will be able to determine oxidation numbers.
13. The student will learn both systematic and common naming conventions for inorganic compounds.
14. The student will learn how to determine empirical formula.
15. The student will learn the concept of structural formula and how to write Lewis structures.
16. The student will learn how to determine molecular formula from empirical formula and molar mass.
17. The student will be able to work with the following concentration units: molarity, molality, % by mass, % by volume, parts per million.
18. The student will be able to write and balance chemical equations.
19. The student will be able to distinguish between various reaction types such as synthesis, decomposition, displacement, oxidation-reduction and acid-base neutralization.
20. The student will be able to perform stoichiometric calculations to determine limiting reagent, theoretical and percent yield.
21. The student will understand the differences between acids and bases, including the concept of pH.
22. The student will learn how to interpret the periodic table and be able to predict periodic properties.
23. The student will be able to perform calculations involving the gas laws.
24. The student will be able to understand the basic energy relationships in endothermic and exothermic processes and be able to perform calculations involving energy changes, including calorimetry.
25. The student will be able to understand basic atomic theory including early models of the atom.
26. The student will be able to understand the concept of atomic orbitals and the rules of orbital filling.
27. The student will learn how to write electron configurations using the periodic table.
28. The student will be able to understand the definition of quantum numbers and how they relate to electronic structure.
29. The student will be able to define ionization energy and electron affinity.
30. The student will be able to understand the basic concepts of chemical bonding including electronegativity, valence electrons and electrostatic forces.
31. The student will be able to define ionic and covalent bonds and distinguish between ionic and covalent (molecular) compounds.
32. The student will learn the concept of resonance.
33. The student will be able to understand the concept of bond dipoles and determine polarity of molecules.
34. The student will learn how to predict molecular geometry using valence shell electron-pair repulsion theory (VSEPR).

35. The student will be able to distinguish between sigma and pi bonds.
36. The student will be able to understand the concept of orbital hybridization.
37. The student will be able to understand molecular orbital theory, including bonding and antibonding orbitals.
38. The student will learn the basic properties of liquids and solids.
39. The student will be able to differentiate between intramolecular and intermolecular forces.
40. The student will learn the difference between hydrogen bonds, dipole-dipole forces, ion-dipole forces and dispersion forces.
41. The student will be able to understand phase changes and phase diagrams.
42. The student will learn the basics of crystal structure.
43. The student will learn the properties of solutions, including solution terminology and electrolyte behavior.
44. The student will learn how to use the dilution equation ($M_iV_i = M_fV_f$) to prepare various solutions.
45. The student will be able to define colligative properties.
46. The student will learn how to calculate freezing point depression and boiling point elevation.