Course Syllabus
General Chemistry 1411
Spring 2015

Math, Natural Science & Sports Sciences Learning Center
Division Office: P-330
Phone: 972-273-3500
Hours: Monday – Thursday 8 a.m.- 8:30 p.m.
Friday 8 a.m.- 4:30 p.m.

This course syllabus is intended as a set of guidelines for Introductory Chemistry 1411. Both North Lake College and your instructor reserve the right to make modifications in content, schedule, and requirements as necessary to promote the best education possible within prevailing conditions affecting this course.

Instructor Information:
Instructor: Prof. Christopher McAdams
Email: clmcadams@dcccd.edu
Office Phone: 972-273-3252
Office: C357
Office hours: MW 3:30 – 4:30 PM
T 2:00 – 3:00 PM
R 11:00 AM – 12:00 PM
F 12:45 – 1:45 PM

Course Information
Course title: General Chemistry 1411 Section 72201
Credit hours: 4 credit hours
Class meeting time: Lecture MTWRF 8:30 AM – 11:40 AM; Lab MTWRF 12:00 PM – 3:00 PM
Course description: This course is for science and science-related majors including health sciences and engineering. Fundamental principles of chemistry are presented including measurements, fundamental properties of matter, states of matter, the history of chemistry, chemical reactions, chemical stoichiometry and the mole concept, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry. Basic laboratory experiments support the fundamental principles and include the introduction of the scientific method, data collection and analysis and the preparation of laboratory reports.
Course prerequisites: DMAT 0093 or DMAT 0099 or the equivalent. DREA 0093 or ESOL 0044 or have met the Texas Success Initiative (TSI) standard in Reading. Students should also have had previous chemistry experience.

Required Textbooks and Materials
Course Objectives

The course objective is to demonstrate a general knowledge of the basic concepts in chemistry, and to prepare the student for General Chemistry II.

Specific Course Learning Outcomes

Upon successful completion of this course (according to the ACGM from the Texas Higher Education Coordinating Board), students will:

1. Define the fundamental properties of matter. Describe the history; relate basic laws and theories to the behavior of matter.
2. Classify matter, compounds, and chemical reactions. Differentiate between ionic and molecular compounds.
3. Determine the basic nuclear and electronic structure of atoms. Investigate the quantum mechanical model of the atom recognizing the historical contributions, write and interpret quantum numbers for the electrons in an atom. Write electronic configurations and show the correlation to chemical properties.
4. Identify trends in chemical and physical properties of the elements using the Periodic Table. Recognize the correlation between electronic structure and the organization of the periodic table.
5. Describe the bonding in and the shape of simple molecules and ions. Write Lewis structures: utilize the VSEPR theory to predict the shapes and polarities of molecules. Describe molecular orbitals using hybridization, distinguish between sigma and pi bonds, and account for properties using the molecular orbital theory.
6. Solve stoichiometric problems including calculations with empirical formulas, molecular formulas, limiting reactants, percent yield and molarity.
7. Write chemical formulas.
8. Write and balance equations.
9. Use the rules of nomenclature to name chemical compounds.
10. Define the types and characteristics of chemical reactions
11. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems. Describe the behavior and characteristics of gases.
12. Determine the role of energy in physical changes and chemical reactions. Determine methods of measurement of enthalpy, and perform related calculations. Recognize the environmental issues related to energy
13. Convert units of measure and demonstrate dimensional analysis skills; include the use of significant figures. Be able to express, interpret, and utilize
relationships between variables. Utilize data, including graphs, and interpret results.
14. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
15. Demonstrate safe and proper handling of laboratory equipment and chemicals.
16. Conduct basic laboratory experiments with proper laboratory techniques.
17. Make careful and accurate experimental observations.
18. Relate physical observations and measurements to theoretical principles.
19. Interpret laboratory results and experimental data, and reach logical conclusions.
20. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
21. Design fundamental experiments involving principles of chemistry.
22. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

**Course Outline**

Please see Appendix A attached to this syllabus for a complete and detailed course outline.

**Means of Assessment of Course Learning Outcomes**

These outcomes will be assessed using methods of testing through departmental exams, in class group work, Mastering Chemistry assignments, and written lab reports.

**Evaluation Procedures**

Homework problems are assigned and graded. You will be using MasteringChemistry, an online tutorial and homework program. Students are strongly encouraged to complete the assignments in preparation for the tests. Late homework will worth 50% of the total points so be sure to do the homework on time.

The lab reports will be graded by the following week in lab. You may look over your reports, but they will not be returned.

Exams will be graded and posted on eCampus immediately upon completion.

**Exams**

The 5 exams will be multiple choice and will be taken on the computer. Each exam (except the final) will be taken at the Testing Center on the stated dates. A green scantron is required for the final. The Testing Center is located in A425. The hours are M-R 8:30am to 8:00pm, F-Sat 8:30am to 3:30pm, and closed Sun. For more information about the Testing Center go to [http://www.northlakecollege.edu](http://www.northlakecollege.edu) and click on “Student and Campus Resources” and then “Learning Resources”, then “Testing Center”.

**Exams must be taken during the scheduled times!** Exams will be cumulative; however, they will focus on more recent material. The final exam will be given during
our scheduled time in the classroom. Test scores are usually posted on eCampus after the completion of a test. MAKE-UPS: For a missed exam with an excused absence, a make-up exam must be taken as soon as possible.

As you study, be sure to refer to the Learning Objectives for each chapter. These Learning Objectives will help you prepare for the exams and are located under the "Course Documents" button.

**Grading Scale**

The grades will be based on the following distribution

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five Exams*</td>
<td>50%</td>
</tr>
<tr>
<td>In-Class Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Mastering Chemistry (Online HW)</td>
<td>10%</td>
</tr>
<tr>
<td>Lab</td>
<td>30%</td>
</tr>
</tbody>
</table>

*You can take an optional Final Exam to replace your lowest grade in Exams 1 – 5.

A = 90-100   B = 80-89   C = 70-79   D = 60-69   F = 0-59

**Discipline/ Course/ Department/Policies**

**Classroom Policies:**

**Arrive on time** to class every day

**Actively participate** in class discussions.

Bring a scientific calculator (with log and scientific notation capabilities) every day. Any sort of communication device (cell phone, PDA, computer) will not be allowed during tests and quizzes. No Exceptions!

**Study** material before and after class. Expect to spend 3 hours outside of class preparing for each hour in class.

**Be courteous** to each other and to your instructor:

**Do not bring guests** (including children) to class.

**Do not disrupt class** with extraneous conversations (including phone calls), noise,

**Recording of lectures is not allowed** unless permission is obtained from the instructor.

**Silence all cell phones** before class.

Follow the Code of Student Conduct

The grade you are assigned at the end of the class is determined from the scores on your tests, quizzes, labs and homework. There is no extra credit, and it is inappropriate to ask for extra points just because you need them to attain a desired grade.

Students are responsible for all materials handed out and all announcements made during their absence regardless of the reason(s) of the absence.

Excused absences will only be offered for one of the following reasons: illness, death in family, official college business, or documented emergency. For any excused absence written documentation is required. To obtain an excused absence, email me or call me at 972-273-3252 by the next class period. Documentation should be brought to the next class meeting.
Science Learning Center
The Science Learning Center (SLC) provides student services in the following subjects (majors and non-majors): Biology, Botany, Microbiology, Anatomy and Physiology, Chemistry, Geology, Physics and Ecology.

The center is located in P-333 & P-334 and offers various resources all of which are free to the students. The SLC features tutors, software, videos, CDROM’s, internet, models, places to study quietly, places for group work, and other materials to assist in science classes. In order to access resources of the SLC a North Lake College ID Card is required. The subject specific schedule of tutors is updated every semester and is located at the front of the center, just ask a tutor.

When students attend SLC we ask that they sign in and out. This data helps us keep the center stocked, running, and most of all, free of charge!

Hours of operation – M-R 9 to 7, F and Sa 9-3

Contact information
Center Phone: 972-273-3273
Coordinators: Tara Arrington

INSTITUTIONAL POLICIES

ACADEMIC DISHONESTY
The Student Code of Conduct prohibits academic dishonesty and prescribes penalties for violations. According to this code, which is printed in the college catalog, "academic dishonesty", includes (but is not limited to) cheating, fabrication, facilitating academic dishonesty, plagiarism, and collusion”.

1) The Vice-President of Academic & Student Affairs may initiate disciplinary proceedings against a student accused of academic dishonesty.

2) Academic dishonesty includes, but is not limited to, cheating on a test, plagiarism and collusion.

3) Cheating on a test includes:
   a) Copying from another student’s test paper;
   b) Using, during a test, materials not authorized by the person giving the test;
   c) Collaborating with another student during a test without permission to do so;
   d) Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of an un-administered test.
   e) Substituting for another student, or permitting another student to substitute for you to take a test; and
   f) Bribing another person to obtain an unadministered test or information about an unadministered test.
4) “Plagiarism” means the appropriation of another’s work (ideas and/or words) and the unacknowledged incorporation of that work in one’s written work offered for credit. Quotes not identified as quotes constitute a form of plagiarism even if the borrowed ideas are documented.

5) “Collusion” means an unauthorized collaboration with another person in preparing written work offered for credit.

Academic dishonesty may result in the following sanctions, including, but not limited to:
1. A grade of zero or a lowered grade on the assignment or course.
2. A reprimand.
3. Suspension from the college.

NOTIFICATION OF ABSENCE DUE TO RELIGIOUS HOLY DAY(S)
Students who will be absent from class for the observance of a religious holiday must notify the instructor in advance. Please refer to the Student Obligations section of the college catalog for more explanation. You are required to complete any assignments or take any examinations missed as a result of the absence within the time frame specified by your instructor.

REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT
North Lake College provides academic accommodations to students with disabilities, as defined under ADA law. It is the student's choice and responsibility to initiate any request for accommodations. If you are a student with a disability who requires such ADA accommodations, please contact North Lake College's Disability Services Office in person (A414) or by phone at 972-273-3165.
http://www.northlakecollege.edu/resources/disability.html

ADMINISTRATIVE WITHDRAWAL
Students with valid extenuating circumstances may be eligible for an administrative withdrawal by the Dean of the Division in which the course or courses are taught. An administrative withdrawal will not be awarded to students who simply fail to withdraw prior to the last day to receive a “W.” The request for an administrative withdrawal must be made in writing to the Dean of the Division with any supporting documentation attached. This must occur before the last official day of the semester.

DROP POLICY
If you are unable to complete this course, you must officially withdraw by Saturday, February 28, 2015. Withdrawing is a formal procedure which you must initiate; your instructor cannot do it for you. All Dallas County Community Colleges charge a higher tuition rate to students registering the third time for a course. This rule applies to the majority of credit and Continuing Education / Workforce Training courses. Developmental Studies and some other courses are not charged a higher tuition rate. Third attempts include courses taken at any DCCCD college since the fall 2002 semester. For further information, go online to: http://www.DCCCD.edu/thirdcourseattempt.

STOP BEFORE YOU DROP
For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no
more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: https://www1.dcccd.edu/coursedrops

**FINANCIAL AID STATEMENT**

Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate are also subject to this policy.

To apply for financial aid in the DCCCD, students must complete FAFSA (Free Application for Federal Student Aid) on the web at: http://www.fafsa.ed.gov

**COUNSELING SERVICES (A311)**

Counseling services for personal issues are provided to all students currently enrolled at North Lake College at NO CHARGE. These services are provided by or supervised by licensed professionals who are bound by confidentiality (within ethical parameters). With the assistance of a counselor, students are able to identify, understand, resolve issues and develop appropriate skills.

To make an appointment call 972-273-3333 or go to A 311.

For additional information go to: http://northlakecollege.edu/services-and-resources/health-and-wellness/counseling-services/Pages/default.aspx

**THE ACADEMIC SKILLS CENTER (A332)**

The Academic Skills Center (ASC) is designed to provide assistance to students in the following areas:

- Labs for students enrolled in foreign language, Developmental Reading, and ESOL courses. One-on-one tutoring is available.
- The Writing Center can help students clarify writing tasks, understand instructors’ requirements, develop and organize papers, explore revision options, detect grammar and punctuation errors, and properly use and document sources. Rather than merely editing or "fixing" papers, tutors focus on helping students develop and improve their writing skills.
- The Online Writing Lab (OWL) allows students to submit papers to our writing tutors electronically and get feedback within 24-72 hours. The OWL can be accessed through eCampus. After logging on to eCampus, click on the Community Tab at the top. Type “Owl” in the search field and click “Go.” Next, click on the double drop-down arrows next to “NLC-OWL2,” and then click on “Enroll.” Once enrolled, students can receive services from the OWL.

For more information or to schedule a tutoring appointment, come by A-332 or call 972-273-3089.
**TESTING CENTER (A 425)**

Monday-Thursday: 8:30 a.m. – 8:00 p.m.

No tests will be issued after 7:00 p.m. Other cut-off times may be in effect for specific exams by the instructor’s direction. All exams collected at 8:00 p.m.

Friday-Saturday: 8:30 a.m.-3:30 p.m.

No tests will be issued after 2:30 p.m. Other cut-off times may be in effect for specific exams by the instructor’s direction. All exams collected at 3:30 p.m.

Sunday – CLOSED

If your instructor requires you to complete an exam in the Testing Center, be sure to have the following information when you request your test:

1. Instructor’s name
2. Subject, course number, and section number (exp: Speech 1311.7011)
3. Exam number (1\textsuperscript{st}, 2\textsuperscript{nd}, 3\textsuperscript{rd}, etc.)
4. Exam deadline (Get this information from your instructor. The testing staff cannot look up this information on computers).

You should also bring the following supplies:

1. Pencil
2. Scantron answer sheet
3. A Test Request Form must be completed before entering the Testing Center.
5. Government or school issued photo identification is required & enforced.

You may not bring personal items into the Testing Center. This includes bags, cell phones, and pagers.

Please show courteous and cooperative behavior while using the services provided by the Testing Center.

DO NOT bring children to the Testing Center. You must make arrangements for the care of your children prior to your exam date. The police department will be notified of any unattended children.

DO NOT take any testing materials with you when you leave the Testing Center. This includes the test, answers, charts, scratch paper. These items will be attached to your test.

Questions? Please visit the Testing Center (A 425) or call 972-273-3160.

**WRITING CENTER (A309)**

The Writing Center supports and supplements classroom instruction by providing focused, individualized writing tutoring in response to the specific needs of the student. The tutors are skilled writing specialists who can help students clarify writing tasks, understand instructors’ requirements, develop and organize papers, explore revision options, detect grammar and punctuation errors, and properly use and document sources. Rather than merely editing or “fixing” your papers, the Writing Center staff focuses on helping you develop and improve your writing skills. Be sure to schedule an appointment in advance so that a tutor will be available to work with you. Walk-ins are welcome, but you may have to wait or come back at a later time. You can also access the North Lake College Online Writing Lab through eCampus. Once you log into eCampus, click on the Community Tab at the top. Type in “Owl” in the search field to locate. Follow the instructions on the site to enroll in and receive services from the OWL.
The Writing Center is housed in the Academic Skills Center, A-332. Hours are: Monday through Thursday 8:00 a.m. to 8:00 p.m., and Friday 8:00 a.m. to 2:00 p.m. Saturday hours are 9:00 a.m. to 1:00 p.m. during fall and spring semesters. Hours will vary during other sessions. Appointments may be scheduled by visiting the Writing Center, calling 972-273-3089, or emailing nlcwritingcenter@dcccd.edu.

State Outcomes Core Curriculum

As part of the core, this course contributes to the development of 6 basic Program Level Outcomes. These Outcomes are essential to the learning process in any discipline and are defined by the Texas Higher Education Coordinating Board.

This course reinforces Program Level Outcome 1 with written and visual communications, Program Level Outcome 2, 3, and 4.

Program-Level Outcome 1: Communication Skills - to include effective development, interpretation and expression of ideas through written, oral and visual communication

1. Written: Process and produce effective written communication adapted to audience, purpose, and time constraints.

2. Oral: Produce effective oral communication adapted to audience, purpose, and time constraints.

3. Visual: Effectively interpret visual images or produce effective visual images.

4. Listening: Comprehend, and analyze oral information.

Program-Level Outcome 2: Critical Thinking Skills - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

Program-Level Outcome 3: Empirical and Quantitative Skills - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Program-Level Outcome 4: Teamwork - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Program-Level Outcome 5: Personal Responsibility - to include the ability to connect choices, actions and consequences to ethical decision-making

Program-Level Outcome 6: Social Responsibility - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.
**Learning Activities, Outcomes, and Assessment**

The following table shows how the Course Outcomes reflect the State Outcomes and are incorporated and assessed in the course.

<table>
<thead>
<tr>
<th>Learning Activity</th>
<th>Learning Outcomes</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Students will measure the volume of a metal cylinder using the direct and indirect methods in lab and will write a comparison of those methods in the lab report.</td>
<td>Students will write a comparison of two methods of determination of the volume of a solid with 70% proficiency</td>
<td>The students will be able to produce effective communication to express their ideas of the two different methods of volume determination in the lab report.</td>
</tr>
<tr>
<td><strong>2.</strong> Students will determine the correct number of significant figures in an image of thermometer with 70% proficiency on departmental exams.</td>
<td>Students will discuss their answers in class and in lab. The assessment is a question on the departmental exam.</td>
<td><strong>Program Level Outcome 1.1, Specific Course Outcomes 14, 19 and 20.</strong></td>
</tr>
<tr>
<td><strong>3.</strong> Students will predict the outcome of a precipitation reaction in aqueous solution at 70% proficiency on exam.</td>
<td>Students will discuss their answers in class and the assessment is the question on the departmental exam.</td>
<td><strong>Program Level Outcomes 2 and 3, Specific Course Outcomes 7, 8 and 10.</strong></td>
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</tbody>
</table>
**APPENDIX A**

<table>
<thead>
<tr>
<th>Week #</th>
<th>Monday</th>
<th>Wednesday</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Lab 1/19 – No Lab or Lecture today Martin Luther King Day</td>
<td>1/21 – Lab Intro; Syllabus Intro; Mastering Chemistry Info; Equipment Check-in; Safety Training Chapter 1</td>
</tr>
<tr>
<td></td>
<td>Lecture</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>2</td>
<td>Lab 1/26 – Safety Test; Complete Chapter 1 lecture during lab session.</td>
<td>1/28 – Measurement</td>
</tr>
<tr>
<td></td>
<td>Lecture</td>
<td>Chapter 2/3</td>
</tr>
<tr>
<td>3</td>
<td>Lab 2/2 – Separation of a Mixture</td>
<td>2/4 – % Water in a Hydrate</td>
</tr>
<tr>
<td></td>
<td>Lecture</td>
<td>Chapter 3/4</td>
</tr>
<tr>
<td>4</td>
<td>Lab 2/9 – Empirical Formula</td>
<td>2/11 – Reactions in Aqueous Solutions; Polyatomic Ion Quiz</td>
</tr>
<tr>
<td></td>
<td>Lecture</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>5</td>
<td>Lab 2/16 – Acid-Base Titration</td>
<td>2/18 – Meet at 10:00 AM for Chapter 10/5 bonus session</td>
</tr>
<tr>
<td></td>
<td>Lecture</td>
<td>Chapter 5 (This lecture may run a little late.)</td>
</tr>
<tr>
<td>6</td>
<td>Lab 2/23 – Determination of R</td>
<td>2/25 – Calorimetry</td>
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<tr>
<td></td>
<td>Lecture</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>7</td>
<td>Lab 3/2 – Atomic Spectroscopy</td>
<td>3/4 – Reactions of Copper; Equipment check-out</td>
</tr>
<tr>
<td></td>
<td>Lecture</td>
<td>Chapter 8/9</td>
</tr>
<tr>
<td>-</td>
<td>Spring Break</td>
<td>Spring Break</td>
</tr>
<tr>
<td>8</td>
<td>Lab 3/16 – Chapter 9 Lecture during lab</td>
<td>3/18 – Optional Lab Final</td>
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<tr>
<td></td>
<td>Lecture</td>
<td>Molecular Models lab during lecture</td>
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<tr>
<td></td>
<td></td>
<td>Final Exam in Class</td>
</tr>
</tbody>
</table>

**Important dates to remember:**
- **MLK Day:** Jan. 19
- **Census Date:** Jan. 27
- **Last Drop Day:** Feb. 28
- **Spring Break:** Mar. 8 – 15
- **Dept Exam 1:** Jan. 30 – Feb. 3 (Ch 1 – 2)
- **Dept Exam 2:** Feb. 13 – 17 (Ch 3 – 4)
- **Dept Exam 3:** Feb. 20 – 24 (Ch 5 and 10)
- **Dept Exam 4:** Feb. 27 – Mar. 3 (Ch 6 – 7)
- **Dept Exam 5:** Mar. 16 – 17 (Ch 8 – 9)
- **Dept Final Exam:** Mar. 18 (12:30 PM – 2:20 PM) (Optional Cumulative Final Exam replaces low exam grade)