Course Syllabus
Introductory Chemistry 1405
Spring 2019

Math, Natural Science & Sports Sciences Learning Center
Division Office: P-330
Phone: 972-273-3500
Hours: Vary by semester so check the posted hours.

This course syllabus is intended as a set of guidelines for Introductory Chemistry 1405. 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: Tara Arrington  
Email: tarrington@dcccd.edu  
Office Phone: 972-273-3914  
Office: A-367 (Main Campus)

Course Information

Course title: Introductory Chemistry 1405  
Credit hours: 4 credit hours  
Class meeting time: 100% online: Section 73431 & 73432  
50% online/50% on campus: Section 73217 & 73218  
Lab TR 11:00 -12:20 PM  
Lecture TR 12:30 -1:50 PM

Course description: This course counts toward the green diploma honor. This course qualifies for all three categories of sustainability: environmental, economic, and societal.

This course is for non-science majors and allied health majors. Fundamental concepts are presented in lecture and laboratory including the periodic table, atomic structure, chemical bonding, reactions, stoichiometry, states of matter, properties of metals, nonmetals and compounds, chemical nomenclature, acid-base theory, oxidation-reduction and solutions. Descriptive chemistry is emphasized.
Course prerequisites: Developmental Mathematics 0305 or Developmental Mathematics 0310 or Developmental Mathematics 0098 or Developmental Mathematics 0099 or the equivalent. Developmental Reading 0093 or English as a Second Language (ESOL) 0044 or have met the Texas Success Initiative (TSI) standard in Reading.

Recommended Textbooks and Materials

- **Lab Experiments:** posted online in eCampus under the Labs button.
- **Online documents:** in eCampus
- **Scientific calculator:** Nothing more advanced than a TI 83/84 plus. A simple scientific calculator (TI 30) will do just fine.

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 1411.

Specific Course Learning Outcomes

Perform calculations related to topics included in Chemistry 1405.

1. Be able to express, interpret, and utilize relationships between variables.
2. Solve problems using complete, thorough setups with metric and SI units, significant figures, and dimensional analysis.
3. Describe the fundamental particles of matter; relate basic laws and theories to their behavior, utilize a systematic method of naming compounds and polyatomic ions.
4. Write and balance different types of chemical equations, and perform stoichiometric calculations including calculations with empirical formulas, limiting reactants, percent yield and molarity.
5. Define energy and heats of reactions, and perform related calculations. Recognize the environmental issues related to energy.
6. Recognize the correlation between electronic structure and the organization of the periodic table. Be able account for periodic trends.
7. Determine the relationship between pressure, volume, moles, and temperature of gases and perform related calculations. Describe the characteristics and behavior of gases, liquids and solids and the intermolecular forces that are involved with these states of matter.
8. Investigate the quantum mechanical model of the atom, write and interpret quantum numbers for the electrons in an atom. Write electronic configurations and show the correlation to chemical properties.
9. Differentiate between ionic and molecular compounds, and write Lewis structures. Utilize the VSEPR theory to predict the shapes and polarities of molecules from the Lewis structures.
9. Define radioactivity, write nuclear reactions, and perform related calculations with half-lives. Recognize the environmental and medical impact of nuclear radiation.
10. Define solution, and explain colligative properties and the process of osmosis. Describe the factors affecting solubility and perform calculations with concentration of solutions.
11. Describe dynamic equilibrium and apply Le Chatelier’s principle. Describe the factors affecting reaction rates.
12. Define acids, bases, and buffers, differentiate between strong and weak acids/bases, and identify conjugate acid/base pairs. Perform pH calculations with acids, bases and buffers

Course Outline (Calendar)

Please see Appendix A attached to this syllabus as the last page for a complete and detailed Course Outline (Calendar). Pay careful attention to the listed dates.

Means of Assessment of Course Learning Outcomes

The Course Learning Outcomes are addressed in more detail for each chapter in the Learning Objectives. These outcomes (objectives) will be assessed using methods of testing through departmental exams, in class group work, Mastering Chemistry assignments, and written lab reports.

Evaluation Procedures

Exams (35% of grade)
There will be 6 throughout the semester. The first 5 exams will be taken in the testing center or online using the Respondus Lockdown Browser and the 6th exam will be the in-class final. If you are a 100% online student, you will take your Final Exam either in the Testing Center or at home. See the credit course schedule for final exam times.
The 6 exams will be multiple choice. The first 5 exams will be taken on the computer in the testing center/home by the due date listed on eCampus. The final will be taken in class, if you are a 50/50 on campus student, according to the Final Exam schedule published in eConnect. A green scantron (50 question) is required for the final. For the first 5 exams, you will log onto eCampus and click on the “Exams” button and select the exam. You may take the exam only once and there are no exam grades dropped. Exam scores will appear on eCampus immediately upon completion of the exam (except for the final).

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

Students taking tests in math and science should not leave the testing center or the classroom during a test and return to complete the test. If you need special accommodations you must submit a request to the Disability Services Office in person (A414) or by phone at 972-273-3165. Visit the North Lake College Disability Services for more information.
Exams must be taken during the scheduled times! Any student who misses a test deadline with an excused absence can only earn a maximum of 70% of the total points on a make-up exam! Exams will be cumulative; however, they will focus on more recent material. *You may take an optional comprehensive Final Exam to replace your lowest grade in Exams 1-5. The final will not hurt if your optional final score is below your lowest exam. *If you take your exam during class time then you will have 10 points deducted from your exam.

MAKE-UPS: For a missed exam with an excused absence during the testing dates, a make-up exam must be taken as soon as possible at the discretion of the instructor. It is the Math/Science division policy that you will not be allowed under any circumstances to take more than 2 tests during the last week of the regular semester or more than 1 test on any given day in the same subject. Excused absences will only be offered for one of the following reasons: illness, death in family, official University business, or documented emergency.

The testing center will provide scratch paper and a copy of the periodic table. You must turn in these when you are finished with the exam. Do NOT take any testing materials with you when you finish the test. This includes the test, answers, charts, scratch paper, etc. To do so constitutes Academic Dishonesty. Do NOT use websites or other additional information during the test other than what is provided as that also constitutes Academic Dishonesty.

You will need to bring a pen or pencil and your scientific calculator to the testing center along with your government or school issued photo identification. You do not need a programmable calculator. You may use your own programmable calculator (TI 83/84 plus) if you agree to have the memory cleared before and after the exam. The testing center can provide a calculator during your exam if you need it. You should fill out the Test Request Form upon arrival at the testing center and you may want to bring a quarter for the coin return lockers. You may not bring personal items such as bags, cell phones or pagers into the testing area. You may not bring any children to the testing center.

Be sure to know the following information when you request your test:

- Instructor’s name
- Subject, course number, and section number (ex: CHEM 1411 7111)
- Exam number (1st, 2nd, 3rd, etc.)
- Exam deadline

The Testing Center is located in A425. Be sure to arrive in plenty of time to take the exam. Be aware that exams are not given within one hour of closing. Do not wait until the end of the last day as you may not get in due to large numbers of students taking exams and there are no extensions of the deadlines due to overcrowding or schedule conflicts.

Be sure to check the hours of the testing center particularly if there are changes due to holiday hours. For more information about the Testing Center go to North Lake College Testing Center.
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.

**Lab reports (30%)** experiments are scheduled throughout the semester. These experiments will help to reinforce the concepts and theories that are studied in the lecture portion of the course. The lab grade will be the simple average of all the grades received on the experiments. The grading of the experimental lab reports will be based on their accuracy and completeness.

Lab reports are collected according to the Lab Schedule in Appendix A. They will be graded on a 100 point basis:

NOTE: YOU CANNOT PASS THIS COURSE WITH A FAILING LAB GRADE

Grades come from the completed experiments. For each experiment you will take a lab quiz at the beginning of the lab and turn in a lab report before you leave. Quizzes are taken the first ten minutes of lab. If you are five minutes late to lab you will not be able to take the quiz.

If you are 20 minutes or more late to lab, you cannot perform that lab.

You may look over your graded reports, but they will not be returned. The “Labs” button in ecampus and your lab instructor will provide more details.

**Projects (20%)**

Projects will be contained and graded in the Lab folder. There will be 4 projects during the semester. If you would like, you may complete Service Learning to replace one project grade.

**Quizzes (10%)**

Quizzes will be available for every chapter to help you prepare for the exams. You can take these quizzes as many times as you would like and your grade will be the average of all of your attempts.

**Attendance/Participation Grade (5%)**

Attendance will be taken every class period which counts for a grade and you will be presenting an article (Chemistry in the News) that you find from a reputable source that covers what we are discussing in the class. These scores will be combined and count for 5% of your grade.

**Grading Scale**

The grades will be based on the following distribution:
Five Exams 35%          A = 90-100
(optional final exam)  B = 80-89
Quizzes 10%            C = 70-79
Lab 30%                D = 60-69
Projects 20%           F = 0-59
Attendance/Participation Grade 5%

Use the following formula to calculate your grade:
Grade = (Exam Av x 0.35) + (Quiz Avg. x 0.10) + (Lab Av x 0.30) + (Project Avg x 0.20) + (Attendance/Participation x 0.05)
This formula is the same one that I use. You may use the formula to know your grade in the course at any time.

Please **do not beg** for grades; you earn them.

Please **do not ask for extra credit**. We already have extra credit in the homework as well as bonus questions on each exam.

During the last week of classes as well as during finals week, please **do not** ask me about your grade. I will **not** be able to answer your questions about your grade at that time.

**State-Outcomes Core Curriculum**
As part of the core, this course contributes to the development of six 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.

Discipline/ Course/ Department/Policies

Attendance
- Attendance in all class lectures and labs is mandatory. Attendance will be noted each class period.
- Students should be aware of the fact that they 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 University business, or documented emergency. For any excused absence written documentation is required. To obtain an excused absence, email or call by the next class period. Documentation should be brought to the next class meeting.

Financial Aid Certification of Attendance:
You must attend and participate in your on-campus or online course(s) in order to receive federal financial aid. Your instructor is required by law to validate your attendance in your on-campus or online course in order for you to receive financial aid. You must participate in an academic related activity pertaining to the course such as but not limited to the following examples:
- initiating contact with your instructor to ask a question about the academic subject studied in the course;
- submitting an academic assignment;
- taking an exam;
- completing an interactive tutorial;
- participating in computer-assisted instruction;
- attending a study group that is assigned by the instructor;
- or participating in an online discussion about academic matters relating to the course.

In an online class, simply logging in is not sufficient by itself to demonstrate academic attendance. You must demonstrate that you are participating in your online class and are engaged in an academically related activity such as in the examples described above.

Classroom Policies
- Attendance in all class lectures and labs are mandatory and roll will be taken daily. Please arrive on time every day so as not to disturb the class with a late arrival. Students should be aware of the fact that they are responsible for all materials handed out and all announcements made during their absence regardless of the reason(s) of the absence.
- You are encouraged to ask questions and to participate in class discussions. You are expected to be an active learner and not a passive one.
• Excused absences will only be offered for one of the following reasons: illness, death in family, official University business, or documented emergency. For any excused absence written documentation is required. To obtain an excused absence, email me by the next class period. Documentation should be brought to the next class meeting.
• No cell phones or beeping devices allowed.
• Distractive talking or any disorderly conduct is prohibited. Please be courteous of others.
• Taping of lectures is not allowed unless permission is obtained from the instructor.
• Follow the Code of Student Conduct for model behavior.
• Do not beg for points; you earn them.
• Students are encouraged to go to the Science Learning Center

Science Center

The Science Center provides student services in the following subjects (majors and non majors): Biology, Botany, Microbiology, Anatomy and Physiology, Chemistry, Geology, Physics, Nutrition 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 SLC.

When students attend Science Center we ask that you sign in and out. These data helps us keep the center stocked, running, and most of all, free of charge!

Hours of operation:

Spring/Fall semester: M - R 9 am to 7 pm, F & Sa 9 am – 3 pm

Maymester and Wintermester: M – R 2pm – 6 pm

Summer I & II: M – R 2pm – 7 pm

Contact information

Center Phone: 972-273-3273
Coordinator: Amanda Turley

North Lake College Tutorial Services

Institutional Policies

Institutional Policies relating to this course can be accessed from the following link:
Institutional Policies Link
TESTING CENTER (A 425)
Testing Center Link

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 (ex: Speech 1311.7011)
   3. Exam number (1st, 2nd, 3rd, 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. A Test Request Form must be completed before entering the Testing Center.
   4. 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.

My policy is that you are NOT allowed to leave the testing center during a test and return to
complete the test. Visit the rest room before your exam and do not drink a liter of fluid before
your exams. If you need special accommodations please contact me.

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. To do so
constitutes Academic Dishonesty.

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

State-Outcomes Core Curriculum
As part of the core, this course contributes to the development of six 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>CHEM 1405</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Students will determine the correct number of significant figures in an image of a metric ruler with 70% proficiency on departmental exams.</td>
</tr>
<tr>
<td><strong>Program Level Outcome 1.3</strong></td>
</tr>
<tr>
<td>2. Students will predict the relative atomic sizes of two elements based on their position in the Periodic Table at 75% proficiency on departmental exams.</td>
</tr>
<tr>
<td><strong>Program Level Outcomes 2 and 3</strong></td>
</tr>
<tr>
<td>3. Students will use specific heat to calculate heat loss or gain, temperature change, or mass of a sample at 70% proficiency on departmental exams.</td>
</tr>
<tr>
<td><strong>Program Level Outcomes 2 and 3</strong></td>
</tr>
</tbody>
</table>
## CHEM 1405 Summer 2019 COURSE OUTLINE

### Summer II July 8th – Aug. 8th

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 7</td>
<td></td>
<td>July 8</td>
<td>July 9</td>
<td>July 10</td>
<td>July 11</td>
<td>July 12</td>
</tr>
<tr>
<td>Ch. 1, 2 &amp; 3 this week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July 14</td>
<td>July 8</td>
<td>July 9</td>
<td>July 10</td>
<td>July 11</td>
<td>July 12</td>
<td>July 13</td>
</tr>
<tr>
<td>Ch. 3 &amp; 4 this week</td>
<td>Classes Begin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July 21</td>
<td>July 15</td>
<td>July 16</td>
<td>July 17</td>
<td>July 18</td>
<td>July 19</td>
<td>July 20</td>
</tr>
<tr>
<td>Ch. 5 &amp; 6 this week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July 28</td>
<td>July 22</td>
<td>July 23</td>
<td>July 24</td>
<td>July 25</td>
<td>July 26</td>
<td>July 27</td>
</tr>
<tr>
<td>Ch. 7 &amp; 8 this week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug. 4</td>
<td>July 29</td>
<td>July 30</td>
<td>July 31</td>
<td>Aug. 1</td>
<td>Aug. 2</td>
<td>Aug. 3</td>
</tr>
<tr>
<td>Ch. 9 &amp; 10 this week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug. 5</td>
<td>Aug. 5</td>
<td>Aug. 6</td>
<td>Aug. 7</td>
<td>Aug. 8</td>
<td>Aug. 9</td>
<td>Aug. 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>End of Semester</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Any late quizzes must be completed by the deadline on the day before the Optional Final Exam

#schedule subject to change