CASPER COLLEGE COURSE SYLLABUS
CHEM 1005 Basic Chemistry

Semester/Year: Summer 2016 Section N1

Lecture Hours: 3  Lab Hours: 0  Credit Hours: 3

Class Time: on-line

Instructor’s Name: Mitchel D. Millan, Ph.D.

Instructor's Contact Information:
Office: PS333, 307-2683017  Email: mmillan@caspercollege.edu

Office Hours: By appointment only

Course Description: Designed primarily for students who have not had high school chemistry or feel that they need a review, this course consists of a study of matter, atomic structure and bonding, the periodic table, chemical symbols, nomenclature and chemical equations, quantitative composition of compounds, calculations from chemical equations. Provides acceptable credit for students enrolled in agriculture, forestry, home economics, nursing, and petroleum technology. Not recommended for engineering, pre-medicine, pre-dentistry, pre-pharmacy, pre-veterinary medicine or any of the physical science majors. Students needing laboratory credit should enroll concurrently in CHEM 1006. (Taken with CHEM 1006, equivalent to UW CHEM 1000.)

Statement of Prerequisites: none

Goal: This class will introduce students to the principles of chemistry. Skills involved will include (but will not be limited to) critical thinking, and ability to analyze qualitative, numerical and chemical problems.

Outcomes: http://www.depts.ttu.edu/chemistry/Undergraduate/LearningOutcome.php
Upon successful completion of this course, students will be able to:
1) understand the physical and chemical properties of matter.
2) perform basic algebraic operations relating to dimensional analysis with full attention to units and significant figures.
3) apply dimensional analysis to chemistry calculations
4) understand the basic and currently accepted models of the atom
5) understand the concepts of bonding
6) use the concepts of bonding in drawing simple Lewis structures and determining molecular geometry
7) use the concepts of electronegativity and symmetry to determine polarity
8) balance chemical equations
9) use the mole concept in stoichiometric calculations.

Methodology: Students are required to use the ALEKS Introductory Chemistry tutorial and assessment system. ALEKS is a third party Learning Management System and access must be purchased separately. They will also use Casper College’s Moodle system for discussion Forums and as a document repository. See the SUPPLEMENTARY SYLLABUS for more detail.
Evaluation Criteria (1000 points for the course):

**Moodle Forums (150 pts maximum).** A discussion assignment will be posted as Forum topics in Moodle. These will be based somewhat loosely on the chapters in the text, so it is necessary for you to read each chapter as scheduled and post/reply by the date specified. Your grade out of 10 pts will be based on the Forum Rubric video posted in Moodle. The day after the Forum closes, a video response (the video FYI) will be posted by your instructor to help address some of the material covered in the Forum. You will then have another day to post a response to the FYI video. Your grade out of 5 pts will be based on the same rubric posted in Moodle.

The Forum scores added together contribute a maximum of 150 points towards the 1000 point total. Late Forum or FYI response posts will NOT be graded. No partial credit will be given.

**ALEKS Objectives (600 pts maximum).** In what ALEKS calls “Learning Mode,” you will be working on seven ALEKS Objectives, containing a number of topics (see last section of this syllabus) keyed to chapters in your textbook, and subject to completion dates listed in the Schedule below.

An ALEKS Objective will contain a list of topics found in a number of textbook chapter(s). When you choose a particular topic to learn, ALEKS will present you with a series of practice problems on that topic. The problems will have enough variability that you will only be able to get them consistently correct by understanding the core principle defining the topic. Once you can consistently get the problems for a given topic correct, ALEKS considers that you have learned the topic, and you may then choose another topic to learn.

Your percentage of the topics finished by the completion date for each Objective is recorded, ranging from 100% (all topics completed) to 0% (no topics completed). You can find your percentages in the GRADEBOOK of your ALEKS account. The ALEKS and Moodle systems do not communicate automatically, so your instructor will have to manually transfer any ALEKS grades to the Moodle gradebook. You will NOT find your Moodle Forum scores in the ALEKS gradebook.

The percentages for the SIX highest scoring Objectives (lowest scoring Objectives dropped) will be added, and a maximum of 600 points will be contributed to your 1000 point total. For example:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math and Algebra</td>
<td>86%</td>
</tr>
<tr>
<td>Ch 2</td>
<td>95%</td>
</tr>
<tr>
<td>Chs 3 &amp; 4</td>
<td>100%</td>
</tr>
<tr>
<td>Chs 5</td>
<td>67% (score dropped)</td>
</tr>
<tr>
<td>Chs 6 &amp; 7</td>
<td>90%</td>
</tr>
<tr>
<td>Chs 8 &amp; 9</td>
<td>100%</td>
</tr>
<tr>
<td>Ch 10</td>
<td>88%</td>
</tr>
</tbody>
</table>

Contribution to 1000 points = 86 + 95 + 100 + 90 + 100 + 88 = 559 points out of a 600 point maximum
**ALEKS Progress (50 points maximum)**. The ALEKS Gradebook keeps track of your progress in mastering the topics covered in each of the seven Objectives.

You can find your scores in the REPORT of your ALEKS account, and scrolling down to the History section. A bar graph (one per Objective) will show topics mastered as the first percentage, and topics left to be learned as the second percentage. At the end of the term, you will get **HALF of the sum of these two percentages for the SINGLE highest scoring progress bar**, giving a maximum of 50 points to your 1000 point total. Since only the **HIGHEST** scoring Progress score will be considered, it is crucial that you do well in all your ALEKS work. Do not take any of these for granted.

For example, a student did his / her best work in Objective 7, with 83% of the topics mastered, the balance being topics needing a little more work. The sum of these two values is 100%. The student thus gets the full 50 points for ALEKS Progress at the end of the semester.

Assuming that Objective 6 is actually shows the best progress (i.e. if Objective 7 actually gives a lower progress score), the student will get half of (72 + 12 =) 84%,. Therefore, the contribution to the 1000 points is 42 points.
Comprehensive Assessment (100 pts maximum). This comprehensive Final Test will contain about 30 questions, and will include all the Topics covered during the semester. It will be available on ALEKS for 48 hours from July 28 to 29. Your percentage equals the contribution (for example, 87% = 87 pts) out of 100 to the 1000 point course total. This ALEKS Final Test may be taken early (if you finish all Objectives before the last due date; make arrangements with your instructor). However, no Final Test beyond July 29 will be allowed.

Time Well-Spent (100 pts maximum).

READ THIS SECTION CAREFULLY!

Quizzing and testing contribute only 15% (50 pts for ALEKS Progress and 150 pts for the Comprehensive Assessment) to your total grade. This is because this course emphasizes mastery of the material through consistent and persistent work on ALEKS, making sure your time is well-spent. In terms of real time, you must spend AT LEAST 5 HOURS A WEEK on ALEKS for the eight weeks of the Summer term. Spread out your work evenly, rather than cramming all the work on the due date of the current Objective. Cramming almost certainly guarantees you won’t get 100% of the topics in the ALEKS Objectives.

For Time Well-Spent, you can earn a maximum of 16 pts during any particular week (Monday to Sunday). You get 2 point for each DAY you spend at least one hour on ALEKS (for a maximum of three days). You will also earn 2 points per HOUR of work (maximum of five hours). This does NOT mean you should spend ONLY three days and five hours in the week (you will probably need to put in a lot more time than this); this means you can only get credit for a maximum of three days and five hours.

Time Well Spent is actually a reasonable (and minimal) requirement. When taught on campus, Chem 1005 meets for 100 minutes, three days a week. That is a total of 300 minutes, or 5 hours per week. This does NOT include the EXPECTED study time outside the classroom. So the 5 hour, 3 day requirement for Time Well Spent completely matches the meeting times for a face-to-face class.

Here is a sample ALEKS work week:
Monday 1.5 hrs   Tuesday 2.5 hrs   Wednesday 1 hr   Thursday 3.5 hrs   Friday 0.5 hr

For this week, you get an initial 6 pts (3 days x 2 pts). Although you worked for 5 days, you get credit for only 3 days. You get the 6 pts credit for Monday, Tuesday, and Wednesday. You get no credit for Thursday since you already have full points for 3 days, and Fridays would not count anyway since you worked only half an hour (remember, one hour minimum to get the 2 points for each day).

For this week, you worked for $1.5 + 2.5 + 1 + 3.5 + 0.5 = 9$ hrs. However, you only get credit for a maximum of 5 hrs in the week, so you get your full 10 pts (5 hrs x 2 pts) here.

Your total points for this work week equal $6 + 10 = 16$ points, the maximum you can earn for any given week.
A second sample ALEKS work week:

Monday --------  Tuesday --------  Wednesday --------  Thursday --------  Friday 7 hrs

You completely spaced out about ALEKS during the week, and didn’t do any work until Friday. You only get 2 point for Friday, the only day you did work in ALEKS. You worked 7 hours for this week, so you get 10 points (5 hrs x 2 pts). Remember, you can get credit for up to 5 hours, although you worked longer than this. Your total points for this work week equal 2 + 10 = 12 points out of the 16 points possible.

Do not try to cheat the system by just logging onto ALEKS and doing nothing. Here are two reasons why you shouldn’t.

1- ALEKS will log you off after a certain amount of time of inactivity. So, you can't just log on, watch NCIS or (seriously!) Keeping up with the Kardashians and just do nothing.

2- Remember that Time Well-Spent points are separate from the 600 pts you can get for completing the 7 ALEKS Objectives. No work means no topics learned, and no Objectives completed.

There are 8 weeks in the Summer term. However, to allow to make adjustments in your schedule and learn to use the ALEKS system, you will be given credit for highest scoring 6 out of the 8 weeks. With a maximum of 16 points per week, you can get up to 16 points x 6 weeks = 96 points for the Summer term. To make this 100 points for Time Well Spent, an extra 4 points will be added to everyone’s scores across the board at the end of the term.

Remember that this is separate from the 600 pts you can get for completing the 7 ALEKS Objectives.

Your instructor understands that the summer is the peak season for vacation and travel, but the pace of a summer academic term is more than twice that of a regular fall or spring term. If you have your schedule and know for a fact that you will be able to do little to no ALEKS work at all during a particular week, you must let your instructor know IN ADVANCE so that arrangements can be made (on a per-student) basis so you can make up the 16 pts for the week. All such adjustments to Time Well Spent points will be made only at your instructor’s discretion.

<table>
<thead>
<tr>
<th>GRADE DISTRIBUTION</th>
<th>Max. Scores</th>
<th>GRADING SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moodle Forums</td>
<td>150 pts</td>
<td>A: 900-1000 pts</td>
</tr>
<tr>
<td>ALEKS Objectives</td>
<td>600 pts</td>
<td>B: 800-899 pts</td>
</tr>
<tr>
<td>ALEKS Progress Assessments</td>
<td>50 pts</td>
<td>C: 700-799 pts</td>
</tr>
<tr>
<td>Comprehensive Assessment</td>
<td>100 pts</td>
<td>D: 600-699 pts</td>
</tr>
<tr>
<td>Time Well-Spent</td>
<td>100 pts</td>
<td></td>
</tr>
</tbody>
</table>

Required Text, Readings, and Materials:
Introductory Chemistry 5th Ed. by Nivaldo Tro

Class Policies: Last Date to Change to Audit Status or to Withdraw with a W Grade:
- By registering for, and staying in, this class, you agree to (i) abide by the policies, and (ii) fulfill all the requirements, described in this syllabus. Your instructor reserves the right to make revisions and modifications to this syllabus as needed, subject to sufficient notice to the class of such changes. You are
responsible for all announcements (posted in Moodle). It is your responsibility to put in the necessary time in both ALEKS and Moodle.

- The term ‘Basic’ in Basic Chemistry is used to describe this course. It is assumed that as college students, you have the ‘basic’ science, math and English skills from high school. You may not have taken chemistry at all, but you should be able to do (or are currently taking) simple algebra and word-problem calculations. Your instructor will assume that you can READ. This is a science class that will exercise your science, math, and English abilities through a variety of on-line tutorials and assessments in ALEKS, as well as discussion topics in the Moodle forums. Ignoring your deficiencies in basic science, math, and English will not make Basic Chemistry any easier.

- The last day to withdraw from the course without instructor permission is July 6.

**Student Rights and Responsibilities:** Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.

**Chain of Command:** If you have any problems with this class, you should first contact the instructor to attempt to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take the matter through the appropriate chain of command starting with the Department Head/Program Director (Dr. Eric Mechalke), the Dean of the School of Science (Dr. Grant Wilson), and lastly the Vice President for Academic Affairs (Dr. Shawn Powell).

**Academic Dishonesty - Cheating & Plagiarism:** Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student Code of Conduct for more information on this topic.

**Official Means of Communication:** Casper College faculty and staff will employ the student's assigned Casper College email account as a primary method of communication. Students are responsible to check their account regularly.

**ADA Accommodations Policy:** If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours. To request academic accommodations, students must first consult with the college’s Disability Services Counselor located in the Gateway Building, Room 344, (307) 268-2557, bheuer@caspercollege.edu. The Disability Services Counselor is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.
**Schedule of Activities** (Chapters are from Tro):

<table>
<thead>
<tr>
<th>Chapter</th>
<th>FORUMS due in Moodle</th>
<th>FYI response in Moodle</th>
<th>ALEKS Objectives Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>June 11</td>
<td>June 11</td>
<td>(10 topics) June 18</td>
</tr>
<tr>
<td>Math and Algebra</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 2 (Measurement and Problem Solving)</td>
<td>June 15</td>
<td>June 17</td>
<td>(19 topics) June 25</td>
</tr>
<tr>
<td>Ch 3 (Matter and Energy)</td>
<td>June 29</td>
<td>July 1</td>
<td>(Chs 3 &amp; 4, 19 topics)</td>
</tr>
<tr>
<td>Ch 4 (Atoms and Elements)</td>
<td>June 29</td>
<td>July 1</td>
<td>July 2</td>
</tr>
<tr>
<td>Ch 5 (Molecules and Compounds)</td>
<td>July 6</td>
<td>July 8</td>
<td>(19 topics) July 9</td>
</tr>
<tr>
<td>Ch 6 (Chemical Composition)</td>
<td>July 13</td>
<td>July 15</td>
<td>(Chs 6 &amp; 7, 20 topics)</td>
</tr>
<tr>
<td>Ch 7 (Chemical Reactions)</td>
<td>July 13</td>
<td>July 15</td>
<td>July 16</td>
</tr>
<tr>
<td>Ch 8 (Quantities...)</td>
<td>July 20</td>
<td>July 22</td>
<td>(Chs 8 &amp; 9, 20 topics)</td>
</tr>
<tr>
<td>Ch 9 (Electrons and Atoms...)</td>
<td>July 20</td>
<td>July 22</td>
<td>July 23</td>
</tr>
<tr>
<td>Ch 10 (Chemical Bonding)</td>
<td>July 25</td>
<td>July 27</td>
<td>(16 topics) July 27**</td>
</tr>
<tr>
<td>Comprehensive ALEKS Assessment</td>
<td></td>
<td></td>
<td>July 28-29</td>
</tr>
</tbody>
</table>

Chapter 1 contains introductory material, and will not have a Forum associated with it.

Note that for the pairs of Chapters 3 and 4, Chapter 6 and 7, and Chapters 8 and 9, the due dates for the Forums and FYI Responses in Moodle are on the same day. These paired chapters are also considered as one ALEKS Objective, with a single due date.

Note that the due date for the last ALEKS Objective is a Wednesday, unlike the Saturday due dates for the first six Objectives.