CASPER COLLEGE COURSE SYLLABUS
Chem 1006: Basic Chemistry Lab

Semester/Year: Spring 2015 Section N1

Lecture Hours: 0  Lab Hours: --------  Credit Hours: 1

Instructor: Mitchel D. Millan, Ph.D.
Office: PS333, 307-2683017  Email: mmillan@caspercollege.edu
Office Hours: MWF 11AM-12PM; T 1-3 PM

Course Description: (http://www.caspercollege.edu/admissions/catalog/coursedesc.aspx?Code=CHEM)
Elementary chemical laboratory practice demonstrating the applications of chemical theory. This laboratory includes experiments on density, changes of state, physical and chemical properties, percent composition of hydrates, elementary qualitative analysis, chemical reactions, and empirical formulas. Not recommended for students who plan to take CHEM 1025 or CHEM 1035. Concurrent enrollment or credit in CHEM 1005 is required. (Taken with CHEM 1005, equivalent to UW CHEM 1000.)

Statement of Prerequisites: must be taken concurrently with or subsequently to, Chem 1005

Goal: This lab seeks to: (i) demonstrate practical laboratory techniques and requisite calculations through the completion of several fundamental chemistry experiments (ii) instill proficiency in techniques including measurements of mass, length, temperature, and volume, (iii) prepare you for identification of several unknowns by various methods, and calculation of quantities such as density, specific heat, etc.

The LabPaq!!!
Lab Experiments will be performed at home (or at a location convenient to you), using a chemistry LabPaq CK-CSP (hereafter referred to as the Paq), available from Hands-on-Labs at https://www.holscience.com/mm5/merchant.mvc?Screen=LOGN. Use the login C000036 and the password labpaq. Go to the LabPaq, Chemistry window, then click on Add to Cart. Cost is currently $181. It will ask you if you want to order the Thermometer, Digital. This is NOT required, and you do not need to get this with the Paq. Click on Checkout and complete the ordering process. LabPaq prefers that you order your Paq on-line. There MAY be an extra charge to order the Paq from an operator using their toll-free number. Purchase the LabPaq no later than the second week of February.

CK-CSP currently costs $181 plus shipping (varies with your location). Other types of lab kits (from LabPaq or other distributors) are NOT applicable to this course.
Be sure about your plans for this online lab BEFORE your purchase the LabPaq. If you decide to withdraw from the course and return your LabPaq, you must call 866-206-0773 to request a Return Merchandise Authorization (RMA). The full Returns and Refunds policy can be found at http://holscience.com/orders/returns-refunds/. You have only 30 days upon delivery date to complete any refund requests.

Once you receive the Paq, inspect it IMMEDIATELY for completeness and quality of contents. Check also the mini lab scale that comes in its own box- the digital display could be damaged. Missing/broken/poor quality contents will be replaced at no cost to you if you contact Customer Service immediately at 866-206-0773.

Casper College and all affiliated with this on-line chemistry lab section assumes no responsibility for business conducted directly with Hands-on-Labs, such as purchase, refund or replacement issues.

Be sure about your plans and schedules concerning this lab. Dropping the course (see Class Policies below) does not guarantee return of the Paq or refund of the cost. You must call Hands-on-Labs as described above.

MOODLE:
You will use Moodle to:
1) download the Lab Report Templates (see Methods of Assessing Outcomes below)
2) upload your Lab Reports (using the Lab Report Templates)
3) obtain other material that may be pertinent to the course
The shell is 14/SP Chem 1006-N1 Basic Chemistry Lab. Note that this is different from the Moodle shell used for the corresponding lecture Chem 1005-N1.

Outcomes:
Upon successful completion of this course, students will:
1) be aware of basic safety and emergency procedures when performing chemistry experiments.
2) be trained in the proper procedures for performing experiments, and in the proper handling and use of chemical reagents, glassware, equipment, and balances.
3) understand the concepts of Basic Chemistry that the laboratory experiments are meant to illustrate and reinforce.

Initial Requirement: Syllabus Quiz
You must complete the Syllabus Quiz in Moodle. You will receive an extra 10 points towards your possible 1000 point total in this course, over and above all requirements and assessments. The Quiz has unlimited attempts allowed with no time limits. However, you must keep taking the Quiz until you get a perfect 10 points. No lab reports will be graded until you complete this Quiz.

Initial Requirement: Lab Safety Agreement (LSA)
Click on the activity labeled LSA in Moodle. Read each item and check off the appropriate boxes. Complete the LSA activity by 5 PM on Feb 5. Note that checking the last box /
**item in the LSA is considered to be equivalent to a signature and makes the LSA legally binding. No lab reports will be graded until the LSA is completed.**

The LSA is similar to the Science Lab Safety Reinforcement Agreement found in the Paq CD Lab Manual (pp.11-12). You may disregard the SLSRA.

**Methodology:** Ten LAB REPORTS (100 pts each):

- Each Report is worth 100 points. It is extremely difficult to apportion all the scores in a report into 100 equal points. Your instructor will simply assign a reasonable number of points for notes/observations/results/questions. Your percentage will be taken as your report score. For example, if the maximum points for an experiment sum up to 116 points, a raw score of, e.g. 102 points equals a report score of \( \frac{102}{116} = 87.9\% = 87.9 \) points.

- **You will actually be performing 11 experiments. To give you a little leeway, the lowest scoring report will be dropped, and only the ten highest scoring reports will be used to find your final grade. Any missed reports beyond the single dropped experiment will be given 0 points and included in grade calculations.**

- A Laboratory Manual (in pdf format) is provided on the Paq CD. The same Lab Manual is available at the top of the Moodle page. The eleven lab experiments will be performed according to the schedule listed below. Note that the experiments will not be covered in the order given in the Manual. You are required to complete each experiment and submit the report by the due date given in the Schedule below.

- Since you are performing these experiments off-campus, there will be no credit for lab performance. You will be graded solely on your Lab Reports. There are no do-overs or “extra work” in this on-line lab. **Perform your experiments and write your reports. If you are unsure about anything, contact your instructor before you submit the report, not after the fact.**

- In addition to performing the lab experiments using the LabPaq, you will also be required to take photographs of various items in most of your experiments and include them in your reports. You may use your phone or ipads/tablets, as well as digital cameras or camcorders that can take still photos. Since you will be writing up your reports initially in some sort of word processing program, you can insert your photos if they are saved in the most common formats available (.tif, .gif, .jpg, .png, etc.). If you unsure how to do this, contact your instructor right away!

- **In all reports, always show a measurement or calculated value to the correct number of significant figures and with the proper units.** For example, a three significant figure mass would be, for example, 2.58 g (grams). Only partial credit is
given for incorrect significant figures (e.g. 2.5 g) or missing units (2.58 __). Very large emphasis is placed on the significant figures in your measurements, calculations and answers. Be absolutely sure that you know how to handle significant figures in measurements and calculations!!!

- You must show all calculations, even if this is not explicitly asked for in the Lab Report Template. If only answers are given, you will be given only partial credit.

- Disregard the recommended format of the Report (e.g. pp. 164-171 of the Lab Manual). Instead, open the links for the Lab Report Templates, which are actually documents in Google Drive. Explicitly follow the instructions in the video titled “Lab Reports via Google Drive” on how to write and complete the lab reports.

- VERY IMPORTANT!!! You must complete your reports using Google Drive. An instructional video titled “Lab Reports via Google Drive” can be viewed in the lab Moodle shell. Watch this video several times to make sure you know how to submit reports for this lab course.

- To make sure you can actually submit Lab Reports using Google Drive, you will be asked to complete a Sample Report and submit it using the procedure you will be following for the actual 11 experiments. Make sure you do this, so you can start to get used to the “quirks” of using Google Drive. To add some incentive, an extra 10 points will also be added to the 1000 point maximum for this course.

- Reports must be completed by end of day of the Saturday due date. Obviously, you have to perform the actual experiment early in the week of this due date. You might not finish some experiments if you start on the Saturday itself that the report is due. For example, Lab 1 must be completed within the week of Feb 14, and the lab report completed by end of day of Feb 14. You will be “sharing” the lab report with your instructor via Google Drive. This will contain a date and time stamp, which will indicate whether the report was “shared” (and thus completed) on time. Full details will be available in the “Lab Reports via Google Drive” video in the lab Moodle page.

- Although all labs have a Saturday due date, reports submitted no later than end of day Wednesday before that Saturday are allowed one revision. The report will be graded no later than Thursday, and you have until the Saturday due date to make corrections, allowing you to get back half the points lost. Reports submitted after Wednesday are not eligible for revisions of any kind.

- If you are unable to complete your Report as scheduled, you must email (or Moodle message) your instructor on or before the Saturday due date to arrange for an extension. Otherwise, your report will be penalized 10% per day late, not including holidays or weekends. Penalties will continue to accrue until the Report is submitted, you have run out of points, or until you have contacted your instructor. Late contact (emails beyond 5 pm of the Saturday due date) will stop penalties, but not recover lost
points.

- Lab reports will be corrected within two weeks of each experiment. The corrected lab reports will be available to you immediately since you will have “shared” the report with your instructor. Full details will be available in the “Lab Reports via Google Drive” video in the lab Moodle page.

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<thead>
<tr>
<th>GRADING SCALE</th>
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<tbody>
<tr>
<td>A: 900-1000 pts</td>
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<tr>
<td>B: 800-899 pts</td>
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<tr>
<td>C: 700-799 pts</td>
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<td>D: 600-699 pts</td>
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Class Policies / Last Date to Change to Audit Status or to Withdraw with a W Grade:
- Since this is an off-campus lab section, you are solely responsible for performing each experiment in a safe manner. **Casper College and all affiliated with this chemistry lab section will assume no responsibility for injury / accidents that occur during the performance of each experiment.**
- Read pages 4-10 in the Lab Manual before performing any experiments. The Paq CD includes MSDSs (Material Safety Data Sheets) for the chemicals you will be using. When the chemicals and equipment provided are used in the prescribed manner, there is little chance of injury or accident. It is your responsibility to follow all procedures, deviating only when your instructor tells you to do so.
- Use the safety equipment provided (e.g. safety glasses / goggles, latex gloves. Lab coat or kitchen apron recommended), follow safety procedures (safe handling of glass, flame, chemicals, etc.), and observe proper waste disposal. Dispose of waste chemicals in the manner prescribed in the Lab Manual.

- **The last day for withdrawal (a grade of W) without instructor permission is Apr 16.**

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 (Dr. Eric Mechalke), the interim Dean of the School of Science (Dr. Grant Wilson), and lastly the Vice President for Academic Affairs (Dr. Tim Wright).

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:**

<table>
<thead>
<tr>
<th>Due Date:</th>
<th>Lab</th>
<th>Manual</th>
<th>Title</th>
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<tbody>
<tr>
<td>Feb 7</td>
<td>----</td>
<td>-----</td>
<td>Lab Safety Agreement, LSA</td>
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<tr>
<td>11</td>
<td>0</td>
<td>-----</td>
<td>Sample Report</td>
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<tr>
<td>14</td>
<td>1</td>
<td>p. 62</td>
<td>Math Practice Lab</td>
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<td>21</td>
<td>2</td>
<td>p. 27</td>
<td>Laboratory Techniques &amp; Measurements</td>
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<td>28</td>
<td>3</td>
<td>p. 93</td>
<td>Physical &amp; Chemical Properties</td>
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<td>Mar 7</td>
<td>4</td>
<td>p.100*</td>
<td>Separation of a Mixture of Solids</td>
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<tr>
<td>14</td>
<td>5</td>
<td>p.118</td>
<td>Caloric Content of Food</td>
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<td>28</td>
<td>6</td>
<td>p.79</td>
<td>Naming Chemical Compounds</td>
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<td>Apr 11</td>
<td>7</td>
<td>p.146</td>
<td>The Mole Concept...</td>
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<td>18</td>
<td>8</td>
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<td>25</td>
<td>9</td>
<td>p.126</td>
<td>Ionic Reactions</td>
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<td>May 2</td>
<td>10</td>
<td>p.109</td>
<td>Stoichiometry of a Precipitation Reaction</td>
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<tr>
<td>9</td>
<td>11</td>
<td>p. 14</td>
<td>Lewis Structure Model</td>
</tr>
</tbody>
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*Start Lab 4 early in the week, as several days may be needed to complete the drying process.*