Laboratory: 9:30 to 12:30 am Tuesday in Tawes Hall 329

Instructor: Jerald Simon
Phone - x4155
E-mail - jsimon@frostburg.edu
Office - Tawes Hall 329-3
Office Hours - 11:00 to 11:50 am Monday and Friday,
3:00 to 3:50 pm Monday and Friday
Or by appointment

Web Page: Information and handouts for the course will be available at
http://antoine.frostburg.edu/chem/simon/chem445.htm
The web page will be updated regularly.

Catalog Description
CHEM445 – Physical Chemistry Laboratory I
Experimental physical chemistry. One 3-hour laboratory.
This course illustrates and applies some of the fundamental principles of physical
chemistry. In particular, the experiments demonstrate thermodynamic, transport and
surface phenomena. Other goals of the course are to provide practical experience in the
writing of technical reports, data analysis and in independent laboratory work.

Course Materials
Handouts on the experiments will be provided.
A scientific calculator, approved safety goggles, and a bound laboratory notebook are
required.

Grading Policy
The grade will be based on the written quality of the best 7 of 8 laboratory reports and the
error analysis exercises. No quizzes, tests or final examinations will be given. If the grade
on the first report is 70 or less you will have the opportunity to submit a revised write-up
within a week of the return of the original report to you.

Points will be deducted for late submission of reports. Due dates will be announced in
class. Points will also be deducted for working without proper safety equipment
(goggles!) and leaving the laboratory in a disordered state. Cleaning up the workstation
when done is part of the laboratory procedure.

Achieving 90% or more of the total points will result in a letter grade of A, 80 through 89
% is a B grade, 70 through 79 % is a C grade, and 60 through 69 % is a D grade. Scoring
less than 60 % of the total points for the course will result in an F.
Laboratory Notebook
You must have a bound laboratory notebook with duplicate page numbers. Record all data in ink directly into the notebook over carbon paper to obtain a readable copy. Submit copies of laboratory data to the instructor before leaving the lab on the completion of the experiment. The instructor checks your calculations using raw data directly from the carbon copies. Reports without copies will not be graded.

Record all data as observed; do not perform even trivial calculations first. For example, record initial and final burette readings, not just the difference between the two.

To ensure that you have given some prior consideration to the experiments, you must enter a short proposal into your notebook before beginning an experiment. The proposal should do the following:
1) State the purpose of the experiment.
2) List the raw measurements that will be taken in tabular form. Keep the list readable by designing a “report form”, like those you have used in introductory courses.
3) List and define the most important results that will be computed from the raw measurements.

The instructor must approve the proposal before you may start an experiment.

Academic Honesty
Frostburg State University holds firmly to the conviction that the entire fabric of a community of students, teachers and scholars relies for its integrity upon the pursuit of truth, unfettered by interference or intimidation from outside that community or by the disintegration of mutual respect and honesty from within. Accordingly, academic dishonesty in any form is viewed as one of the most serious offenses against the good order of the educational community. Any individual or group of students found cheating or plagiarizing is subject to the University disciplinary procedures in addition to any action taken by the instructor of this course.

Course Schedule
This is a tentative schedule for the course. Each of the laboratories will be set up for three weeks and all of the groups will have to coordinate with each other to insure that every group has access to all of the experiments.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Laboratory</th>
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<tbody>
<tr>
<td>9/17 – 10/2</td>
<td>Heat Capacity of Gases</td>
</tr>
<tr>
<td></td>
<td>Ideal Gas Thermometer</td>
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<tr>
<td>10/8 –10/22</td>
<td>Joule-Thomson Effect</td>
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<td></td>
<td>Vapor Pressure of Cyclohexane</td>
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<tr>
<td>10/29 – 11/12</td>
<td>Partial Molar Volume</td>
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<tr>
<td></td>
<td>Osmotic Pressure</td>
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<tr>
<td>11/19-12/10</td>
<td>Chemical Equilibrium in Solution</td>
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<tr>
<td></td>
<td>Intrinsic Viscosity</td>
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## Important Administrative Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>9/10</td>
<td>Last day to add courses</td>
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<tr>
<td>9/10</td>
<td>Last day to file grade repeat forms</td>
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<tr>
<td>9/25</td>
<td>Last day to file Pass/Fail option</td>
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<tr>
<td>10/15</td>
<td>Mid-semester warnings distributed to students</td>
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<tr>
<td>10/28</td>
<td>Last day to withdraw from courses with a “W” grade</td>
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<tr>
<td>12/13</td>
<td>Last day to withdraw from courses with a “WF” grade</td>
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