CHEMISTRY 452  
Physical Chemistry  
Spring 2012

MWF 12:20 – 1:10 pm  
117 Osmond

Instructor: Dr. John Asbury, 112 Chemistry Bldg., 863-6309, jasbury@psu.edu

Office Hours: 3 – 5 pm Tuesdays or by appointment

The Course: This course consists mainly of an introduction to quantum chemistry and molecular spectroscopy.

Prerequisites: Prerequisite: CHEM 112 and MATH 141 and PHYS 211 or PHYS 212. Students with questions about their readiness for this course should consult the instructor.

Web Site: use the course Angel page

Text: Atkins & DePaula, Physical Chemistry, 9th Ed. – (W.H. Freeman & Co.,2010), required
Atkins & DePaula, Student Solutions Manual – (W.H. Freeman & Co.), optional
J. P. Lowe, Chemistry 452 Supplementary Materials, Spring 2012, required
(Sold through the Penn State Book Store.)
An electronic calculator with logarithm/exponential capability is essential. Graphing calculators are allowed – the memory will be erased before each exam.

Attendance: Attendance at lectures will not be monitored. You are responsible for any announcements in class.

Examinations: There will be three evening examinations as shown in the course schedule.
Examination dates and times are listed below. You are required to inform the instructor in writing during the first two weeks of classes of any conflicts you have with this examination schedule. A comprehensive final examination will be given during the final examination period at the time and place scheduled by the University.

You must bring your student I.D. card to all exams. Notes are never permitted at exams. Graphing calculators are OK – the memory will be erased before each exam.

Questions about grading of an exam must be submitted in writing to the instructor within one week after the graded exams are returned.

No make-up exams will be given. Contact the instructor before the day of the exam if you are unable to take the exam because of a medical condition.

Lecture Problems: Two problems will be assigned on an approximately weekly basis and will be collected during class meeting to be graded (see below) on the dates indicated in the detailed course schedule.

Examination Dates:

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<tr>
<th></th>
<th>Wednesday, February 1</th>
<th>8:00 – 10:00 pm</th>
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<tbody>
<tr>
<td>I</td>
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<tr>
<td>II</td>
<td>Wednesday, February 29</td>
<td>8:00 – 10:00 pm</td>
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<td>III</td>
<td>Wednesday, April 4</td>
<td>8:00 – 10:00 pm</td>
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<td>Final</td>
<td>Date will be available in early March.</td>
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**Grading:** Each midterm exam will be worth 100 points and the final exam - 150 points. The lecture problems will be worth a total of 150 points. The final course grade will be assigned on the basis of 600 points. Nothing will be dropped.

Approximate grade distribution:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percent</th>
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<tbody>
<tr>
<td>A, A−</td>
<td>90 – 100</td>
</tr>
<tr>
<td>B+, B, B−</td>
<td>80 – 89</td>
</tr>
<tr>
<td>C+, C</td>
<td>65 – 79</td>
</tr>
<tr>
<td>D</td>
<td>53 – 64</td>
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<tr>
<td>F</td>
<td>0 - 52</td>
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**References:** The following material is on two-hour reserve for this course in the Physical & Mathematical Sciences Library, 230 Davey:

- Daniels, *Mathematical Preparation for Physical Chemistry*
- Avery and Shaw, *Basic Physical Chemistry Calculations*
- Avery and Shaw, *Advanced Physical Chemistry Calculations*
- Metz, *Schaum’s Outline: Theory and Problems of Physical Chemistry*
- Castellan, *Physical Chemistry*
- Levine, *Physical Chemistry*
- Lowe, *Quantum Chemistry*

**Academic Ethics:** Possession of unauthorized material during exams, alteration of exams prior to submission for regrading, plagiarism, or any other forms of cheating will be regarded as serious violations of academic ethics and may result in a failing grade in the course. Such incidents may also be referred to the University’s disciplinary system. All Penn State policies ([http://www.psu.edu/ufs/policies/](http://www.psu.edu/ufs/policies/)) regarding ethics and honorable behavior apply to this course.

**Study Groups:** Many students like to form small study groups. Educational research suggests that active participation in a small study group can be very helpful in mastering course material and improving problem-solving skills.