Instructor: Dr. Renée Cole  
Office: W331 Chemistry Building  
Phone: 319-384-1883  
Email: renee-cole@uiowa.edu

Course: CHEM 4431, 3 Credit Hours  
Lecture: MWF 8:30-9:20 am 1140 LIB  
Discussion: T 8:30-9:20 am or W 5:30-6:20 pm C129 PC  

Office Hours:

<table>
<thead>
<tr>
<th>Individual</th>
<th>Location</th>
<th>Time</th>
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| Dr. Cole               | W331     | T 10:00-11:00 am  
                        |          | W 4:00-5:00 pm  
                        |          | Th 11:00 am-12:00 pm  
                        |          | or by appointment    |
| Jennifer Bjorklund     | E208 CB  | T 1:30-2:30 pm  
                        |          | W 1:30-2:30 pm      |
| Waruni V. Karunaratne  | E208 CB  | M 5:30-6:30 pm  
                        |          | F 2:30-3:30 pm      |

Texts:  


Optional Text:  

Course Description:  
Physical chemistry is the study of the interaction of energy and matter. Topics covered typically include kinetic theory of gases, intermolecular forces, thermodynamics (i.e., the application of enthalpy, entropy, and free energy to chemical equilibrium, phase equilibria, and electrochemistry), and statistical mechanics. The course is intended primarily for chemistry, biochemistry, environmental science, and chemical and biochemical engineering majors. The course requires use of differential and integral calculus and skill in mathematical problem solving.

Course Organization:  
This course has been designed and organized to help you learn physical chemistry, but no course or instructor can learn for you. **Learning is something only you can do.**
Lectures will be conducted in a guided inquiry format. Virtually all of the activities in class will involve teamwork. Part of your responsibility for this course is to assist the other members of your group (and the entire class) in understanding the material.

Homework problems and problem solving are a very important aspect of this course. They provide an opportunity for you to practice applying your knowledge and help you determine which material you do not understand well. Homework problems to be turned in and graded will be assigned weekly throughout the semester.

There will be three hourly exams and a cumulative final for this course. Exams provide an opportunity for you to demonstrate your knowledge of the material and let me know what students have mastered and where the problem areas are.

**Grading:**
Grades will be determined by performance on three midterm exams, a cumulative final exam, and problem sets. Final grades will include +/- grades. Those grades will not necessarily be evenly split among the three categories (for example, # B+ ≠ # B ≠ # B). The grade of A+ is assigned to reward exceptional achievement. The College and EPC recommends that the A+ grade be used only to indicate rare and extraordinary academic achievement or that the A+ grade be omitted altogether.

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<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Hour exams</td>
<td>45%</td>
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<tr>
<td>Homework problems</td>
<td>30%</td>
</tr>
<tr>
<td>Discussion quizzes &amp; class participation</td>
<td>5%</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
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**Grading Scale:**

<table>
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<tr>
<th>Percentage Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90% – 100%</td>
<td>A</td>
</tr>
<tr>
<td>80% – 89%</td>
<td>B</td>
</tr>
<tr>
<td>70% – 79%</td>
<td>C</td>
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<tr>
<td>60% – 69%</td>
<td>D</td>
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<tr>
<td>&lt; 60%</td>
<td>F</td>
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Expectations for grades are based on degree of mastery of course content. Students whose achievement is in the indicated ranges will not receive a grade lower than that regardless of the distribution.

**Attendance Policy:**
Attendance at all lecture sessions is expected and attendance records are maintained. Legitimate reasons for absences are accepted and when possible prior notice of expected absences is requested. Homework will not be accepted late.

**Prerequisites and Required Background Material**
The prerequisites for this course include calculus and elementary physics. I will make every effort to introduce important mathematical and physical concepts before we need them, but these elements are an essential part of physical chemistry. You will be expected to master and apply
the necessary mathematical methods including multivariable calculus to be successful in this course.

**Expected Student Workload**
This is a 3 credit hour course, so under University policy you should expect to spend a minimum of six hours per week outside of class on activities related to this course.

**Academic Misconduct:**
In addition to the Academic Honesty code offenses detailed by the College, there are course specific expectations regarding Academic Honesty. Academic misconduct may result in a grade reduction and/or other serious penalties, up to and possibly including expulsion from the University of Iowa.

**Examinations:** You are expected to work alone. Cheating will not be tolerated. The instructor believes strongly in fairness for all students and objective appraisal of individual performance and understanding of material.

**Problem Sets:** The homework for this course is designed to help you master your knowledge related to the topics covered during lecture. As such, you may work on the homework problems with others or use online resources; however, please be aware that to master the skills needed for this class, practice is required and that to do well on exams you will need to work many of these problems multiple times without help. Be sure to test your knowledge by doing much of the homework on your own.

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**College of Liberal Arts and Sciences (CLAS): Policies and Procedures**

**Administrative Home** - The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at [http://clas.uiowa.edu/students/handbook](http://clas.uiowa.edu/students/handbook).

**Electronic Communication** - University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondence ([Operations Manual, III.15.2. k.11](http://clas.uiowa.edu/students/handbook).

**Accommodations for Disabilities** - A student seeking academic accommodations should first register with Student Disability Services and then meet privately with Prof. Cole, Haes, and McCurdy to make particular arrangements. See [www.uiowa.edu/~sds/](http://www.uiowa.edu/~sds/) for more information.

**Academic Honesty** - All CLAS students have, in essence, agreed to the College’s [Code of Academic Honesty](http://www.uiowa.edu/~sds/): "I pledge to do my own academic work and to excel to the best of my abilities, upholding the [IOWA Challenge](http://www.uiowa.edu/~sds/). I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled ([CLAS Academic Policies Handbook](http://www.uiowa.edu/~sds/)).

**CLAS Final Examination Policies** – The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final examination period. **No exams of any kind are allowed during the last week of classes.** All
students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student’s responsibility to know the date, time, and place of the final exam.

**Making a Suggestion or a Complaint** - Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (CLAS Academic Policies Handbook).

**Understanding Sexual Harassment** - Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Comprehensive Guide on Sexual Harassment for assistance, definitions, and the full University policy.

**Reacting Safely to Severe Weather** - In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Public Safety website.

**Student Classroom Behavior**

The ability to learn is decreased when students engage in inappropriate classroom behavior, distracting others; such behaviors are a violation of the Code of Student Life. When disruptive activity occurs, an instructor has the authority to determine classroom seating patterns and to request that a student exit the classroom, laboratory, or other instructional area immediately for the remainder of the period. One-day suspensions are reported to Departmental, Collegiate, and Student Services personnel (Office of the Vice President for Student Services and Dean of Students).

**University Examination Policies**

- **Missed exam.** UI policy requires that students be permitted to make up exams missed because of illness, religious obligations, certain University activities, or unavoidable circumstances.
- **Final Examinations.** A student with two final examinations scheduled for the same period or more than three examinations on the same day may file a request for a change of schedule before the published deadline at the Registrar's Service Center, 17 Calvin Hall, 8-4:30 M-F (384-4300).