

**CHEM 343/344: Physical Chemistry II (2/3 Credits)**  
*South Dakota School of Mines and Technology*  
*Chemistry/Chemistry Engineering Building, Room C302*

**Spring 2010**

**MWF 11:00-11:50 am**

**INSTRUCTOR:** Justin P. Meyer

Office: Chemistry and Chemical Engineering 122

Phone: 394-2431

Email: [Justin.Meyer@sdsmt.edu](mailto:Justin.Meyer@sdsmt.edu)

**Office Hours:** Monday, Wednesday, Friday 9-10:30 am, or by appointment

**Course Description:** 343: Kinetic theory of gases; statistical thermodynamics and properties of solids; chemical kinetics and kinetics at interfaces.  
344: A study of the fundamental principles governing the behavior of chemical systems. Kinetic theory of gases; statistical thermodynamics and properties of solids; chemical kinetics and kinetics at interfaces; quantum mechanics and spectroscopy.  
Duplicate credit for CHEM 343 and CHEM 344 not allowed

**Course Prerequisites:** 343: Prerequisite: Chem 341 or 342, and PHYS 213.

342: Prerequisites: Chem 342 and PHYS 213.

**TEXT:** *Physical Chemistry*, 4<sup>th</sup> Ed, Silbey, Alberty, Bawendi; Wiley

**COURSE POLICIES:**

**Grading:** Your final grade will be determined from a weighted average of your exam grades and your homework/problem set grades. Exams (midterm and final) will make up 75% of your overall grade while homework/problem sets will make up 25%. Homework must be turned in by the specified due date and time.

**Homework:** Collaboration with other students is allowed. Remember the definition of collaboration is to work together, this means you need to contribute, not copy. If homework is done in a group, each student must hand in their own copy of the results (no homework with multiple names signed on it). Make sure homework is neat; you may lose points for homework that is hard to follow. LATE HOMEWORK WILL NOT BE ACCEPTED.

**Exams:** I will be giving a number of exams during the course of the class. These exams will be given at times decided in class prior to the exam. They may be either take home, in class, or a combination of both, again decided prior to the exam. A 'cheat sheet' can be used for in class exams. This sheet must be no bigger than an 8 x 11 sheet of paper with no photocopies or typing on it.

**Final Exam:** Will be a combination of take home and in class problems. Take home problems will be given out in class a week prior to the final exam time of Thursday, May 4<sup>th</sup> 8:00 am. This exam will be mostly comprehensive and over some new material.

The following grading scale will be used as a starting point. The grade cut offs may be lowered, but will not be raised from those listed below:

A: 90%      B: 80%      C: 70%      D: 60%      F: <60%

**Withdrawal Deadline:** The last day to drop this class with a grade of "W" recorded on your transcript is April 7<sup>th</sup>.

**Objectives:** The main objectives for the course are quantum mechanics, spectroscopy, statistical mechanics, kinetic theory of gases, and reaction kinetics and dynamics. On top of this other selected topics may be chosen as time allows.

**These dates are subject to change.**

<b>Dates</b>	<b>Topics</b>	<b>Chapters From Text</b>
Jan. 15 <sup>th</sup> - March 1 <sup>st</sup>	Quantum Mechanics and Spectroscopy*	9-11,13,14
March 3 <sup>rd</sup> - March 24 <sup>th</sup>	Statistical Mechanics	16
Mar. 26 <sup>th</sup> - Apr. 7 <sup>th</sup>	Kinetic Theory of Gases	17
Apr. 9 <sup>th</sup> - Apr. 30 <sup>th</sup>	Reaction Kinetics	18-20
	Selected Other Topics (Time allowed)	12,21,22

*\*Topics covered only for Chem 344 students*

**ADA Statement:** *Students with special needs or requiring special accommodations should contact the instructor, (Justin Meyer, at 394-2431) and/or the campus ADA coordinator, Jolie McCoy, at 394-1924 at the earliest opportunity.*

**Freedom in learning.** *Under Board of Regents and University policy student academic performance may be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards. Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled. Students who believe that an academic evaluation reflects prejudiced or capricious consideration of student opinions or conduct unrelated to academic standards should contact dean of the college which offers the class to initiate a review of the evaluation.*

**Electronic Devices Policy:** *Please turn off your cell phone before class starts. No text messaging in class. No headphones. If you wish to use a laptop in this class for purposes of note taking you will have to have your screen in the locked down position. Note that according to "Policy Governing Academic Integrity" in the SDSM&T Undergraduate Catalog, the instructor of record for this course has discretion of how acts of academic dishonesty are penalized, subject to the appeal process, and that "Penalties may range from requiring the student to repeat the work in question to failure in the course" (72-73). No other use of any other electronic/computer media is allowed during class time.*