

# College Chemistry C112-4036

This course meets BSU requirements for an Area III Core Course

Spring 2006

Instructor: Carole LeMaster

Phone: Email is preferred, but if necessary, please leave a message with the Chem Office and I will get back to you by phone

Email: [carolelemaster@chem.boisestate.edu](mailto:carolelemaster@chem.boisestate.edu)

Dept. office SN 339

Phone: 426-3000

Required: Textbook: *Chemistry The Science in Context*, Thomas R. Gilbert, Rein V. Kirss, Geoffrey Davies, 1st ed., 2004.

Recommended: *All associated aids for the student are recommended.* Use <http://www.wwnorton.com/chemistry> for additional student aids.

All reading assignments and homework problems will be made in the textbook or on Blackboard unless otherwise indicated. All topics covered in the course can be found in your textbook by referring to either the table of contents or the index. Students are expected to check their BSU email and the Blackboard site daily.

Office Hours: Use the Discussion Board for questions. Do not email questions unless they concern confidential matters (grades etc.).

## Topic Schedule (Tentative):

Week	Chap	Topic	Examinations
1/17/06	10	The Solid State	
1/23	10/11	Thermochemistry	Quiz chap 10 end 1/30/06
1/30	11	Cont	Quiz chap 11 end 2/6/06
2/6	12	Energy	
2/13	12/13	Entropy and Free Energy	Quiz chap 12 end 2/20/06
2/20	13	Cont	Quiz chap 13 end 2/28/06 <b>Exam 1 (chap 10, 11, 12)</b>
2/27	14	Chemical Kinetics	
3/6	14/15	Chemical Equilibrium	Quiz chap 14 end 3/13/06
3/13	15	Cont	Quiz chap 15 end 3/20/06
3/20	16	Equilibrium in the Aqueous Phase	<b>Exam 2 (chap 13, 14, 15)</b>
3/27		<b>Spring Vacation</b>	
4/3	16	Cont	Exam chap 16 end 4/10/06
4/10	17	Electrochemistry	Quiz chap 16 end 4/24/06
4/17	17/18	Materials Chemistry	Quiz chap 17 end 4/25/06 <b>Exam 3 (chap 16, 17)</b>
4/24	18	Cont	
5/1	all		Quiz chap 18 end 5/3/06
5/8		Comprehensive Final: 3:30–5:30 pm	Final Exam 5/8/06 (all chap)

**EXAMS:** Exams are on 2/24/06, 3/24/06, 4/21/06; Final: Monday, May 8, 2006 3:30–5:30 pm. NOTE: Students must meet in room SN335 BSU campus for the midterms and for the final. THESE EXAMS ARE ONLY OFFERED AT THESE TIMES AND DATES – NO EXCEPTIONS.

## **Comments:**

**Schedule of Topics:** The schedule of topics to be covered, above, is to help you pace the material covered in this course. *It is extremely important for you not to get behind.*

**Internet Aids on the Blackboard Site:** To make the best use of the online study aids you will need to install a number of programs such as Quicktime, Macromedia Shockwave, Real Player and others. These programs are free and your Browser should automatically install them when needed. The use of Microsoft Internet Explorer is recommended – not Netscape. Please take full advantage of the Essential Study Partner, ELearning Session, Flashcards, and Internet Exercises located in the course documents. A broadband connection will be useful.

**Office Hours:** Virtual office hours will be held by making use of the Discussion Board on the Blackboard site. Do not email questions but do post them on the site so that other students who may have similar questions can benefit from the answers. All students are encouraged to join in the discussion and help answer questions. I will attempt to provide input on a frequent basis.

**Assessment of Student Performance:** The student's proficiency with course material will be assessed by quizzes, written examinations, and a laboratory. (A separate, detailed laboratory syllabus is provided for that portion of the course.)

**Quizzes:** Quizzes are offered for each chapter and are taken any time during the open period. You may use your text and notes but may not use any other aids including other people. Because each quiz is offered for at least one week at any location with Internet access there are no make-ups under any circumstances.

**About Exams:** Examination dates and times are fixed, and will not change – do not ask for an exception. Note that one exam (not the final) is automatically dropped before calculating the overall course grade so that missing one exam will not affect your grade. The exams will have a 50-minute time limit and the final (comprehensive) two hours. You can think of knowledge as having units – knowledge per unit time. It is not only important that you have the knowledge but also that you are proficient in using it. A music analogy is that while one could play a Mozart piano sonata one note at a time, this is not useful. All exams and the final are closed book and notes are not allowed. You will need to bring your calculator.

**Missed Exams and/or Quizzes:** There will be no make-up exams or other assigned work under any circumstances—do not ask for an exception. A missed exam or other work will be considered a grade of zero (0). All students will take the final. It is not optional.

**Homework:** Homework problems are available in the textbook. Becoming successful at science is the same as becoming successful at music or art—the more you practice the better you are at the discipline.

**How the Lab Affects Your Grade in the Course:** The lab portion of the course, as described in detail in the separate lab syllabus, is worth up to 20 % of the total course grade. You will receive the corresponding fraction of the 20% based on your lab score, which will be added to your lecture percentage to calculate your total score.

**Course Grade:** The lecture part of the grade will be computed based on the exams (best 3 of 4 45%), quizzes (10%), and the comprehensive final (25%). The laboratory grade will be the other 20%. The course grade will be computed in two ways shown below, and the higher of the two will be used to assign a letter grade:

1. Final Exam only: Students who have taken at least 3 of the 4 exams and at least 7 of the 9 quizzes may use the comprehensive final exam score as part of the course grade (80%). This favors students who learn better with longer exposure to material.

2. Exams (45%), quizzes (10%), combined with the final exam (25%) for a total of 80%. This favors students who have shorter retention time of material.

Your laboratory percentage grade (20%) will be added to your lecture percentage (80% from either number 1 or 2 above) to calculate your total score. Grades will be assigned according to the following scheme:

90–100 %	A
80–89	B
70–79	C
60–69	D
< 60	F

## Learning Objectives

At the successful conclusion of this course, a student should be able to demonstrate proficiency at a 70 % level in the following areas, as measured by written exams and graded homework. At the successful conclusion of this course, a student should be able to demonstrate proficiency at a 70% level or better in the following areas, as measured by written exams and laboratory exercises.

- Understand thermodynamic principles and their association with reaction spontaneity
- Identify organic functional groups and their associated properties as well as draw their Lewis structures
- Understand the concepts of chemical kinetics, including reaction rates, reaction mechanisms, catalysis, and the Arrhenius equation
- Understand chemical equilibrium in the gas and liquid phases including acid-base chemistry and precipitation reactions.
- Understand the basic principles of electrochemical cells, including half reactions, standard potentials, free-energy changes in cells, and the Nernst equation.
- Develop computational skills used to solve thermodynamic, kinetic, stoichiometric, and solution calculations.