

General Chemistry 1: CHEM 121-01, Winter 2009
Department of Chemistry, Wright State University

Lecturer

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Office Hours: Tuesday 5.30 p.m. - 7.00 p.m., Wednesday 8.30 a.m. – 10.00 a.m., Thursday 5.30 p.m.-7.30 p.m. and by appointment

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Course description

In this General Chemistry 1 course, students will be exposed to fundamental concepts of chemistry with applications in many areas of science: Biology, Physics, and Engineering technology to understand day-to-day observations. Students' vision of Chemistry will be shaped by their experience in this course. Theoretical concepts learned during lecture will be emphasized by hands on experience in CHM 125, the laboratory associated with this course. Upon completion, students will also improve or develop new skills that will be useful in future endeavors, regardless of their major (e.g., sharpen critical thinking, writing, communication, and group work skills). They will begin to learn how to solve complex problems from basic principles and to design new experiments.

Pre-requisites: High School Chemistry or CHM 101;
Undergraduate level MTH 127 (minimum grade of D) or WSU Math Placement 04.

Please note: You are “at risk” in this course without the stated prerequisites.

Course Meeting and Functions

Lecture: Tuesday, Thursday 4.10 p.m.- 5.25 p.m., FH 101 (Fawcett Hall)

Lecture sessions will substantially be used to present new course material and to solve problems. This does not mean, however, that the dialog will be one-way. I strongly encourage you ask and answer questions throughout the class period.

Optional review sessions will typically be organized two or three days before each scheduled exam; room and meeting time – TBA.

Review sessions will be dedicated to discussing the upcoming exams as well as working problems. The review sessions provide an excellent opportunity for you to ask questions.

Student learning outcomes and Methods of Assessment

a) Knowledge of chemical principles: Students will have working knowledge of chemical principles such as atomic structure, bonding models, chemical structures, basic reactions, and stoichiometry. In addition, an understanding of the value inherent in the periodic table with respect to chemical properties and reactivity will be stressed. *Assessed by in-class discussions, homework assignments, quizzes, and exams.*

b) Problem solving abilities: Chemistry is more about problems than solutions. The leaders in the field are working hard to solve problems that do not have answers (yet). This course is your first step in that direction. Although the problems you will be solving have known solutions, the process is good practice for the time when there are no solutions. *Assessed by homework assignments, quizzes, and exams.*

c) Abstract thought: This could fall under the heading “advanced problem solving techniques”. Chemistry text books provide certain types of problems and very rigid, fail-safe, step by step methods to solve those problems. In the real world, you have a problem and a bunch of data and have to figure it out on your own.

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The chemistry text gives you the tools to figure out chemistry, but you have to learn how to use those tools to solve specialized problems and to design new experiments. *Assessed by homework assignments, quizzes, and exams.*

d) Communication skills and the ability of keeping a scientific notebook: Discoveries are useless unless they can be communicated to the rest of the world. Students will learn the techniques of oral and written scientific communication. They will have to follow and record all lectures, which stresses the concept of keeping a scientific journal. *Assessed by in-class participation, homework assignments quizzes, exams, and examination of class reports.*

e) Group work skills. Students will learn to work as members of a scientific group by using their strengths in full and compensating for each other's weaknesses. Two Heads are Better than One! This heavily relies on good communication within the team and the harmony in member relationships. Moreover, working in pairs can also be a socially pleasurable activity which helps students to reduce study related stress. *Assessed by in-class group assignments during lectures and review sessions.*

Please note: Students with documented learning disabilities or physical disabilities who will require special accommodations must register with the Office of Disability Services (023 Student Union, phone: 937-775-5680) and should let the instructor know as soon as possible about the accommodations they will need.

Textbook and Study Aids

Textbooks: “*Chemistry*” by McMurry and Fay, 5th edition, Prentice Hall, 2008 (ISBN-13: 978-0-13-199323-5 and ISBN-10: 0-13-199323-2).

Websites and access codes: *Student Access Code for “Mastering Chemistry”* - the printed code supplied inside the *MasteringChemistry Student Access Kit*, Prentice Hall, 2008 (ISBN-10: 0-321-58212-8 and ISBN-13: 978-0-321-58212-6). “*Mastering Chemistry*” is an online homework system at <http://www.masteringchemistry.com>, which provides students with customized coaching and individualized feedback to help improve problem-solving skills. Students will be able to complete homework efficiently and effectively using tutorials that provide targeted help. The course ID for “*Mastering Chemistry*” is CHM121W09.

Please note: Both, the textbook and the student access code for “*Mastering Chemistry*” are required and sold as a bundle in the WSU bookstore. The *Student Access Code* and an *e-book* version of the textbook can also be bought online on the same Website.

Course information and some requirements will involve the use of the *Course Studio* system, which can be found into the WINGS portal - by *Access My Courses* in the *Academics* window. You can login at <http://wings.wright.edu> using your “w.....” number. Any class announcements as well as all lecture material will be posted on this site too.

Suggested Supplementary Material: “*Selected Solutions Manual*” by Joseph Topich, 5th Edition, Prentice Hall, 2008 (ISBN-10: 0-13-614043-2 and ISBN-13: 978-0-13-614043-6).

“*Student's Study Guide*” by DonnaJean A. Fredeen and Robert C. Fay, 5th Edition, Prentice Hall, 2008 (ISBN-10: 0-13-199348-8 and ISBN-13: 978-0-13-199348-8).

Please note: Three copies of the textbook and supplementary materials are on reserve in Paul Laurence Dunbar Library. Please refer to the WSU Libraries Web page at <http://wright.docutek.com/eres/courseindex.aspx?&page=search> or consult with a librarian for book availability and record number.

Attendance

Lecture and review sessions: Students should be aware that this course will move relatively fast and that missing lectures, exams, review sessions or coursework may be difficult or impossible to make up. There is

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no specific number of "legal" absences allowed. Students should **plan to attend all lectures**. If you do miss a class, it is your responsibility to find out the material that you missed (i.e., all notes, handouts, assignments, announcements, etc).

Academic Honesty

Academic honesty is absolutely, unquestionably expected. Academic dishonesty, notably plagiarism of work and cheating on quizzes or exams will result in a zero grade for the work and could lead to failing the course or even expulsion. You will also be reported to the WSU Office of Judicial Affairs. For a more detailed description of what is meant by "academic dishonesty" please see the student handbook available at <http://www.wright.edu/students/handbook/> and the *Student's Guide to Academic Integrity* brochure distributed during the first lecture. For a complete copy of the *Academic Integrity Policy* and the *Code of Student Conduct*, please refer to the Student Judicial Services Web pages at: <http://www.wright.edu/students/judicial/integrity.html> and <http://www.wright.edu/students/judicial/conduct.html>, respectively.

Course grade

a) Class Participation: There will be many opportunities for you to participate in lecture and review sessions, e.g., by asking questions and solving problems. A portion of your grade will be determined by your ability to regularly and meaningfully contribute to class discussions. Your final grade will be negatively impacted by frequent absences and/or persistent, disruptive talking.

Please note: Cell phones and pagers must be turned off or placed in silent mode at the beginning of lecture or tests as a courtesy to everyone in the class. Exceptions may be made for certified disabilities. Grade penalties of 5-25 points may also be applied for failing to follow this policy. Severe penalties such as failing the course will be applied for using electronic devices such as laptops for activities unrelated to lectures.

b) Online homework: Solving problems is one of the most important aspects in the study of Chemistry. There is a strong, positive correlation between diligent working of problems and success in chemistry. To that end, a significant portion of the total number of points you may earn in this course is given for successful completion of online homework at <http://www.masteringchemistry.com>, using *Mastering Chemistry*. Specific assignments will be given in general each week on Tuesday after class (denoted HW & the corresponding chapter number in the tentative homework outline below). Homework assignments are due at 4.00 pm on the following Tuesday.

Please note: There are many points available, but your overall performance will be scaled to a maximum of 65 points.

Quizzes: Short online or in-class quizzes will be given for bonus points on the new material (one quiz per chapter). Quizzes may or may not be announced ahead of time. The question format will include multiple choice and/or short answer. No make-up quizzes will be available. Missed quizzes or not completed by the deadline will count as a zero.

c) Exams: Four midterm exams will be given on the indicated class dates, and **d) a final comprehensive exam** is scheduled for Tuesday, March 17th, 5.45 p.m. – 7.45 p.m. Exam questions may take the form of multiple choice, short answer, and/or problem solving formats. The highest three scores out of the four 100 point midterm exams will count toward the final grade (i.e., the lowest exam score will be dropped in calculating the course grade). A missed midterm exam will be the dropped exam by default. Therefore, there will be no make-up exams. Attendance at the final comprehensive exam is mandatory.

Please note: Electronic calculators are permitted for the numerical calculations during exams. Calculators may not be shared among students for this purpose. Graphing calculators, calculators allowing entry of alpha

characters, PDAs, or handheld computers are not allowed for test taking. Cell phones may not be used as a calculator.

Additional requirements may be stated during lecture or on *Course Studio*.

Overall Grade Determination

Final grades will be based on a total of 475 points, distributed as follows:

Category	Available Points
a) Class Participation	10
b) Homework and Quizzes	65
c) Four Midterm Exams	300
d) Final Comprehensive Exam	100
Total	475

Guaranteed point grade breaks (460 total):

A (≥ 427) B (≥ 380) C (≥ 332) D (≥ 285) F below 285

Grade breaks are based upon point totals (not %).

Please note: The professor reserves the right to use subjective evaluation to determine a student's final grade. This practice, however, will never result in decreasing any student's grade.

Study Suggestions for Success

- a) Attend class regularly, and please be in time. The exams will be based mainly on the textbook material as it is presented during lectures, i.e., your class notes are a valuable study guide. Develop an effective set of study skills!
- b) Have a positive attitude about learning new things. Even if you have taken a very good High School course and have "seen these all before," you still have room to refine your knowledge and skills.
- c) This course requires you dedicate daily 1-2 hours of preparation time. Please be consequent and perseverant, and you will find the exams easy.
- d) Review the class notes as soon after class as possible, fill in any gaps, and formulate questions which need answering. You may also want to make an outline of the major points of the chapter based on your notes and your reading of the text. The Student's Study Guide might be of great assistance too.
- e) Memorize things only when necessary! The list of things which must be memorized is fairly short (e.g., elemental symbols, nomenclature rules, definitions of units, etc.), but these things are crucial. However, don't waste time on memorizing lists of things which don't need to be memorized (either because they are not important or they will be available from tables, etc.) If you are not sure what does and does not need to be memorized, consult your professor or the Student's Study Guide.
- f) Form a study group with classmates and discuss words, concepts, problem-solving strategies, etc. to the benefit of all members of the group. Having to explain something to someone else is an excellent way of finding out what you do and don't understand!
- g) Take your homework very seriously and discuss all unclear problems and aspects during supplemental instruction (SI) sessions, review sessions or office hours. If you encounter difficulties solving practice problems, then you are also likely to experience the same when taking the exam.
- h) Additional (ungraded) problems can be found at the end of each text chapter. Feel free to solve as many problems as you like. The more you solve, the easier they become.

i) Ask for help early in the quarter if you are struggling with the material. Topics will be presented at a brisk pace, and your ability to understand newly introduced material will depend on your comprehension of the previous weeks' lectures. In other words, it will be very, very difficult to catch up if you fall behind.

Please note: The University College Student Academic Success Center (SASC) provides one-on-one or group **tutoring services**. First-year students receive one free hour of tutoring per week. Subsidizing tutoring is also offered through collaborations with Athletics, Bolinga Center, Disability Services, and the Bureau of Vocational Rehabilitation. Please call 937-775-2280, e-mail SASC at wsututor@wright.edu, or refer to the SASC Website at www.wright.edu/uc/tutor for more information. SASC is located in the room 023R of the Dunbar Library.

j) Remember: Progress towards your ultimate career and life goals is a cumulative process!

CHM121-01, Winter 2009 - Tentative Lecture and Online Homework Outline*

Week	Tuesday	Thursday
1	01/06 Introduction to the course Ch1: Matter and Measurement (HW1)	01/08 Ch1: continued
2	01/13 Ch2: Atoms, Molecules, and Ions (HW2)	01/15 Ch2: continued
3	01/20 Exam I (Ch1 and Ch2)	01/22 Ch3: Formulas, Equations, and Moles
4	01/27 Ch3: continued (HW3)	01/29 Ch3: continued
5	02/03 Exam II (Ch3)	02/05 Ch4: Reactions in Aqueous Solutions
6	02/10 Ch4: continued (HW4)	02/12 Ch5: Periodicity and Atomic Structure
7	02/17 Ch5: continued (HW5)	02/19 Ch5: continued
8	02/24 Exam III (Ch 4 and Ch5)	02/26 Ch6: Ionic Bonds and Some Main-Group Chemistry (HW6)
9	03/03 Ch7: Covalent Bonds and Molecular Structure (HW7)	03/05 Ch7: continued
10	03/10 Ch7: continued	03/12 Exam IV (Ch 6 and Ch7)
11	Finals Week	
	Final Comprehensive Exam: on Tuesday, March 17 th , 5.45 p.m. – 7.45 p.m., in FH 101	

*Abbreviations: Ch. - chapter; HW – homework.

*** THIS SCHEDULE IS SUBJECT TO CHANGE***

Other important dates:

- Friday, January 9th, 2009 –Last day to register, add classes, or withdraw and receive 100% refund of fees in person. Last day to change to audit status. Last day for international student to register without a signature from UCIE. Last day to apply for Ohio Residency.
- Sunday, January 11th, 2009 - Last day to register, add classes, or withdraw and receive 100% refund of fees online using WINGS Express.
- Monday, January 12th, 2009 - 70% refund of fees begins.
- Tuesday, January 20th, 2009 - Last day to withdraw and receive 70% refund of fees. Late registration/add fee of \$250 begins.
- Friday, January 23rd, 2009 - Last day for ALL students to drop class without a grade of W.
- Friday, February 20th, 2009 - Last day for ALL student to drop a class with a grade of W.