

## Chemistry 105: General, Organic and Biochemistry Syllabus Sections C, D & F

### WIDENER UNIVERSITY DEPARTMENT OF CHEMISTRY

#### Fall 2008

*Lecture:* Monday, Wednesday, Friday 9:00-9:50 AM

Room: Kirkbride 149

*Workshop:* Section C: Wednesday 10:00-10:50 AM

Section D: Friday 10:00-10:50 AM

Section F: Monday 10:00-10:50 AM

Room: Kirkbride 332

*Exam Period:* Friday 3:00-4:30 PM

Room: Kirkbride 149

**Dr. Alexis A. Nagengast**

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*Office:* Kirkbride 304

*Phone:* (610) 499-4020

*Office Hours:* Mon 2-3, Wed 2-3:30

Thurs 12:30-2, Fri 11-12

and by appointment

**Text:** *Essentials of General, Organic, & Biological Chemistry*, by Melvin Arnold, Harcourt College Publishers, 2001. A solutions and study guide is also available for this book. While it is not required, you may find it helpful as it contains summaries of each chapter, self-test questions and answers to the odd-numbered questions in the textbook.

**Prerequisite:** Math 101

**Requirements:** A basic scientific calculator capable of exponents and logs.

**Office Hours:** Monday 2:00-3:00, Wednesday 2:00-3:30, Thursday 12:30-2:00,  
Friday 11:00-12:00 and by appointment.

You are welcome to stop by my office at any time for help when my door is open. I can also be reached by email or phone to answer questions or arrange additional meeting times that are more convenient for you. Please contact me as soon as possible if you are having difficulties. I am here to help you!

**Course Communications:** Campus Cruiser is used heavily in this course so please familiarize yourself with it at the beginning of the semester when you have more time. Email will be sent to your Campus Cruiser account; forward your messages to the account that you use most often. Power Points of lectures, homework assignments and additional course materials will be posted in Shared Files on the Campus Cruiser course web site. Exam scores will be posted in the Gradebook on Campus Cruiser. Additionally, announcements, homework assignments and changes to the schedule will be announced in the beginning of class. Not everything covered in class is included in the Power Point lectures. You are responsible for knowing everything that transpires in class even if you are absent.

**Workshop:** Kirkbride 332, **Section C:** Wednesday 10:00-10:50 AM,

**Section D:** Friday 10:00-10:50 AM, **Section F:** Monday 10:00-10:50 AM.

This portion of the lecture is a problem solving session where you are an active participant. We will discuss questions from class and go over problems, including homework. You must come prepared with questions and answers by reviewing lecture material and working homework problems. You may be called upon to present a problem to class.

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**Readings:** Readings corresponding to lecture topics are listed at the end of the syllabus. It is essential that you read and think about the material *before* class. This will help put the lectures into context and allow you to start thinking about the problems and potential questions for Workshop immediately. Try to work the examples and self-test problems in the book first, as example problems in lecture build upon them. All sections in the text will not be covered in detail and some material not in the text may be given in class.

**Homework:** CHEMISTRY TAKES PRACTICE! Working problems is an excellent way to study, learn the material and prepare for class. Homework problems will be posted in Shared Files on Campus Cruiser and at the beginning of class when we start a chapter. Problems are assigned to help you apply what you are learning and prepare for the type of questions that will appear on your exams. Assigned problems are the *minimum* you are expected to do. You should also work the self-test exercises while you are doing the readings and the end-of-chapter exercises that apply to lecture material. Other problems can be worked until you are confident in your understanding and mastery of the material. A Practice Exam will be distributed approximately one week before the exam to familiarize you with the type of problems found on exams. You should attempt the Practice Exam *after* you have mastered the homework problems. Please contact me or seek help as soon as possible if you are having difficulty with the homework problems. Problems will be discussed during Workshop and you may be called upon to work a solution for the class. Although problems will not be graded, they may occasionally be collected for evaluation.

**Exams:** There will be five exams and a comprehensive final exam. There will be **no make-up exams** given for any of the hourly exams. If you are absent from an exam during the course, it will be counted as a zero. Reconsideration of this policy may be possible under extenuating circumstances (usually circumstances beyond your control) and will require documentation. The instructor will be the judge as to whether the circumstances are sufficient to warrant consideration. You must contact me within 24 hours after a missed exam. No make-up requests will be granted for any reason once the exam has been returned. Hour exams are scheduled for the following Fridays during the exam period from 3:00-4:30 in Kirkbride 149:

**September 26      October 10      October 31      November 14      December 5**

The final exam will be scheduled by the registrar during finals period, **December 14-18**.

*The Science Division and the Chemistry Department strictly enforce the University's policy on cheating and other forms of academic fraud. Cheating includes any of the following: giving or receiving information about an exam, copying from someone else's paper, using another student's work for an assignment, using unapproved notes or other materials for an exam or removing exam material from an instructor's office.*

**Attendance:** Attendance is required in lecture and workshop; records will be kept. Read the *Undergraduate Student Handbook* regarding school policies on attendance: "A student may receive a failing grade, if the number of absences in a semester exceeds **twice** the number of weekly class meetings." This policy is in effect for Chemistry 105. You may not miss more than 8 lectures or workshop periods combined. If you decide to withdraw from the course after September 11 (last day for drop/add), you must complete a withdrawal form. The last day for withdrawal without academic penalty is November 14. If you drop CHEM 105, you must also drop or withdraw from CHEM 106.

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**Grading:** This course will be graded on the +/- system. Your grade will be based on your performance on exams and will be weighted as follows:

<b>Hour exam average</b>	<b>75%</b>
<b>Comprehensive final</b>	<b>25%</b>

**NO EXTRA CREDIT WORK WILL BE GIVEN IN THIS COURSE.** Your attendance and participation in lecture and workshop will be a factor in determining borderline grades.

**Studying:** Plan to spend a **minimum of 10-12 hours per week** studying for this course outside of class time and in addition to any other classes you are taking. You should spend at least 1-2 hours every day. Students who do not study effectively are usually not successful in Chemistry 105. You cannot study effectively by cramming the night before an exam. Reading the material before class should help make lectures more understandable. Use your lecture notes as a basis for re-reading relevant material from the text. Work the self-test problems as you are reading, practice assigned problems from the text and then practice some more.

If this strategy proves ineffective, see me as soon as possible. In addition, chemistry and math tutoring is available through the university as well as resources to help you in related areas such as reading comprehension and study skills. However, remember that the tutor cannot study for you. You must prepare for tutoring sessions as if they are an exam. If you do not read the textbook, take notes, pay attention in class, work homework problems and think about the material outside of class, a tutor cannot help.

**Seek help early. Do not wait. If you start off poorly on the first few exams, it is unlikely that you will improve your grades sufficiently to pass the course. Most students who perform poorly on the first exam usually end up failing or withdrawing from the course.**

Chemistry does not lend itself to cramming the night before an exam. If your traditional method of test preparation involves waiting until the last minute to prepare for the exams, you will not be successful in this course. The information in many of the chapters is based on material that is presented earlier. Mastery of the early chapters is the foundation for later chapters. It is essential that you read the textbook, attend all lectures and workshops, take good lecture notes, work practice problems and study a minimum of two hours for each lecture hour. Do not expect to learn this material simply by attending class.

**Tutoring:** Free tutoring is available and is an excellent resource you should take advantage of. The weekly group tutoring schedule for CHEM 105 will be posted on the Science Tutoring Center in Kirkbride 449. Walk-in math tutoring is available from the Math Center in Academic Center North, Room 273. You may also seek an individual tutor or academic coaching by contacting Academic Support Services (610-499-1267) located in the Pineapple House at 522 East 14<sup>th</sup> Street.

**Grievance policy:** Please refer to the student handbook, the science office or myself if you have a problem.

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**Course content and schedule:** Below is a **tentative** schedule of topics that will be covered. Readings should be completed before lecture. Alterations to the schedule may be made as necessary and we may leave out portions of some chapters. Announcements of changes will be given in class; you are responsible for knowing those changes whether or not you attend class.

Date	Chapter & Topic	Reading
Sept 5	Ch 1: measurements & units, significant figures	pp. 4-15
Sept 8, 10, 12	Ch 1: scientific notation, dimensional analysis, density, specific gravity Ch 2: atomic theory and structure, isotopes	pp. 15-24 pp. 36-42
Sept 15, 17, 19	Ch 2: electron shells, periodic table, electronic configurations Ch 3: octet rule and Lewis structures, ions, ionic bonds	pp. 42-44, 46-56 pp. 82-90
Sept 22, 24, 26	Ch 3: covalent bonds, electronegativity, shapes and polarity of molecules, ionic vs covalent bonds	pp. 90-102
<b>Sept 26</b>	<b>Exam 1</b>	
Sept 29, Oct 1, 3	Ch 4: chemical formulas and names, chemical equations, moles	pp. 108-132
Oct 6, 8, 10	Ch 5: changes in state of matter and temperature, gases, solids and liquids	pp. 140-143, 159-165, 146-155, 157-159
<b>Oct 10</b>	<b>Exam 2</b>	
Oct 13, 15	Ch 6: solutions and solubility, concentrations	pp. 172-179, 182-183
<b>Oct 17, 20</b>	<b>Fall Break</b>	
Oct 22, 24	Ch 6: colligative properties Ch 7: acids, bases, salts, water, pH	pp. 184-188 pp. 194-200
Oct 27, 29, 31	Ch 7: acid-base reactions, buffers, oxidation-reduction reactions Ch 8: intro to organic, alkanes	pp. 202-206, 208-214, 219-221 pp. 228-234
<b>Oct 31</b>	<b>Exam 3</b>	
Nov 3, 5, 7	Ch 8: alkanes, isomers, organic halides, cycloalkanes	pp. 234-244, 316-317
Nov 10, 12, 14	Ch 8: stereoisomers, functional groups Ch 9: alkenes, cis-trans isomers	pp. 245-254 pp. 262-268
<b>Nov 14</b>	<b>Exam 4</b>	
Nov 17, 19, 21	Ch 9: alkene reactions, aromatics	pp. 270-286
Nov 24, 26	Ch 10: alcohols, phenols, ethers, thiols, amines	pp. 296-315
<b>Nov 28</b>	<b>Thanksgiving Break</b>	
Dec 1, 3, 5	Ch 11: aldehydes, ketones, carboxylic acids, amides	pp. 328-355
<b>Dec 5</b>	<b>Exam 5</b>	
Dec 8, 10, 12	Ch 14: amino acids, peptide bonds Ch 13: fatty acids, lipids Ch 12: carbohydrates, polysaccharides	pp. 426, 433-434 pp. 396-398 pp. 366-387
<b>Dec 14-18</b>	<b>Comprehensive Final, date TBA</b>	