

**Orange County Community College**  
**Department of Science and Engineering**  
**34104 Applied Chemistry II**  
**Spring 2007**

This course is a continuation of 34103. Some topics include acid base chemistry, nuclear chemistry with an emphasis on the radioisotopes and nuclear reactions, organic chemistry, with emphasis on nomenclature, structure and properties of main functional groups. An introduction to biomolecules and their metabolism. Laboratory work emphasizes qualitative and quantitative testing procedures. Use of periodicals and reference texts is stressed.

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Office hours: See hours on door.

I will be around most of the week. Students can drop by or make appointments to see me either during the posted office hours or outside of these hours. If you are having trouble or just have questions, please stop by and see me.

TEXT: Introduction to General, Organic, and Biological Chemistry  
Authors: Karen Timberlake

Materials: Willingness to learn. Scientific calculator, notebook, laboratory notebook, goggles.

Relationship to programs:

Chemistry 34104 is a continuation of 34103 with an emphasis on nuclear and organic chemistry.

Course Objectives:

The student who successfully completes this course will:

- Name using the IUPAC nomenclature and draw structures for hydrocarbons.
- Name using the IUPAC nomenclature and draw structures for basic organic functional groups.
- Identify some simple fats, sugars, and protein molecules.

**Attendance and withdrawal policy:**

Attendance is mandatory. Without proper attendance a student will not do well in this course. **Since chemistry is an experimental science, anyone who misses three or more labs in the semester will automatically receive an F for the course.** If you are late to lab, it counts as 1/2 of a missed lab and will be graded half off. Labs cannot be made up. To be successful in chemistry one must pay attention in lecture and conscientiously do the homework. It is the student's responsibility to ensure that She / He is doing well in the course. Note Monday April 2<sup>nd</sup> is the last day for a student to withdraw from this course with a grade of W. After that point, an instructors withdrawal is necessary and can be given up to April 20<sup>th</sup>. If you are in need of special accommodations owing to a disability, please see the instructor.

Grading:	3 tests each	16%	Typical grade distribution:	100-90 % A
	Quizzes total	16%		89-80 % B
	Final Exam	16%		79-70 % C
	Laboratory	20%		69-60 % D
				< 60 % F
TOTAL	-----	100%		

Quizzes will be based on homework. Tests will also be based on the homework. Quizzes cannot be taken late unless special accommodations have been made with the instructor before the quiz is given in class. Lab notebooks are to be done exactly like they were done for 103 in the Fall.

**Lecture Schedule-\* labs with asterisks next to them require goggles**

<b>Date</b>	<b>Topic</b>	<b>Chapter/section</b>	<b>Lab</b>
1/18/07 Week # 1	Review of Acid - Base Chemistry pH, reactions, Buffers	10	acid/base Titration*
1/23 Week # 2	Radioactivity, $\alpha$ , $\beta^-$ , $\beta^+$ , EC, $\gamma$ Radioactivity; Half-Life	10 3	% acidic acid in Vinegar*
1/30 Week # 3	Organic Chemistry: alkanes, alkenes, alkynes, aromatics	3	% Citric acid in Fruit Juice*
2/6 Week # 4	Reactions of hydrocarbons Alcohols, Phenols	11 – 13	Buffers*
2/13 Week # 5	Ethers, Thiols Aldehydes and Ketones	14	<b>TEST 1</b>
2/20 Week # 6	Carbolylic acids and Esters	14	Measure Half-Life of $^{137}\text{Ba}$
2/27 Week # 7	Reactions of Alcohols	15	Nomenclature of hydrocarbons
3/6 Week # 8	Reactions Aldehydes and Ketones	17	Functional Group Nomenclature
3/13 Week # 9	Reactions of Carboxylic acids and Esters	17	<b>TEST 2</b>
3/20	<b>Spring Break</b>	<b>Spring Break</b>	<b>Spring Break</b>
3/27 Week # 10	Distillation Nitrogen: Amines and Amides	19	Distillation of an inorganic salt in water*
4/3 Week # 11	Reaction of Amines and Amides Amino Acids	19 & 20	Distillation of two organic compounds*
4/10 Week # 12	Stereoisomerism, Carbohydrates, Glucose	16	Preparation of Aspirin*
4/17 Week # 13	Other Carbohydrates	16	<b>TEST 3</b>
4/24 Week # 14	Lipids and Fats	18	Extraction of Fat from Chocolate*
5/1 Week #15	Proteins	20	Recrystallization*
5/5-5/11	<b>Final Exams</b>	<b>Final Exams</b>	<b>Final Exams</b>

## Homework for 34104

I will hand out worksheets on many of the topics covered in class. In addition to these worksheets, there are numerous problems in the text that will help in your understanding of the material. The recommended problems from the book are shown below.

Chapter 3: 1, 3, 5, 7, 9, 13, 17, 19, 23, 27, 29, 31, 35, 39, 41.

Chapter 10: 1, 3, 5, 7, 9, 11, 13, 15, 27, 31, 35, 37, 39, 43, 49, 51, 53, 55, 61, 63, 67, 71, 73, 75, 79

Chapter 11: 1, 3, 5, 6, 7, 9, 11, 13, 15, 17, 19, 21, 25, 27, 29, 31.

Chapter 12: 1, 3, 5, 7, 9, 11, 13, 15, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47

Chapter 13: 1, 3, 5, 7, 9, 11, 15, 17, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 43

Chapter 14: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35

Chapter 15: 1, 3, 5, 7, 9, 11, 13, 17, 19, 21, 29, 31, 33, 35, 37, 39, 41

Chapter 16: 1, 3, 5, 9, 13, 15, 17, 19, 21, 23, 27, 31, 39, 43

Chapter 17: 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31

Chapter 18 : 1, 3, 5, 7, 9, 11, 13, 17, 19, 21, 23, 27, 29, 31, 35, 37, 39, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69

Chapter 19 : 1, 3, 5, 7, 9, 11, 15, 17, 21, 23, 27, 29, 31, 33, 35

Chapter 20 : 1, 3, 5, 7, 9, 11, 13, 15, 17, 21, 23, 27, 29, 31, 33, 35, 37, 39