

**Orange County Community College**  
**Department of Science and Engineering**  
**34110 General and Biological Chemistry**

Fundamental concepts of inorganic, organic, and biological chemistry essential for a thorough understanding of principles and techniques in clinical dental hygiene and nutritional counseling.

**Instructor:** Dr. Timothy MacMahon

**Office:** HO-6A

**Phone:** 341-4575

**Office hours:** Office hours are posted on my door. In addition, I am around Monday through Friday on campus and will be happy to see any student outside of these office hours.

**TEXT:** General, Organic, and Biochemistry, eighth Edition

**By:** Hein, Best, Pattison, Arena

ISBN Number: 0-471-45196-7

**Materials:** Scientific calculator, Notebook, Willingness to learn

**Relationship to Programs:**

Chemistry 34110 is a chemistry course which is designed to give an introductory examination of inorganic, organic and biological chemistry for people interested in health related careers.

**Course Objectives:**

The student who successfully completes this course will:

- Solve Stoichiometric calculations.
- Solve pH, pOH and buffer problems
- Name simple inorganic and organic molecules.
- Develop thinking skills that will help in the rest of your college life and life in general.
- Be aware of and confident about your skills as a student and as an effective thinker.

**Attendance/Withdrawal Policy:**

Attendance is mandatory. Without proper attendance a student will not do well in this course. 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. If you are in need of special accommodations owing to a disability, please see the instructor.

Quizzes will be given during the first 10 minutes of class and cannot be made up unless special arrangements have been made with the instructor prior to the exam being given in class. Quizzes may be taken early. The lowest quiz grade achieved during the semester will be dropped from the total before the average is computed. Quizzes will be based almost exclusively on homework. Tests will also be based on the homework with the possibility of some multiple-choice questions.

### Lecture Schedule

Date	Topic	Chapter/section
Week # 1	Introduction, dimensional analysis unit conversion, Significant Figures	2.2-2.10
Week # 2	Temperature, Density	2.11-2.12
Week # 3	Atoms and elements, Protons, Neutrons, Electrons, Isotopes and atomic masses	5.6-5.11
Week # 4	Shape and parts of the Periodic Table, Electronic structure and X-Rays, Energy of X-Rays vs. chemical bonds	3.6-3.10, 10.2, 10.6
Week # 5	Nuclear Physics/ Nuclear Chemistry, Radioactivity, $\alpha, \beta, \gamma$ , and Half Life	18.1-18.7, 18.14
Week # 6	Reactions and Stoichiometry, Balancing Reactions, The Mole	8.1-8.3, 8.5-8.6 9.2-9.5
Week # 7	<b>Test 1</b> Acids, Bases and Buffers, pH, pOH, Calculations	15.1-15.10, 15.12
Week # 8	Introduction to Organic Chemistry and its Nomenclature	19.2-19.9, 20.1-20.4, 20.7, 20.9-20.10
Week # 9	Heteroatoms, Alcohols, Phenols, Ethers	22.1-22.3, 22.7, 22.10, 22.13, 23.1-23.2,
Week # 10	Carbohydrates, Sugars	27.1-27.12
Week # 11	Lipids <b>Test 2</b>	28.1-28.6
Week # 12	Amino Acids and Proteins	29.1-29.9
Week # 13	Dental Materials, Toothpaste: composition and chemistry	Handout
Week # 14	Alginate, Impression materials <b>Test 3</b>	Handout
Week #15	Mercury amalgams and filling material, Ceramic materials, Glass materials	Handout
<b>Final Exams</b>	<b>Final Exams</b>	<b>Final Exams</b>

<b>GRADING:</b>	Test 1,2,3	12.5% EACH
	Quizzes	50 %
	Cumulative Final Exam	12.5%