Long Beach City College
Spring 2016

CHEM 3: Section 33763 Instructor: J.F. Myrtle, PhD

Lecture : Tu: 5:30 pm – 6:20 pm D 318
Lab : Tu: 6:30 pm – 9:40 pm D 304
Lecture : Th: 5:30 pm – 8:55 pm D 318

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Office: **D-350** 1:00 pm – 5:00pm Tu/Th

Prerequisite: Prerequisite: Math 110 or Math 110B or Math 880 or qualification through the math assessment process or one year high school Elementary Algebra with a grade of B or better as reflected in the second semester grade.

Course Description: 4.5 hours lecture, 3.4 hours laboratory
This course will introduce the principles of general, organic and biological chemistry. A variety of topics will be addressed, including atomic theory, chemical formulas, nomenclature, stoichiometry, solutions, acids and bases, hydrocarbons, alcohols and ethers, carbonyl compounds, carbohydrates, lipids, amino acids and proteins, nucleic acids, biochemical energetics and metabolism. Lab work will reinforce basic concepts and provide experience in manipulating lab equipment. This course satisfies the needs of nursing, home economics and allied health sciences. This course does *not* prepare students for Chem 1A. This course may be taken letter grade or pass/no pass. Note the scheduled deadline to do so.

Required Materials

- Textbook: "Principles of General, Organic, and Biological Chemistry", 2nd edition: Janice G. Smith, McGraw-Hill Inc.
- Lab manual: Packet available at LBCC bookstore.
- Safety goggles: Goggle style, available in LBCC bookstore or instructor approved.
- Calculator: Basic scientific model with "log" function and scientific notation, e.g. Ti30. Note: Programmable calculators and cell phones are not allowed on tests.

Recommended:

- Student Study Guide / Solutions Manual to accompany the textbook strongly recommended
- Internet access with a PC for access to the class web site: www.beachchemistry.com
- 3 ring binder, 2" size with pockets (flat-sided rings highly recommended), set up with dividers labeled as follows: Class Notes; Handouts; Exercises; Quizzes; Tests, Labs

Assessment Activities

Exams (4 @ 100 points) 400
Quizzes (10 @ 10 points)……. 100
Laboratory Experiments…….... 200
Exercises ...…… 100
Comprehensive Final Exam 200

Course Total 1000

See course schedule for dates of exams and quizzes. All exams are closed book and notes. Each exam covers the materials since the previous exam, but the final exam is cumulative.

Grading Scale

Course letter grades will be based on the following percentage of total points possible.
A = 88 – 100 % B = 78 – 87 % C = 65 – 77 % D = 55 – 64 % F = below 55 %

Note: Because chemistry is a laboratory science

- Passing work (55% or more of possible points) in the laboratory portion of the course is required in order to earn an overall grade of "C" or higher, regardless of test and quiz scores.
- A minimum of 65% in the lecture portion of the course (quizzes, tests, final exam) is required in order to earn an overall grade of "C" or higher, regardless of lab scores.

Quizzes and Exams:

- Be present and on time for all exams and quizzes. Late arrivals will not be given extra time.
- There are no make-up exams, quizzes, or laboratories. Missed exams will result in a zero, except in rare circumstances. Only valid, provable emergencies with **notification** of instructor via e-mail **prior to a lab or test** will be considered. See the instructor immediately on returning. Routine doctor, dentist, and similar appointments are not considered emergencies
- Exam dates are posted in the schedule and last about one hour. If given at the start of class, lecture will follow the exam. They are closed book and notes. A Periodic Table without element names will be provided.
- Quizzes are given weekly at the start of the period. There are no make-ups.
- It is your responsibility to come to class every day prepared with pencils, an eraser and an allowed calculator. Calculators may not be shared during exams and quizzes.

Homework:

- **Textbook Problems**: Within-chapter "Sample Problems" detailing problem solutions, immediately followed by practice problems. Odd-numbered end-of-chapter problems are routinely assigned according to a separate schedule (attached). Working them is essential to gaining understanding and preparing for tests. **Answers to odd-numbered problems are provided at the end of each chapter**. *These will not be collected.* They are a necessary investment in, and a requirement for, your success.
- **Class exercises**: Each chapter will include exercises using instructor-provided worksheets handed out in class. **Some will be assigned as homework** to be turned in for grading at the start of the next class or as the instructor directs. If turned in late, it will be penalized.
- **Lab Reports**: These are collected for grading and are due prior to the start of the next class period unless otherwise directed.

Study Materials: Chem 3 Website

- **Lecture Notes** page: Check the Chem 3 web page (http://beachchemistry.com/?page_id=3) for **Class Notes** used in class by the instructor for each chapter. Note that many supplemental materials and/or links to helpful animations are frequently listed on the web page for each chapter. In-class worksheet exercises may also be linked along with the answers. Lecture notes are password protected. You must obtain the password from the instructor.
- **Current Comments** page: Check for updates or changes to current assignments for each chapter. Exam grades may also be posted on a "Grades" page. This page is password-protected; results will be listed by student ID number.

Lab Safety

- You are required by California state law to wear approved safety goggles in the laboratory at all times while experiments are in progress. Shoes must be stable (no heels) and securely fastened. No sandals or open-toed shoes. Long hair should be pulled back. Don't even think about eating or drinking in the laboratory. Food and drink are not allowed in Building D.

Laboratory Work

Note: There are no make-up labs. Missed labs receive a zero.

- Read the lab before entering the laboratory in order to finish the lab and work efficiently. Bring the lab manual for every lab.
- Safety requires that you be present in class for any pre-lab discussion. If you come late to a laboratory class you must first report directly to the instructor; do not start lab work until given instructor approval. Safety glasses must be worn at all times when labs are running.
- You are expected to be familiar with all given safety rules and to follow them at all times while working in the laboratory. Failure to do so may result in dismissal from the lab and a zero on that lab report. Safety glasses must be worn at all times while labs are being run.
- If you make a mistake during an experiment, check with the instructor before doing anything else. Do not start over without instructor approval. Do not attempt to use another person's data.
- Record all appropriate qualitative and quantitative data directly onto the lab report form at the time the data are observed. Do not write data on scratch paper or any place other than your lab report. Make corrections by drawing a ~~single line~~ (no erasures, no white out, no scribble outs) through the incorrect data and writing the new data next to it. Calculations or results of other work may be corrected by erasing.
- Lab work will usually be conducted with a partner. However, laboratory reports should be written up independently.
  Note*: copying another person's work is considered plagiarism by both parties. I look for and easily find copying. The penalty for plagiarism is harsh.*
- Keep your lab report reasonably neat; it must be easily readable.
- Unless announced otherwise, lab reports are due ***before*** the beginning of the next class after the lab. Pages must be ***stapled*** in numerical sequence. Late lab reports will not be accepted.
- Note: broken glassware will be billed by mail at the end of the semester. Failure to pay will delay transcripts and registration.

Lab Drawers - During the first day of class you and your partner will be assigned a lab drawer and will "check-in" (verify and sign for the contents of the drawer). If anything is missing or broken when you check the drawer back out, you will have to pay for it. If you should decide to withdraw from the course, you will need to check out of your locker. Failure to do either may result in a lab charge, which will prevent registration for future classes and put a hold on all transcripts.

Dropping the course: Failure to drop the course by the last date to drop with a "W" will result in a grade of "F". **You, not the instructor, are responsible for dropping the course.**

Attendance:

Missing a single class puts you at a serious disadvantage and your grade in jeopardy. The class is fast paced and the topics are challenging. Each chapter builds on the foundations of the previous chapters and, with 18 chapters covered in 16 weeks, many chapters will be covered in a single class session. Attendance is taken. It is part of your class record. You are responsible for the information and assignments you miss when you are absent. Repeated absences from lectures (more than 3 total) will result in an instructor-initiated drop of the student.

Student Conduct:

Behavior: We are a community of students for 16 weeks. Polite and respectful behavior is expected at all times. Cell phones must be turned off. Disruptions such as being tardy, inappropriate talking, texting, ringing of a cell phone, listening to music devices, sleeping, etc.

must be avoided. Answering a cell phone or text messaging during class will result in dismissal from class and a loss of 20 points from your total grade for each violation.
Honesty: Copying another person's exercises, labs, or homework is plagiarism and a path to failure in this course for both students involved. On an exam or quiz, I look for cheating and it will be dealt with harshly.

Succeeding:
Remember, this class is your investment in *you*, and you alone get to determine the return on investment. You must do the following if you are to succeed in this class:

- **Organize**: Create a 3-ring binder with tabs to organize your class work, as suggested in "recommended" materials, and organize a quiet area to work.
- **Study chemistry *daily***; 14 – 16 hours per week should be the norm.
- **Read ahead** in the text to gain an understanding of material coming up in the next class. The class lectures are designed to *supplement* your textbook readings. Lectures do not necessarily cover everything covered in the textbook and assigned homework.
- **Ask questions**: Use the class to solidify your understanding, to clear up the things you were uncertain about, and to help you outline what are the most important things to know. The only dumb question is the one not asked. I'm generally in my office, D350 by 9:00am Monday andWednesday and available to answer questions or provide help.
- **Work problems**: Solving problems both in the chapter readings and those assigned by the instructor are ***fundamental*** to success in this class.
- **Chem 3 website**: Go to the web site (http://www.beachchemistry.com/?page_id=453) for Dr. Myrtle's Chem 3 class for access to all the instructor's classroom lecture materials, and also to many addition resources, exercises, and links to supplemental animations.
- **Come prepared**: Bring pencils, paper, an eraser, an approved calculator, and all required class materials at all times. Be on time.
- **Organize study groups**: gather informally with classmates before or after class to study assigned problems. During class sessions, there will be many opportunities to work with other classmates in small groups while working in-class assignments. Plan to seek out others to work with when appropriate or indicated by the instructor.

Course Objectives:
During the course, students will**:**

1. Use scientific notation and round-off calculations based on error and significant figures.
2. Recognize metric units and common prefixes as well as using conversions factors to convert from one unit to another
3. Recognize symbols for elements and use them to name and write chemical formulas.
4. Balance chemical equations and perform quantitative stoichiometric calculations involving chemical reactions.
5. Perform calculations involving gas laws which would require understanding of the concepts of direct and inverse proportions.
6. Perform calculations involving concentration of solutions.
7. Predict solubility from the effect of polarity on the properties of solvents and solutes.
8. Determine pH and classify solutions as basic acidic, or neutral.
9. Identify the element oxidized or reduced in a redox reaction.

Student Learning Outcome (SLO)

- Differentiate between verifiable scientific facts and unsupported opinions.
- Appraise the role of chemistry in providing a basic scientific understanding of the physical world.
- Calculate the basic quantitative relationships between the various reactants and products in a chemical system by applying the concepts and/or laws of chemistry.
- Recognize and use safe laboratory practices.

Chemistry 3 Class Schedule (revised 3/31) – Spring 2016 Dr. Myrtle

Wk / Date	Chapter / Lecture Topic	Laboratory	Activity
1. 2/9	1. Matter and Measurement	1. Measurement	Lab check-in
2/11	2. Atoms and the Periodic Table		----
2. 2/16	2. cont'd.	2. Hot packs	
2/18	2. cont'd 9. Nuclear Chemistry		Quiz 1 (Ch 1)
3. 2/23	3. Compounds	3. Calcium Carbonate	----
2/25	3. cont'd		Quiz 2 (Ch 2/9)
4. 3/1	3. cont'd. 4. Energy and Matter	4. Chemical Structures	----
3/3	4. cont'd		Quiz 3 (Ch 3)
5. 3/8	5. Chemical Reactions / Quant.	9. Synthesis of Aspirin	----
3/10	5. cont'd		Quiz 4 (Ch 4)
6. 3/15	*No classes – Flex Day*		
3/17	5. cont'd	**Exam 1 (Ch 1-3)**	
7. 3/22	6. Gases	6. Chemical Reactions	----
3/24	7. Solutions		Quiz 5 (Ch 5)
8. 3/29	7. cont'd.	7. Dialysis	
3/31	7. cont'd 8. Acids and Bases	**----**	
4/4 – 4/8	***Spring Break***	----	----
9. 4/12	8. Acids and Bases	8. Acids, Bases, Buffers	Quiz 6 (Ch 6)
4/14	10. Alkanes		Quiz 7 (Ch 7)
10. 4/19	10. cont'd	10. Organic Structures	**Exam 2 (Ch4-6)**
4/21	11. Alkenes		
11. 4/26	12. Organic Comps / O and S	11. Identifying Alcohols	Quiz 8 (Ch 8)
4/28	12. cont'd		
12. 5/3	13. Carboxylic acids / esters	**Exam 3 (Ch 7-8)**	
5/5	13. cont'd	----	Quiz 9(Ch10/11)
13. 5/10	14. Carbohydrates	12. Carbohydrates	
5/12	14. cont'd	----	Quiz 10 (Ch12)
14. 5/17	15. Lipids	----	
5/19	15. cont'd	----	Quiz 11 (Ch13)
15. 5/24	16. Amino Acids / Proteins etc.		
5/26	16. cont'd / Lab checkout	**Exam 4 (Ch 10-13)**	
16. 5/31	17. Nucleic Acids / DNA	----	----
6/2	**Review**	----	----
17. 6/7	**---------- Comprehensive Final Exam D318 ----------**		

IMPORTANT DATES TO REMEMBER

Drop deadline with a refund of enrollment fees: .....…….. Feb 21
Last day to drop without a W:…….. Feb 22
Last day to use a permission number:…….. Feb 22
Last day to change their grading basis (pass / no pass)..…. Mar 7
Last day to drop and receive a "W" mark:……...… May 8

Homework Problems

These problems are taken from chapter text, and the end-of-chapter problems (both Understanding Key Concepts, and Additional Problems) in your textbook, JG Smith, 2nd Edition

Note: Only odd number problems are listed. The answers to these problems are provided at the end of the end-of-chapter problems so you can check your work. You must work and understand these problems to succeed in class. Problems you have difficulty with should be brought up during class.

CHAPTER	**PROBLEM #**
Chapter 1:	11, 13-25, 29, 35abc, 39, 43, 49, 57, 59, 61, 71, 73, 79, 89, 91, 95
Chapter 2:	4, 7, 9-10, 11, 12-15, 17, 35, 37, 45, 49, 51, 61, 67, 71, 83, 87, 91
Chapter 3:	1, 3-14, 18-19, 22-28, 33, 41, 43, 55, 62, 65, 75, 85, 87, 89, 93, 95
Chapter 4:	5, 9-13, 23, 39, 41, 47, 51, 53, 59, 67, 73
Chapter 5:	16, 18-23, 26, 27, 33, 38, 45, 51, 55, 59, 61, 65, 67, 75, 79, 85, 93
Chapter 6:	1, 4, 6, 9, 11, 17, 23, 31, 43, 45, 49, 53, 57, 65, 67, 69, 71
Chapter 7:	3, 5-9, 13-17, 21, 25, 31, 37, 41, 43, 51, 59, 63, 67, 71, 83, 85, 87
Chapter 8:	5-7, 9-12, 19-22, 35, 47, 49, 55, 61, 69, 71, 77, 81, 83, 85, 87, 91
Chapter 10:	1, 5, 7ab, 14-17, 19, 21, 27, 37, 41, 47, 53, 55, 57,61, 71, 73, 75
Chapter 11:	5, 7, 9, 11, 13, 33, 35, 37, 41, 45, 51, 55, 59, 61, 63, 67, 71, 73
Chapter 12: .	1a, 5, 7, 11, 13, 27, 35, 37, 43, 45, 47, 49, 53, 57, 61, 63, 69, 71, 77, 81, 91, 95
Chapter 13:	1, 16, 27, 34, 51, 59, 65, 69, 77, 81, 85, 87, 91
Chapter 14:	7, 13, 16, 19 (must look at p489), 25, 29, 33, 37, 39, 43
Chapter 15:	11, 29, 33, 43, 47, 49, 51, 57, 61, 67
Chapter 16:	7, 33, 35, 39, 45, 47, 53, 61, 65, 73
Chapter 17:	11, 12, 13, 17, 23, 25, 29
Chapter 18:	5, 6, 9, 11, 14, 17, 27, 29, 31, 33, 37, 45, 51, 57, 59, 61, 67, 71, 77, 85, 89