

Syllabus

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Chem 090 08/28/2009 - 12/12/2009

Section 70383	02:20PM-04:20PM 09:00AM-12:00PM	Friday Saturday	ALLB-101 BYKH-304
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Units: 3.00, May Be Taken Once for Credit

Description:

Chem 090 is a core class in the General and Emerging Technologies Laboratory Technician (GETLAB TECH) program. The GETLAB TECH program is a career-technical program consisting of entry-level technical laboratory work in chemistry, biology, and engineering. For more information about GETLAB TECH, go to <http://www.canyons.edu/divisions/mathsci/emergingtech/labtech/labtech.asp>.

This course introduces applied chemistry principles including the scientific method, measurement, classification of matter, nomenclature, chemical reactions, chemical calculations, bonding, solutions, and acid-base chemistry using a forensic science approach. This class will prepare students for more advanced technical classes requiring a basic chemistry background. Chem 090 is a non-transferable, 3 unit class designed to meet the needs of the career-technical student. Chem 110 and Chem 151 are designed for students requiring transferable courses.

Student Learning Objectives (SLOs):

Lecture:

1. Apply scientific reasoning to solve problems using chemical principles.
2. Evaluate substances based on periodic properties, chemical and reaction classification.

Lab:

1. Perform basic laboratory techniques including data manipulation and analysis.
2. Demonstrate safe handling and disposal of laboratory equipment and chemicals.

Required Materials:

- Lecture: *Investigating Chemistry*, 2nd Ed., Matthew Johll, W.H. Freeman
- Lab: Chemistry for Technology (custom lab book), COC, Pearson Custom Publishing
- Scientific calculator
- Safety goggles

These materials are all available in the campus bookstore.

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Option: you may also purchase the **eBook**, *Investigating Chemistry*, 2nd Ed., by Matthew Johll as an **alternative** to the textbook. It is cheaper, and contains the entire textbook as well as access to additional material such as simulations, animations, and short quizzes. For information on the eBook, go to <http://ebooks.bfwpub.com/johll2e>.

I will be using *Blackboard*, an academic web hosting site, to post keys to exams, changes in assignments, useful downloads and links, etc. While you are not required to have a Blackboard account, it is free and certainly in your best interests to do so. You must be registered in the class to get an account. Clicking on the link below will get you started.

<http://bb7.canyons.edu>

Grading:

1. Grades are assigned using a total points method.
2. The grading events include:
 - Exams – there will be three 100-point midterm exams given, and a 50-point comprehensive final worth a total of 50% of your overall grade. You will be allowed to drop your lowest midterm exam score, but the final is compulsory. **THERE WILL BE NO MAKE-UPS!** If you miss an exam for any reason, that exam becomes the one you drop.
 - Quizzes – There will be 4 to 5 quizzes given, worth 15% of your overall grade. You may drop the lowest quiz score. Again, there will be no make-ups for missed quizzes.
 - Homework – Homework will be assigned, but not graded. However, it is very much in your best interests to do the homework! The quizzes will come directly from the homework, and there will be at least one homework problem on every exam.
 - Laboratory Experiments/Handouts – Your laboratory grade will be worth 25% of your overall grade. You will be allowed to drop your lowest lab score. No make-ups for missed labs. If you fail to attend and/or hand in three or more laboratory assignments you will receive no higher than a D in this course. The lab and lecture are not separate courses; you must pass both in order to pass the class.
 - Group Presentation – there will be group presentations on topics chosen from a list I will provide. Half of the grade will be determined by the presentation, the other half from a 2-3 page written report. The group presentation will be worth 10% of your grade. Instructions and a list of topics for the group presentation will be available on Blackboard and as a separate handout.

3. Grading Scale:

- A – 90%+
- B – 80%-89%
- C – 65%-79%
- D – 50%-64%
- F – 0%-49%

Grading events contribution to total points:

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Midterm Exams and Final – 50%

Quizzes – 15%

Labs – 25%

Group presentation – 10%

Laboratory Procedures:

Wearing goggles and laboratory safety procedures will be strictly enforced. If you don't follow safety regulations, you will be excused from lab and no points will be given towards that laboratory experiment/activity. Protective footwear is required at all times - sandals are not permitted. Student must keep the lab work areas clean. If you leave a mess, you will lose lab points. (Work areas include lab drawer, lab bench top, reagent shelves, sinks, balance areas, cleaning station, equipment cart, and fume hoods.)

Regular attendance in the laboratory is mandatory. You may be dropped from the course if you have three or more consecutive unexcused absences. There are **NO LAB MAKE-UPS, NO EXCEPTIONS**. Lab assignments will include lab reports, study exercises, and review problem sets. Chemistry is an experimental science and thus, the laboratory portion of the class is of high importance. You **WILL NOT** pass this class if you do not have 60% or higher total percentage in the laboratory section of the course.

All lab work is to be done **INDIVIDUALLY** unless otherwise instructed. Even if you work with a partner, each person must contribute to the laboratory work and must turn in his/her own lab report. No points will be credited to a student for lab work completed by another student.

Lab Reports

Pre-Labs (if applicable) are due at the beginning of lab and must include completed pre-lab questions, including any graphs. You *and* your lab partner will not be allowed to start the laboratory activity if your Pre-Lab materials are not completed. Each person's pre-laboratory materials must be unique.

Lab Reports must be written on the original lab report pages taken from your lab manual. No photocopies are permitted. Use only blue/black pen or pencil when writing up lab reports. Reports must include calculations, and units on all numerical answers. All lab reports are due the beginning of the next lab period.

Any lab reports handed in after the deadline are considered late. Late lab reports will be penalized.

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Tutoring:

MESA: The Math, Engineering and Science Achievement center (Building ALLB-114) is a place to study, do homework, get counseling and encouragement, meet as study groups, or work with a peer tutor or an instructor. Check their postings for available study group hours.

TLC (Tutoring and Learning Center) Room I-209: Student Services offers free one-on-one tutoring by appointment or on a drop-in basis at the TLC.

Tentative Lecture Schedule:

Date Fri 2:20-4:20pm ALLB-101	Topic: Investigating Chemistry, 2nd Ed., Johll	Required Reading
8/28	Intro to Forensic Chemistry	Chp 1
9/4	Evidence Collection and Preservation	Chp 2
9/11	Evidence Collection and Preservation	Chp 2
9/18	Atomic Clues	Chp 3
9/25	Exam 1, Chps 1-3	Chp 4
10/2	Chemical Evidence	Chp 4
10/9	Chemistry of Bonding	Chp 5
10/16	Properties of Solutions	Chp 6
10/23	Properties of Solutions (Happy Mole Day)	Chp 6
10/30	Properties of Solutions II	Chp 7
11/6	Exam 2, Chps 4-7	Chp 8
11/13	Arson Investigation	Chp 9
11/20	Chemistry of Explosions	Chp 10
11/27	Happy Thanksgiving (no class)	
12/4	Group Presentations	
12/11	Review for Exam 3 and Final	

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Homework:

<u>Chapter</u>	<u>Pages</u>	<u>Problems</u>
1	22-24	18, 20, 22, 24, 30, 32, 38, 40, 42, 51
2a	48-49	16, 18, 22, 24, 26, 28, 30, 32
2b	49-51	34, 36, 38, 40, 42, 48, 54, 56, 58, 69
3	87-89	5, 8, 21, 25, 30, 38, 46, 52, 54, 60
4a	133-134	22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44
4b	134-136	46, 47, 48, 50, 54, 56, 62, 64, 76
5	163-165	24, 26, 30, 32, 34, 40, 44, 46, 50, 52
6a	193-194	28, 30, 32, 34, 36, 38, 40
6b	194-196	42, 48, 50, 52, 58, 60, 64, 71
7	227-229	36, 38, 40, 42, 44, 46, 50, 66
8	264-268	24, 30, 32, 34, 38, 40, 44, 46, 48, 50, 54, 56, 79
9	301-303	22, 26, 30, 32, 36, 44, 48, 54, 62
10	334-336	30, 32, 34, 36, 38, 40, 46, 50, 66

Tentative Lab Schedule:

Date Sat 9am-12pm BYKH-304	Topic Chemistry for Technology, CHEM 090, Prentice Hall (custom lab book)
8/29	Lab Safety, Forensics Handout – Case Study 1*
9/5	Metric System + Measurements
9/12	Density of Glass Fragments
9/19	Flame Tests + Scanning Electron Microscope Demo
9/26	Forensics Handout – Case Study 2*
10/3	Moles & Chemical Formulas
10/10	Structure and Geometry
10/17	Solutions, Electrolytes, and Concentration
10/24	pH of Household Items & Forensics Handout - Case Study 3*
10/31	Structure and Solubility
11/7	Presumptive Drug Tests
11/14	Biodiesel + Gas Chromatograph Demo
11/21	Gas Laws and Air Bags
11/28	Thanksgiving weekend (no lab)
12/5	Group Presentations
12/12	Exam 3(Chps 8-10)/Final Exam (Comprehensive)

* Case study handouts will be made available in lab and on the Blackboard website.

Important Dates:

Last Day to *Add* – **September 4**

Last Day to *Drop without a W* – **September 18**

Last Day to *Drop with a W* – **October 16**