CHEM 26/28: OUTLINE OF ORGANIC AND BIOCHEMISTRY

Spring 2014

Lecture A: CHEM 26 (10118) & CHEM 28 (10119), M,W,F 8:30AM-9:20AM, Angell B-106

Lecture B: CHEM 26 (11095) & CHEM 28 (11145), T,Th 8:30AM-9:45AM, Angell B-106

GENERAL INFORMATION: (see also the CHEM26 BlackBoard page)

Instructor: Steve Flemer **Email**: sflemer@uvm.edu

Office: A-335 Cook **Office Hours**: M W F 9:30 AM - 10:30 AM
T Th 10:00 AM – 11:00 AM

Lecture: The lecture will primarily be used to cover new material. Included in this syllabus is a tentative schedule covering the text material and the corresponding problems to be worked from each chapter.

Exams: Three 2-hour exams are given on Wednesday nights from 6:15-8:15 PM.

	Lecture A (MWF; 8:30-9:20 AM)	**Lecture B** (TTh; 8:30-9:45 AM)
Exam 1	Wed, Feb. 19; 105 Votey	Last names A-L: Wed, Feb. 19; B112 Angell Last names M-Z: Wed, Feb. 19; 108 Lafayette
Exam 2	Wed, Mar. 26; 105 Votey	Last names A-L: Wed, Mar. 26; B112 Angell Last names M-Z: Wed, Mar. 26; 108 Lafayette
Exam 3	Wed, Apr. 23; 105 Votey	Last names A-L: Wed, Apr. 23; B112 Angell Last names M-Z: Wed, Apr. 23; 108 Lafayette
Final Exam	Mon, May 5; 1:30AM-4:15PM; B106 Angell	Tue, May 6; 7:30AM-10:15PM; B106 Angell

Absences from exams: Students with legitimate excuses (ie: a UVM-related conflict) may be permitted to take an exam sometime during the day that it is given to the rest of the class that evening. This must be cleared with the instructor first, however. **Makeup exams will only be administered after the scheduled exam time if a medical or family emergency precludes taking the exam at the scheduled time**.

Review Sessions: I will normally have an Exam Review Session on the Sunday afternoon previous to impending exams.

Weekly Blackboard Quizzes: Each week, you will be responsible for taking a short online BlackBoard quiz covering the class material from the current week. Just click on the "Weekly Quiz" link on the left hand side of the CHEM26 BlackBoard page and follow the instructions. These quizzes are open-book, but must be completed independently and in one sitting. Weekly quizzes will be available to take until 5:00PM of the Sunday prior to a new week of classes. A skipped or a missed quiz is given a zero.

Problems: Exam questions will be modeled very closely to the type of problems you will encounter on class exams and quizzes. Solutions to most of these problems are in the back of the text. While it is strongly suggested that you do as many problems as possible, the problems are not collected and do not count towards your grade.

REQUIRED TEXTBOOKS:

Text: "General, Organic, and Biochemistry" 8th edition, by Denniston, Topping, Woodrum, & Caret is sold at the UVM bookstore.

Lab Manuals: "Chemistry 26, Experiments" is sold at the first floor stockroom, A-143 Cook, for $10.00. **This is not required for CHEM 28 students.**

LABORATORY:

Time and Room: See your class schedule for your specific Lab time and room.

TA: Will be announced at your first lab session.

Attendance: Students must attend the lab section they are assigned to. Official documentation of sickness or family crisis is required if a lab is missed. **If more than 2 labs are missed, this results in a failure for the course.** In order to take a lab at a time other than your assigned time one must obtain the permission of the TA and instructor.

Breakage Card: A breakage card ($40.00) must be purchased from the first floor stockroom, A-143 Cook, prior to your first lab. The $40.00 is refundable, and if you are careful you should get most of it back. Remember, you must have it with you to be admitted into lab.

Safety Eyewear: OSHA approved safety glasses or goggles must be worn by everyone once any experimentation has started in any area of a lab room. Safety eye wear can be purchased at the UVM bookstore.

Foot Wear: Only shoes that cover the toes are permitted in the lab. Sandals and open toed shoes are not permitted.

Lab Notebook: A bound notebook is required for recording lab data.

ACADEMIC INTEGRITY:

Offenses against the Code of Academic Integrity (ie: Cheating) are deemed serious and insult the integrity of the entire academic community. Any suspected violations of the code are taken very seriously and will be forwarded to the Center for Student Ethics & Standards for further investigation.

COURSE GRADE FOR CHEM 26 STUDENTS:

1. Points needed to obtain a specific grade

920 = A	870 = B+	790 = B-	680 = C	620 = D+	570 = D-
900 = A-	820 = B	760 = C+	650 = C-	590 = D	less than 570 = F

2. How to calculate your points:

a) **Class = 800pts** 3 Exams/1 quiz grade = 4 grades
1 Final = 2 grades
6 grades - 1 grade = 5 grades x 1.6 = class pts

I will drop your lowest score. If the final exam is your lowest grade it will only count once. If your quiz average is your lowest grade, this score will be your drop. The 1.6 factor is because each test was only worth 100 pts, and therefore the maximum number of points obtainable from the tests are 500. In order to raise this to 800 pts you must multiply the 500 x 1.6 = 800.

Example:

	Ex-1	Ex-2	Ex-3	Quiz Av.	Final x 2
Actual Scores	85	45	78	77	75 75
Scores Counted	85	75	78	77	75

Total pts = 390 x 1.6 = 624 pts from class

b) **Laboratory = 200 pts**

Notebook / Prelab	30 pts
Lab reports	80 pts
Quizzes	65 pts
Technique	25 pts
	200 pts

3. Determination of grade: Add up your points from the class and lab and then use the chart at the beginning to determine your course grade.

Example: 624 class pts + 160 lab pts = 784 total pts = C+

COURSE GRADE FOR CHEM 28 STUDENTS:

Since there is no laboratory component to your grade, you will be graded on your exam/quiz scores exclusively. Your 5 highest scores will be multiplied by 2 (rather than 1.6).

LABORATORY SCHEDULE

Week of:	Experiment	Description
27-30 Jan	**1** (pg. 15)	Molecular Models
3-6 Feb	**2** (pg. 20)	Fractional Distillation of Wine
10-13 Feb	**3** (pg. 23)	Isolation of Caffeine
17-20 Feb	**NO LABS**	(PRESIDENT'S DAY)
24-27 Feb	**4** (pg. 27)	Dehydration of 2-methyl-2-butanol
3-6 Mar	**NO LABS**	(SPRING BREAK)
10-13 Mar	**5** (pg. 31)	TLC Analysis of Analgesics
17-20 Mar	**6** (pg. 37)	Synthesis of Esters
24-27 Mar	**7a** (pg. 42) **7b** (pg. 43)	Carbonyls (Tollen's Test) Carbohydrates (Benedict's Test)
31 Mar -3 Apr	**8** (pg. 50)	Polymers
7-10 Apr	**9** (pg. 54)	Isolation and Analysis of a Protein
14-17 Apr	**10** (pg. 58)	Fats, Oils, & Soaps **CHECKOUT**

TENTATIVE LECTURE SCHEDULE

CHAPTER	SUGGESTED PROBLEMS
10 (Saturated Hydrocarbons)	3,7,19,21,25,31,41,42,43,45,51,53,55,57,59a,63,65,67,75,77,79,81,83,85,86,87, 97,98,99
11 (Unsaturated Hydrocarbons: 11.1-11.6)	1,3,5,7,9,11,13,15,17,19,21,22,27,31,41,43,47,49,65,69,71,73,79,81,89,90,95,97
12 (Alcohols, Phenols, Thiols, & Ethers)	1,11,15,19,23,29c,31a,c,32,33,37,51,52,55,61,63,65,68,69,83,85,86,87,91
WED, 19 FEB	**EXAM 1 6:15 – 8:15 PM**
13 (Aldehydes & Ketones:	5,7,11,13,21,23,29,30,31,33,39,41,44,49,57,61,62,63,67,69,71,73,75,77,81,82,83
14 (Carboxylic Acids & Derivatives: 14.1-14.2)	1,3,5,7,13,29,31,35,47,49,51,52,53,55,59,63,65,71,72,73,74,75,77,81,83
15 (Amines & Amides: 15.1, 15.3)	2,4,5,7a,19,21,22,23a,c,25a,c,26b,d,33,37,47,53,55,61
16 (Carbohydrates)	3,5,7,13,23,25,27,32,33,45,51,55,57,61,78,83,84,85,86
17 (Lipids & their Function: All except 17.5)	11,13,21,23,24,39,41,43,44,49,57,58,61,62,67,68,69,77,81,99,100,103,104
WED, 26 MAR	**EXAM 2 6:15 – 8:15 PM**
18 (Protein Structure & Function)	1,2,3,5,6,23,25,28,32,33,34,36,37,39,43,45,46,48,52,53,55,59,60,63,65
19 (Enzymes: 19.1-19.7, 19.11)	3,5,7,8,10,17,19,23,25,29,30,32,39,40,46,57,59,61,91,95,97
20 (Intro to Molecular Genetics: 20.1-20.6)	1,3,5,7,9,1017,19,20,29,31,33,36,37,38,39,40,43,44,45,46,49,50,57,61,65,66,67,70,71
21 (Carbohydrate Metabolism: all except 21.5)	3,5,6,10,19,22,25,35,36,37,38,39,40,45,55,56,66,67,77,81,87,89
22 (Aerobic Respiration: all except 22.5)	1,4,7,11,12,13,14,24,25,26,29,30,31,33,35,36,37,40,41,42,43,44,45,46,49,53 71,72,73,74,77,79,80,81,85a,c,88,91
WED, 23 APR	**EXAM 3 6:15 – 8:15 PM**
23 (Fatty Acid Metabolism:23.1-23.2, 23.4)	1,12,19,20,22,23,26,31,40,43

FINAL EXAM (cumulative)