

CHEM 026/028: OUTLINE OF ORGANIC AND BIOCHEMISTRY

Spring 2019

Lecture A: CHEM 26 (10101) & CHEM 28 (10102), M,W,F 8:30AM-9:20AM, Votey 105

Lecture B: CHEM 26 (10646) & CHEM 28 (10673), T,Th 8:30AM-9:45AM, Votey 105

GENERAL INFORMATION: (see also the CHEM 026 BlackBoard page)

Instructor: Steve Flemer

Email: sflemer@uvm.edu

Office: 110 Hills

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 6:40-8:40 PM.

	Lecture A (MWF; 8:30-9:20 AM)	Lecture B (TTh; 8:30-9:45 AM)
Exam 1	Wed, Feb. 20; 105 Votey	Wed, Feb. 20; 301 Williams
Exam 2	Wed, Mar. 20; 105 Votey	Wed, Mar. 20; 301 Williams
Exam 3	Wed, Apr. 17; 105 Votey	Wed, Apr. 17; 301 Williams
Final Exam	Monday, May 6; 7:30-10:15AM; 105 Votey	Tuesday, May 7; 10:30AM-1:15PM; 105 Votey

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 have an Exam Review Session on the Tuesday evening just previous to impending exams (6:00-7:30PM in 207 Lafayette).

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

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. 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.

REQUIRED TEXTBOOKS:

Text: "General, Organic, and Biochemistry" 9th edition, by Denniston; ISBN # 9780078021541

- Can be purchased directly from the publisher using the following URL:

<http://shop.mheducation.com/mhshop/productDetails?isbn=1260476316>

Lab Manual: Available for download from the class' BlackBoard site.

Bound Laboratory Notebook: Available at the UVM Bookstore. Required for recording data.

(Note: the last two items are not required for CHEM 28 students)

LABORATORY:

(labs start 2 weeks after classes begin)

Time and Room: See your class course schedule as to your assignments.

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.

Online Lab Safety Quiz: Prior to the lab sessions beginning, students must read through Lab Safety documentation and take a one-time online quiz before being allowed into their lab session. Just click the "Lab Safety" link on the left hand side of the CHEM26 BlackBoard page and follow the instructions. Students must score an 80 or better on the quiz to be admitted to lab. If you choose, you may take the Lab Safety quiz as many times as you want in order to maximize this score, as it will also count as your first lab quiz grade.

Safety Eyewear: OSHA approved safety glasses or goggles (available from the Chemistry Stockroom or at the UVM Bookstore) must be worn by everyone once any experimentation has started in any area of a lab room.

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

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.

LABORATORY SCHEDULE

<u>Week of:</u>	<u>Experiment</u>	<u>Description</u>
28-31 Jan	1	Fractional Distillation of Wine CHECK-IN
4-7 Feb	2	Molecular Models
11-14 Feb	3	Isolation of Naproxen
18-21 Feb	NO LABS	(PRESIDENT'S DAY ON MON)
25-28 Feb	4	Dehydration of 2-methyl-2-butanol
4-7 Mar	NO LABS	(TOWN MEETING DAY ON TUES)
11-15 Mar	NO LABS	(SPRING BREAK)
18-21 Mar	5	TLC Analysis of Analgesics
25-28 Mar	6	Synthesis of Esters
1-4 Apr	7a 7b	Carbonyls (Tollen's Test) Carbohydrates (Benedict's Test)
8-11 Apr	8	Polymers
15-18 Apr	9	Isolation and Analysis of a Protein
22-25 Apr	10	Fats, Oils, & Soaps
29 Apr-2 May		LAB CHECKOUT

TENTATIVE LECTURE SCHEDULE

CHAPTER

SUGGESTED PROBLEMS

10 (Saturated Hydrocarbons)	3,4,5,7,19,21,25,29,31,33,39,41,49,51,55,57,59,61,63a,65,67,69,71,73,79,81,83,85,87,89,97,101,102,103
11 (Unsaturated Hydrocarbons: 11.1-11.6)	1,3,5,8,9,11,13,15,17,19,21,22,27,31,41,43,47,49,63,65,66,69a,c,d,71,73,75,79,81,83,89,90,91,92,93b,c,97,99
12 (Alcohols, Phenols, Thiols, & Ethers)	1,11,15,17,19,23,29a,c,31a,c,32,33,37,52,55,61,63,65a,c,68,69,81,82,83,84,85,86,87,89
WED, 20 FEB	EXAM 1 6:40 – 8:40 PM
13 (Aldehydes & Ketones:	5,7,11,13,21,23,29,30,31,33,39,41a,b,e,43b,c,d,44,49,50,57,61,62,63a,c,d,67,69,71,73,75,77,81,82,83
14 (Carboxylic Acids & Derivatives: 14.1-14.2)	1,3,5,7,13,15,17,29,31,35,47,49,51,52,53,55a,b,59,63a,b,65,71,72,73,74,77,81,83
15 (Amines & Amides: 15.1, 15.3)	4,5a,b,c,7a,8,19,21a,b,22a,c,d,23c,25a,26b,d,33b,d,34b,d,37,47,53,55,61
WED, 20 MAR	EXAM 2 6:40 – 8:40 PM
16 (Carbohydrates)	3,5,7,13,21,23,25,27,32,33,45,47,53,55,57,59,63,80,85,86,87,88
17 (Lipids & their Function: All except 17.5)	11,13,21,23,24,41,43,44,49,57,58,61,62,67,68,69,77,81,99,100,103,104
18 (Protein Structure & Function)	1,2,3,5,6,23,25,28,32,33,34,36,37,39,45,46,48,52,53,55,59,60,63,65
19 (Enzymes: 19.1-19.7, 19.11)	3,5,7,8,10,17,19,20,23,25,30,39,40,46,57,59,60,61,91,95,97
WED, 17 APR	EXAM 3 6:40 – 8:40 PM
20 (Intro to Molecular Genetics: 20.1-20.6)	3,5,7,9,10,19,20,29,31,33,36,37,38,39,40,43,44,45,46,49,50,57,61,65,66,67,70,71
21 (Carbohydrate Metabolism: all except 21.5)	3,5,6,8,10,19,22,25,36,37,38,39,40,45,46,55,56,67,77,89
22 (Aerobic Respiration: 22.1-22.4, 22.6)	1,4,7,24,25,26,29,31,33,35,36,37,40,41,42,43,44,45,46,49,53,54,71,73,74,77,78,79,80
23 (Fatty Acid Metabolism: 23.1-23.2, 23.4)	1,7,26,29,31,33,37,40,43,44,45,46

FINAL EXAM (cumulative)