

**CHM 1030: Survey of Organic/Biochemistry**

Fall 2011  
4:30–5:55 p.m. TTh  
0046 DRY

**Professor Matthew J. Allen**

Office: 243 Chemistry  
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**OFFICE HOURS:**

8:30–9:30 a.m. on Wednesdays and Fridays or by appointment (No office hours on Friday, September 30; Friday, October 28; Wednesday, November 2; Friday, November 4; and Friday, December 9). There will also be open office hours on Wednesday, December 14, from 8:30 a.m. until 6:30 p.m.

**COURSE WEBPAGE:**

There is a webpage for this course on blackboard: <http://blackboard.wayne.edu/>. New users to blackboard can visit the computing and information page at <http://computing.wayne.edu/blackboard/aboutblackboard.php> for more information about access and use of blackboard.

**TEXTBOOKS:**

1. "General, Organic, and Biological Chemistry" Fifth Edition (2010) H. Stephen Stoker, Brooks/Cole Cengage Learning, Belmont, CA.
2. "Laboratory Manual: General, Organic, and Biological Chemistry" Fifth Edition (2010) G. Lynn Carlson, Brooks/Cole Cengage Learning, Belmont, CA.
3. Optional: Study Guide to "General, Organic, and Biological Chemistry" (2010) D. White and J. White, Houghton Mifflin.

**COURSE OBJECTIVES:**

The primary purposes of this course are (1) to help students develop an understanding of the molecules involved in living organisms; (2) to help students learn to think critically, using concepts and methods from chemistry; (3) to help students understand how chemists approach problems and solutions; and (4) to continue to develop and extend the theoretical and practical skills from CHM 1020.

This course offers a brief introduction to organic chemistry and biochemistry with applications to nutrition, physiology, and clinical chemistry. It is designed for students preparing for careers in the health sciences (other than that of a physician), although non-science majors with an interest in how cells function at the molecular level might find this class appropriate.

**LABORATORY AND QUIZ SECTIONS:**

<b>Section</b>	<b>Day</b>	<b>Time</b>	<b>Location</b>	<b>Teaching Assistant and email</b>
13532 002	T	6:00–9:00 p.m.	1027 SCI	Chandani Warnasooriya
	Th	6:00–6:55 p.m.	0025 STAT	chandani@chem.wayne.edu
13534 003	Th	6:00–6:55 p.m.	0113 STAT	Xun Bao
	T	6:00–9:00 p.m.	1039 SCI	xunbao@chem.wayne.edu
13535 004	Th	6:00–6:55 p.m.	0211 STAT	Gayathri Silva
	W	3:00–5:55 p.m.	1027 SCI	gayathri@chem.wayne.edu
13537 005	W	11:45 a.m.–2:45 p.m.	1039 SCI	Nilesh Joshi
	Th	6:00–6:55 p.m.	0321 STAT	njoshi@chem.wayne.edu
14432 007	Th	6:00–6:55 p.m.	0171 MAIN	Sanofar Abdeen
	Th	12:50–3:50 p.m.	1039 SCI	sabdeen@chem.wayne.edu

**TENTATIVE LECTURE SCHEDULE (EXAM DATES ARE FIRM):**

<b>Week</b>	<b>Date</b>		<b>Textbook Chapter or Exam</b>	<b>Laboratory Experiment or Quiz</b>
1	Sept. 1	Th	Ch. 12 Organic Chemistry, Hydrocarbons	Check in
	Sept. 6	T	Ch. 13 Unsaturated Hydrocarbons	
2	Sept. 8	Th	Ch. 14 Alcohols, Phenols, Ethers	24AB, 25A: <b>Quiz 1</b> (Ch. 12, 13)
	Sept. 13	T	Ch. 15 Aldehydes, Ketones	Hydrocarbons
3	Sept. 15	Th	Ch. 16 Carboxylic Acids and Esters	26
	Sept. 20	T	<b>EXAM 1</b> (Chapters 12–15)	Alcohols, Phenols, and Ethers
4	Sept. 22	Th	Ch. 17 Amines and Amides	27
	Sept. 27	T	Ch. 18 Stereoisomerism	Aldehydes and Ketones
5	Sept. 29	Th	Ch. 18 Carbohydrates	29: <b>Quiz 2</b> (Ch. 16, 17)
	Oct. 4	T	Ch. 19 Lipids	Esterification Reactions
6	Oct. 6	Th	Catch up and Review Ch. 16–19	30
	Oct. 11	T	Ch. 20 Proteins	Amines and Amides
7	Oct. 13	Th	<b>EXAM 2</b> (Chapters 16–19)	33
	Oct. 18	T	Ch. 20/21 Proteins/Enzymes	Introduction to Carbohydrate Chemistry
8	Oct. 20	Th	Ch. 21 Enzymes	35
	Oct. 25	T	Ch. 22 Nucleic Acids	Properties of Lipids
9	Oct. 27	Th	Ch. 22 Nucleic Acids	36: <b>Quiz 3</b> (Ch. 20, 21)
	Nov. 1	T	Ch. 23 Energy	Soaps and Detergents
10	Nov. 3	Th	Catch up and Review Ch. 20–22	37
	Nov. 8	T	<b>EXAM 3</b> (Chapters 20–22)	Properties of Amino Acids
11	Nov. 10	Th	Ch. 23 Biochemical Energy	40
	Nov. 15	T	Ch. 24 Carbohydrate Metabolism	Proteins from Milk
12	Nov. 17	Th	Ch. 24 Carbohydrate Metabolism	41: <b>Quiz 4</b> (Ch. 23, 24)
	Nov. 22	T	Ch. 25 Lipid Metabolism	Enzyme Action: An Investigation of Lactase Activity
	<b>Nov. 23–27</b>		<b>Thanksgiving Break</b>	
13	Nov. 29	T	Ch. 26 Protein Metabolism	Checkout
	Dec. 1	Th	Catch up and Review Ch. 23–26	
14	Dec. 6	T	<b>EXAM 4</b> (Chapters 23–26)	
	Dec. 8	Th	REVIEW FOR FINAL EXAM	
15	Dec. 15	Th	<b>FINAL EXAM</b> (Chapters 12–26) (normal class time and room)	

## **COURSE PROCEDURES:**

The course consists of two lectures per week and weekly quiz and laboratory periods. Four 80-minute examinations will be given during the term. A final examination (80 min) will be given at the end of the course. ***Please take note that students may not leave the examination room in the middle of an exam and then return to continue with the examination, and no one may leave the examination room during the last 15 minutes of an exam.*** The use of cell phones and calculators will not be allowed during the exams.

## **PREREQUISITE:**

A grade of C– or better in CHM 1020 (or equivalent). All students must be formally registered in this course by **SEPTEMBER 7**. No withdrawals will be allowed after **NOVEMBER 12**. Please note that Wayne State recently changed its add and drop date policy—these dates are a new University Policy, not my personal policy. ***No student may withdraw without checking out of lab*** (failure to do this will cause a hold to be placed on your record).

## **LECTURES:**

Lectures will be used to present and clarify important topics, including material from the text. Questions may be asked during lectures. It is important to take precise and understandable lecture notes. If a class is missed, it is your responsibility to obtain the missed lecture notes and other materials, handouts, and announcements (for example, exam date changes). Lecture notes and homework answers are available from the course website. In-class exercises will be worth 5% of your grade; therefore, it is important to attend lectures.

## **QUIZ SECTIONS:**

The main purpose of the quiz sections is to answer questions, discuss and clarify topics covered in the lecture, and go over graded examinations. The grading criteria for this part of the course will include attendance, lateness, quality and timeliness of the assignments, and subjective evaluation by your TA (such as class participation and attitude) ***ATTENDANCE AT ALL QUIZ CLASSES IS REQUIRED***. Five percent of your grade will depend on quiz section attendance and participation. ***No make-up quizzes will be given.***

## **HOMEWORK:**

Homework assignments in this course will not be graded. The purpose of these problems is to give you extra practice to prepare for exams and quizzes. While these assignments are optional, it is strongly recommended that you complete these assignments to help learn the material.

## **ATTENDANCE:**

Attendance is **REQUIRED** at the following course functions: **LECTURE, QUIZ CLASS, LABORATORY CLASS, and EXAMINATIONS**. Unexcused absences will lower your grade.

## **SPECIAL HELP AND PROBLEMS:**

Students with special problems concerning the course should ***consult the following resources as soon as the problem is recognized***. The Chemistry Department offers assistant to students with problems in Chemistry in the following forms:

**A. Instructor Consultation:** Dr. Allen has Office Hours in room 243 Chemistry Wednesdays and Fridays, 8:30–9:30 a.m. (No office hours on Friday, September 16; Friday, October 28; Wednesday, November 2; or Friday, December 9). There will also be open office hours on Wednesday, December 14, from 8:30 a.m. until 6:30 p.m. Dr. Allen is also available during most days and some evenings and weekends with an appointment. Please make an appointment by email (mallen@chem.wayne.edu). In your email, please suggest a few times that work with your schedule.

**B. Lecture Notes:** Copies of the lecture notes and homework problems will be made available on the course website.

**C. TA Consultation:** Chemistry TAs are available for students in their quiz and laboratory sections by appointment.

**D. Help Sessions:** These sessions are schedule in room 201 of the Science and Engineering Library, with Chemistry teaching assistants available for many hours each week at no charge to the students. You will receive a complete schedule of the General Chemistry Help Sessions as soon as it is available. General Chemistry Help Sessions normally begin at the start of the second week of classes. You may attend as many of these sessions as you like.

**E. SI Sessions:** These sessions might be available. Dr. Allen will let you know if an SI instructor is assigned to this class.

**F. Tutoring:** Tutoring might be available at the Academic Success Center.

**G. Extra Review Sessions:** Dr. Allen will hold two extra review sessions before each of the four semester exams. These review sessions will not cover new material and attendance at these sessions is optional. These sessions will be held in room 134 of State Hall, and the schedule for these sessions is below:

<b>Day</b>	<b>Date</b>	<b>Time</b>
Wednesday	September 14	6:00–7:30 p.m.
Sunday	September 18	1:00–2:30 p.m.
Sunday	October 9	1:00–2:30 p.m.
Wednesday	October 12	6:00–7:30 p.m.
Friday	November 4	6:00–7:30 p.m.
Saturday	November 5	1:00–2:30 p.m.
Friday	December 2	6:00–7:30 p.m.
Sunday	December 4	1:00–2:30 p.m.

## **LABORATORY:**

The primary purposes of laboratories are to illustrate chemical principles discussed during the course and to help students acquire certain laboratory skills that will be useful in later courses. Each student is required to read the experimental procedure for each experiment *before* coming to the laboratory. The student must complete a **Laboratory Experiment Outline Form** and give it to the TA before beginning each experiment (see attached sample of the form on page 8; make a copy of this form for every experiment). No one is permitted to begin a laboratory experiment until this form is completed and turned in to the TA. **Attendance is required for lab.**

Most experiments have report forms on which the data, calculations, results, etc. of each experiment must be written, and this report must be completed and submitted to the TA at the end of each laboratory period, unless the laboratory TA instructor indicates otherwise. Other exercises and problems may be assigned by the TA to be done before or after the experiment. Note that all calculations on the report forms must be completed during the laboratory period, so students should bring calculators to the laboratory. A laboratory report, including the data and its interpretation, is required for each experiment, and must be turned in on time. Laboratory reports that are late will not be graded. Also, you are free to work in pairs, but direct copying of laboratory reports will result in a lower grade.

Each experiment will be graded by the TA (on the basis of 27.8 points) and should be returned the week following the lab. The grading criteria for this part of the course will include quality of the data obtained, quality of the laboratory notebook, correctness of the calculations, quality of the laboratory report, attendance, lateness, and other factors such as laboratory technique and cleanliness, adherence to laboratory safety procedures and regulations (for example, wearing safety goggles in lab at all times). The grade for a missed laboratory will be zero. ***There are no laboratory make-up periods; however, the TA is authorized to drop two laboratory grades.***

### EXAMINATIONS:

The 80-minute examinations and final examination will cover the lecture material, the text material relating to the lecture material that is not specifically excluded, and may also include assigned reading material not covered in lecture or laboratory experiments. The final exam will be comprehensive. The grade for a missed examination is zero, and ***there are no make-up examinations***. All examinations carry equal weight in grading (150 points each). The ***best 3*** scores (out of the 4 exams) will be used to calculate the course grade. If you complete all the work for the course, but miss the final examination for a documented emergency, and if you have a passing grade in the course (as of the last day of classes), you may receive a grade of "I" (incomplete) for the course (at the discretion of the instructor), in which case you must take a make-up final examination for the course at a time and place that is mutually convenient for you and the instructor (not more than 1 year after the date of the originally scheduled final examination).

As stated earlier, you may not leave the examination room in the middle of the exams (or the final) and then return to continue with the examination, and no one may leave the examination during the last 15 minutes of an exam. If there are any questions or concerns regarding the grade for any examination, these questions can be brought to the attention of Dr. Allen no later than ONE week after the graded exam is returned. The request of regrading must be made in writing by using a copy of the form that is provided on page 7 of this syllabus. The request form should be completed, stapled to the examination, and given to Dr. Allen. The form may be photocopied for future use. Dr. Allen will regrade the ENTIRE examination will pay special attention to the problem with which the student finds any discrepancy. Regrettably, it has been noted every year that a few individuals make changes in their graded exams and then request regrading. This dishonest behavior is dealt with in accordance with the University policies on cheating. ***To avoid such potential for dishonesty, the graded exams are routinely photocopied before they are returned to students. Any examination turned in for regrading will be compared against the photocopy; therefore, PLEASE DO NOT WRITE ON THE EXAMINATION PAPER AFTER IT IS GRADED IF YOU INTEND TO REQUEST REGRADING.***

### GRADES:

80-Minute Examinations (best 3 of 4)	450 points	45.0%
Final Exam	150 points	15.0%
Quizzes (best 3 of 4)	75 points	7.5%
Laboratory (best 9 of 11)	250 points	25.0%
TA Evaluation	25 points	2.5%
In-Class Exercises (best 5 of 7)	<u>50 points</u>	<u>5.0%</u>
TOTAL	1000 points	100.0%

Absences and late, poor, incomplete, or missing laboratory outline or data sheets or laboratory reports count ***very seriously*** against your final grade and ***will lower your grade significantly***. The final course grade includes examinations, quiz grades, laboratory grades, absences, lateness, laboratory reports, laboratory notebooks, laboratory outline forms, as well as quiz section attendance, laboratory technique, class participation, and attitude.

**GRADING SCHEME:**

I will give an approximate grade breakdown for each exam so that you have an idea where you stand at any time. However, *these grades are only approximate*.

Final grades will not be assigned tougher than the following scale:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
≥93%	≥90%	≥87%	≥83%	≥80%	≥77%	≥73%	≥70%	≥67%	≥60%	≥55%	<55%

**POSTING OF FINAL GRADES:**

Course grades will be posted on the course website (Blackboard) and on Pipeline. Grades on Blackboard are not official; the official grades are in Dr. Allen's gradebook. Grades will not be given out by the teaching assistants.

**CHEATING:**

Cheating or any other sort of dishonesty is an abhorrent behavior. Cheating that is caught will result in severe punishment, and may lead to expulsion from the University, following the rules of the University. The usual minimum punishment for cases of cheating (first offense) in this course are (a) expulsion from the course with a grade of "F" and (b) a recommendation to the Dean of the College that the incident be recorded in the permanent record of the student for 4 years, or until the date of the student's graduation, whichever comes first.

**DISSABILITIES:**

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The SDS office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University

**WITHDRAWAL:**

The last date on which a student may drop this course is November 12, 2011. A student's withdrawal request will not be approved unless the student presents appropriate evidence to the instructors (TA and Dr. Allen) that he or she has properly checked out of laboratory. A student who withdraws will receive a grade of WP, WF, or WN based on the work that he or she has completed up to the date of the withdrawal request.

**REQUEST FOR REGRADING OF THE EXAM**

(PLEASE NOTE: if you are requesting a regrade, do not write anything on your exam after it is graded)

I, \_\_\_\_\_ (print your name), hereby request that the attached examination be regraded. I understand that the entire examination will be regraded by Dr. Allen, and that grade adjustment will be made accordingly. I find grading discrepancy with the following problems (for example, state “problem 4 part B” or “problem 5 part A”):

**WAYNE STATE UNIVERSITY**  
**Department of Chemistry**  
**LABORATORY EXPERIMENT OUTLINE FORM**

CHM 1030

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Section Number: \_\_\_\_\_

Expt. No: \_\_\_\_\_ Title: \_\_\_\_\_

Purpose of the experiment:

Points that require special care or precaution:

Sequence of steps in the procedures: