SYLLABUS **SPRING SEMESTER 2004**
ORGANIC CHEMISTRY 122 **TEMPLE UNIVERSITY**

Keep this syllabus. It contains much information essential to your success in this course.

		TIMES	ROOM	INSTRUCTOR
Lecture 1 Sec. 1 - 3	**MWF**	**9:40 - 10:30** am	**TL 301AB**	**Dr. S. Washburne**
Lecture 2 Sec. 4 - 6	**MWF**	**10:40 - 11:30** am	**BE 160**	**Dr. J. Williams**
Lecture 3 Sec. 7 - 9	**MWF**	**11:40 - 12:30** pm	**BE 166**	**Dr. S. Washburne**
Lecture 4 Sec 10 -12	**TuTh**	**10:10 - 11:30** am	**BE 162**	**Dr. D. Dalton**
Lecture 5 Sec 13 -14	**Tues**	**6:10 - 9:00** pm	**BE 413**	**Dr. D. Hill**

Laboratory: Chemistry 124 is a separate course, which has Chemistry 122 as a co- or pre-requisite. Direct questions to Organic Coordinator: Dr. Findeisen, BE 400, afindeis@astro.temple.edu

Course Description: Organic Chemistry (Chem 0122) is the second semester of a two semester sequence. It has Organic Chemistry (C121, C181, or C191) as a prerequisite. The contents of this course include the structure, synthesis, and reactivity of the carbonyl group and other functional groups. The mechanisms of organic reactions and their application to biological molecules such as amino acids, peptides, proteins, carbohydrates and lipids. Principles of organic spectroscopy and stereochemistry as well as the introduction of kinetics and reaction mechanisms will be discussed..

Scheduling: Your attendance at all lectures and recitations is expected and essential to your success in this course. In case of emergency, you may attend a lecture or recitation section other than your assigned one; however all quizzes and examinations must be taken in your assigned section**. There will be no make-up of missed quizzes, tests, or examinations.**

Textbook: John McMurry, "Organic Chemistry, 6th Edition" Brooks-Cole Publishing Co., 2004 is required. You should read each chapter before its lecture. "Study Guide & Solutions Manual for Org. Chemistry" by Susan McMurry is recommended. Both are available in the TU Bookstore. Any other organic chemistry text is a useful supplement. Sets of molecular models may be purchased in the TU Bookstore.

Grading:

Midterm Exam	300 points	[While point totals can not be translated exactly into letter grades, a score of 800 points or more, will almost certainly be an "A".]
Final :	500	
Recitation:	200	
Maximum Score:	1000	

Recitation: There will be five 20 minute recitation quizzes (50 points each); the lowest will be dropped. **There will be no make-up quizzes, tests, or exams.** Find out from your instructor what the quiz average was. Your recitation grade relative to the quiz average is a good indication of your current performance. All students must be assigned to a recitation section that is designated for your lecture. If you do not have one, see Dr. Findeisen in BE 400, afindeis@astro.temple.edu Most recitation classes meet in BE 413.

Office Hours: The table below reflects the regular office hours. In addition all faculty will have office hours by appointment.

		Office	e-mail address	phone number
DD	TuTh 11:30 - 12:30pm	BE 340	dalton@temple.edu	215-204-7138
SW	MWF 10:30-11:30 & 12:30-1:30	BE 346	stephen.washburne@temple.edu	215-204-7140
JW	MWF 12:30 - 1:30pm	BE 440	john.r.williams@temple.edu	215-204-7144
DH	Tues 5:00 - 6:00pm	BE 427	hill@temple.edu	215-204-6209

Problems: Answers to all assigned problems can be found in the Study Guide. It is essential that you work through each problem and understand the theory/method used for its solution, and do this BEFORE the recitation in which it is discussed. Mere copying of the answer into your notebook is useless. Experience has shown that students who do more than the assigned problems do well in this course. Exam question will be in similar format to book problems.

Schedule: Chemistry 122 (January – May 2004)

Lecture Week of:	Topic (McMurry)	Recitation Problems Assigned for Discussion in Recitation	
----------Chapters----------			
Jan. 19:	13	Ch.13 3-21,23,31-42	
26:	14,15	Ch.14 1-9,11,12,15,16,20,24-30,33,41	
Feb. 2:	16	Ch.15 1-3,5-8,11,12,20,23a,c,25,29,33,37,44a,b	**QUIZ.#1**
9:	17	Ch.16 1,3,4,6-9,10a,11,13-19,22,31,49,57,67,70	
16:	18	Ch.17 2-4,6,7,10,12a ,14,15,27,30,35,40,44,49,50,54,62	**QUIZ.#2**
23:	19	Ch.18 1b,c,2,3b,d,5,6a,9,12,18,26,32,44,52.	
Mar 1:	19	Ch.19 2-4,6,8-11,13,16,19,20a,c,20,21,32,36,38,39,41	**QUIZ.#3**
8:		**SPRING RECESS**	
15:		**M I D-T E R M E X A M I N A T I O N** (Lect.1,3 Mar. 15;L.2 Mar. 15;L.5 Mar. 18)	
15:	20	Ch.19 2-4,6,8-11,13,16,19,20a,c,20,21,32,36,38,39,41, 54,60,62,64,65c.	
22:	21	Review Mid-Term Exam in Recitation – Ch.20 2,3,5,8,9,11-13,23,24,29,32,36,42,46,48	
29:	22	Ch.21 2,3,5,6,9,10c,11,12,14a,15,16,21,22,24,26,30,39,41,47,59,68,69,71b	**QUIZ #4**
Apr 5:	23	Ch.21 2,3,5,6,9,10c,11,12,14a,15,16,21,22,24,26,30,39,41,47,59,68,69,71b	
12:	24	Ch.22 1,4,5,7,8,11,13,15,16,32,42.	
19:	25,26	Ch.23 1b,2,3c,4,5,7b,9,10,12,14,16b,17b,19a,20,27,30, 38,40a,e,41,43,48,51	**QUIZ #5**
26:	27-31	Ch.24 2,4,6,7,10,12,13,17,28,36,56,63.	
May 3:	27-31	Ch.25 1-3,6,8,12-14,17,23,27,32,34,36b,37,39,44; Ch.26 1,2,7,8; Ch.27 1,2,4,8,21,23,33,35; Ch.28 1; Ch.31 1,2	
Omit:		Ch. *25* 4,8,9,10,12; Ch. *26* 12,13; Ch. *27* 3,4,9; Ch. *28* 7,14,15,16,17; Ch.*29*,*30* all; Ch. *31* 5.	

Final Exam Schedule:	Lecture	Exam	Date	Time	Room
Lect. 1	MWF 9:40	Wed	5/12	8:30 - 10:30	TL 301AB
Lect. 2	MWF 10:40	Fri.	5/7	8:30 - 10:30	BE 160
Lect. 3	MWF 11:40	Mon	5/10	11:00 - 1:00	BE 166
Lect. 4	TuTh 10:10	Tues	5/11	8:30 - 10:30	BE 162
Lect. 5	Tu 6:10	Tues	5/11	6:00 - 8:00	BE 413

Examination Policy: All quizzes, tests, and examination are "Closed Books". This means no books, notes, or reference material may be consulted during the Test period. Giving or receiving information during examinations is a violation of the Temple Student Discipline Code and will result, at minimum, in a grade of F for this course. Electronic devices, including calculators, phones, and PDA's are not permitted in the exam room. There will be no make-ups of missed quizzes, tests, or exams.

Incompletes/Withdrawal: Please note that an Incomplete (I) is only to be given in accord with institutional procedures and which is not fulfilled until the specific requirements have been met and forms signed and submitted. This course is governed by the Temple University Policy (#03.12.13) on Incompletes. Details may be found at http://policies.temple.edu/getdoc.asp?policy_no=03.12.13. Additionally, the grade of incomplete, I, will be considered only in those cases where at least 40% of the term's work has already been completed, and where there is a valid excuse (medical or similar) for missing the remainder of the course. The fear of earning a poor grade is not

considered a valid excuse. For those students who are assigned a grade of "I", all previous scores will stand and be used is the calculation of the final score when the course is completed. Students wishing to pursue an incomplete must obtain the Instructor's Approval for an Incomplete Form (available from the web page) that the student and his/her instructor must complete. The Incomplete contract form must be submitted with the final grades for the class.

The last day to withdraw from classes is Monday, March 29, 2004. Please note that a withdrawal (W) is an institutional procedure which is not complete until the withdrawal form has been signed and submitted to the Registrar's office. This course is governed by the Temple University Policy (#02.10.14) on Withdrawal. Details may be found at http://policies.temple.edu/getdoc.asp?policy_no=02.10.14.

Some Friendly Advice - Organic Chemistry is a difficult course. For many, it will be the most difficult and time-consuming of your college career. You can make it easier on yourself by doing the following: (1) Do as many problems as you have time for beyond those assigned. Even if they are from another book, the practice will help. (2) *Do study regularly.* If you fall behind, it's hard to catch up. (3) You should understand theory and method. You may try to memorize definitions and summaries at the end of each chapter, but there is far too much material to memorize everything. Unlike many other courses, the concepts introduced each week of the class will remain important during the remainder of the course, right through second semester.

GENERAL INFORMATION -

Specific Goals and Objectives:

The primary objective of this course is to introduce the student to the fundamental principles of organic chemistry and to use those principles to develop analytical skills.
More specific objectives are:

- To be able to deduce the structural formulas of simple unknown compounds from molecular formulas and spectroscopic data including MS, IR, NMR and UV.
- To build on our understanding of chemical bonding and stereochemistry.
- To understand molecular orbital theory and the principles of aromaticity and to recognize the unique chemical behavior and stability of "aromatic" compounds as applied to benzene and related structures.
- To be familiar with the nomenclature, preparation and reactions of the functional groups: conjugated dienes, alcohols, phenols, ethers, epoxides, thiols, sulfides, and amines.
- To be familiar with and understand the nature and chemical behavior of the carbonyl group in the following classes of compounds: aldehydes, ketones, carboxylic acids and related structures.
- To understand the role of organic chemistry as it applies to biomolecules such as amino acids, peptides, proteins, carbohydrates and lipids.
- To build on the foundation of reaction mechanisms and learn additional organic reactions including the Diels-Alder reaction, electrophilic aromatic substitution, nucleophilic carbonyl addition reactions, nucleophilic acyl substitution reactions and carbonyl condensation reactions.
- To continue to use reactions to do multiple step transformations and carry out the synthesis of simple organic molecules.

Student Learning Outcomes:

Students will be able to:

- Recognize conjugated and aromatic compounds, alcohols, phenols, ethers, thiols, amines, aldehydes, ketones, carboxylic acids, amides, esters, sulfides and compounds related to these basic structures e.g. amino acids, carbohydrates, lipids, DNA, RNA, etc.
- Name in a systematic manner (IUPAC) simple organic compounds exemplified by the above classes and to draw their structures.
- Use data derived from instrumental methods (MS, IR, NMR and UV) to determine the structures of organic molecules.
- Know and appreciate the concept of aromaticity and how "aromatic compounds" differ from non-aromatic compounds.
- Understand additional organic reaction mechanisms such as concerted reactions (Diels-Alder), aromatic substitution, nucleophilic addition, nucleophilic acyl substitution, carbonyl alpha-substitution and carbonyl condensations.
- Understand and use "name" reactions such as the Diels-Alder, Grignard, Williamson ether synthesis, Wolff-Kishner, Cannizzaro, Claisen, Michael and Stork enamine reaction among others.

- Carry out in systematic fashion, using the above additional reactions encountered in this course, the synthesis of simple organic molecules.
- Use organic chemical reactions to carry out simple transformations of biomolecules.

Closed Sections: If the recitation or laboratory section(s) you would like are closed you should continue to check the Diamond Line & On-Line Course schedule (see Drop/Add above). You should also examine your schedule carefully to determine if any of the other open sections fit your schedule. After exploring all other alternatives the student may request a Closed Section Approval Card (i.e. Green Card). To do this, the student must attend the first week of recitation and/or lab for the section(s) they wish to add. After considering the availability of space, a limited number of Green Cards MAY be issued at that time on first come first serve basis. Only Dr. Findeisen may issue green cards. Students should have a second and even third choice in case they are unable to obtain their first choice. No Green Cards will be issued before the first scheduled meeting of that section.

Readings: Even though you may not understand the material fully the first time, you should read through each chapter BEFORE it is scheduled to be discussed in the lecture (see attached calendar). You will be held responsible for all the text material in the following chapters, except for any sections that your instructor specifically tells you that you may exclude. Unforeseen circumstances may require that adjustments be made to the schedule. Check the web page for announcements, changes, and updates.

Homework: In order to obtain a practical understanding of how chemical theory is applied, you will need to work through the assigned end-of-the-chapter problems. The more important topics have more assigned problems. You should be ready to discuss them when your recitation class is scheduled to deal with the chapter material (see attached calendar). The listed problems represent the minimum necessary for you to develop a working foundation in chemistry. You
are encouraged to work additional problems and seek help outside the classroom. Unexpected circumstances may cause your instructor to make changes to this schedule. Check the web page for announcements. If you miss a class, be certain to find out if there have been any schedule changes.

HELP!!! Make certain you take full advantage of all the academic support services available at Temple -both here and on the Main Campus. These include instructor office hours, the Math and Science Resource Center (MSRC) located in Curtis Hall Room 17, 13th & Montgomery, Main Campus in addition to Supplemental Instruction sessions. The services provided at the MSRC include one-on-one tutoring, computer lab, weekly group tutorials/supplementary instruction, final exam review sessions, and a resource library. The center is open 6 days a week AND IS FREE. For additional information check http://www.temple.edu/~MSRC.

Problems: You should first attempt to resolve any problems that you are having with your laboratory or recitation instructor(s). If after speaking with the instructor you have not resolved the issue, you should speak with the course coordinator before speaking to your lecturer. As coordinator he will attempt to mediate, but the ultimate decision is often determined by department policy. DO NOT expect your instructor to make new policy. *However, if you are having problems with the professional conduct of your instructor you should contact the course coordinator immediately.*

Make-ups: There will be no make-ups of missed recitation quizzes, tests, or final examinations.

Cheating: All students are expected to adhere to the highest levels of academic integrity. Any students found cheating (i.e. copying answers to exam, quiz, or homework; submitting experimental data that they did not collect; presenting graphs and calculations; or otherwise taking credit for work that they did not perform) will receive a failing grade in the course. They will also be reported to the Dean's office in the College of Science and Technology.

Miscellaneous: All cell phones are to be in a state of limbo (**turned off**) during class time.

Disability Resources and Services: Located in 100 Ritter Annex, this Office of Empowerment arranges accommodations and provides information and support in accessing University programs, facilities, and activities for students with 'certified' disabilities. Services include assisting with academic adjustments and accommodations including sign language interpreters, test proctoring, library research, note taking, and reader services. Information on mobility, wheel chair storage, adaptive computing, small equipment loan, specialized scholarship, and career/internship resources is also available. URL - www.temple.edu/disability ; 215.204.1280; TTY at 204.1786; FAX at 204.6794