

CHEM 112

January 2014

Instructor: A. Wambsgans; 409 Stratton e-mail aw@drexel.edu phone 215-895-1585

Office Hours: to be announced; **also by appointment.**

Textbook-Textbook - "Introduction to General, Organic, and Biochemistry", 10th ed. by M. Hein, S. Pattison, and S. Arena publisher John Wiley & Sons, Inc

Place and time: Lecture MWF at 2:00 PM; Recitation Th at 300 PM both in DLPXZ GL20

"Handouts" may be given at various times during the term.

Check your Drexel e-mail all during the term.

Prerequisites: Chem 111 or equivalent

The **objective** of this course is for student to learn some basic organic chemistry, to learn about alkanes, their names, properties, some reaction and their uses as fuels; to learn about alkenes their names, uses, some reaction and their cis-trans isomers as applied to fats; to learn about aromatic about the dangers of some aromatic compounds and uses, to learn about both synthetic and natural polymers and their uses; to learn about alcohols, their names, use and some reaction including oxidation in the liver; to learn about phenols and some properties, and occurrences such as in poison ivy; to learn about aldehydes and ketones, some uses such as acetone; to learn a short introduction to acids and bases; to learn about carboxylic acid and their esters such as flavors and fats; to learn about amine and amide (including nylons and proteins); to learn about optically active molecules, to learn about the structure of sugar, carbohydrates and if time DNA.

The **description** of the course is given below by the main topics which are listed below with each chapter.

Recitation Quiz 1 -Thursday January 23 The material covered will be announced.

Exam 1- Wednesday February 5 (subject to change) The material covered will be announced in class. (all from the beginning of the term).

Recitation Quiz 2 -Thursday February 20 The material covered will be announced.

Exam 2-Wednesday March 5 (subject to change) The material covered will be announced in class. (all from the end of the first exam).

Final Exam- to be announced by Drexel. It covers the complete term.

The exams will cover all lecture material, recitation, handouts, e-mails and material from the textbook.

For your Final grade: Exams 1 and 2 count 25% each and the final exams counts 35%.

Each Recitation Quiz counts 5 %. Recitation attendance counts for 5%

Tentative grading scheme: A+ = above 95, A = 90 to 95, A- = 88 to 90, B+ = 82 to 87, B = 76 to 82, B- = 70 to 75, C+ = 64 to 69, C = 60 to 64, C- = 56 to 60 . D+ = 53 to 56. D = 50 to 53. F = below 50.

You must take all exams and quizzes and have a passing average in order to pass the course.

Missed Exam, You are expected to attend the exams as scheduled. A make up exam may be given in some cases when an exam is missed (Make up exams are not automatically given). You should try to E-mail and call me to leave a message **before** the exam is missed if possible. A make up exam should be taken as soon as possible at the time I set. Contact me for arrangements for a time and place for the exam. A make up exam will not be given for a poor grade on an exam.

You may not use alpha-numeric programmable calculators or any other electronic devices (translators, cell phones) for the exams. Remove any papers or notes from your

calculator case. You are not allowed to use any notes or other material during the exam. You must learn and understand the material. **Cheating will result in failure and can be reported.**

You are expected to attend class, recitation and exams.

The last day to withdraw from this course with an advisor's help is **February 21, 2014** Friday before the offices closes. **(See additional notes at the end.)**

Problems are at the end of the Chapters (Some chapter may not be covered completely):

Chapter 19 - Review Questions - 3; Paired Exercises - 1b 9b 13 17de 14d 25 . Also write a balanced equation for the combustion (burning) of butane with oxygen. (Alkanes, cycloalkanes, haloalkanes-names both IUPAC and common, uses, reaction - combustion, isomers, halogenation with mechanism, cracking, isomerization, octane number, gasoline, alkyl halides -preparation, names and uses)

Chapter 20 - Review Questions - 5 8 9; Paired Exercises - 5bde 6abd 9 11a 12a 19abd 24c 29c 30d 31d 37bc 39b

(Alkenes-names, cis and trans geometric isomers, uses, and reaction-hydrogenation, combustion, addition of halogen, water, and others, Markovnikov's rule; Alkynes and reactions; Aromatics - names , uses, cancer, reaction- nitration, halogenation, combustion)

Chapter 21 - Review Questions - 2 8; Paired Exercises - 1 3d 4 7a 8b 11 15 21 27 (Polymers from alkenes--- polyethylene, Teflon, PVC, polystyrene, polypropylene and others, copolymers, addition polymers, thermoplastics, thermosetting polymers, natural rubber, vulcanization of rubber, and other topics)

Chapter 22 - Review Questions - 1 4 7; Paired Exercises - 1ac 2e 8a 9c 13cb 23c 25a 26ac 27ab 33a 34 a 37 39b 4a 4 read only

(Alcohols --- names, use, some reactions --oxidization, esterification, preparations and properties; phenols --- name, use and properties; ethers -- name, use and properties; thiols names, uses and oxidization to disulfides, hair permanents)

Chapter 23 - Review Questions - 1ab 6 10; Paired Exercises - 1abd 2c 3ac 4a 6bc 15ac 21a 27b

(Aldehydes and ketones - names and uses of common one like acetone, Tollens reagents, reactions with alcohols, oxidization and sugars; Bakelite polymer from formaldehyde and phenol)

Chapter 15 small parts - Review Questions - 1 7; Paired Exercises - 3bf 29a (acids and bases defined, neutralization, salts)

Chapter 24 - Review Questions - 5 6 7 8 ; Paired Exercises - 1abd 3c 4a 6d 7a 13b 15c 20ac 25e (31 read only) 36 37 38 (41, 49 and 53 read only) (Carboxylic acids, and their salts, names , uses, reaction- formation of salts esters and amides-- soaps and detergents, esters ---aspirin and others, fats and polyesters)

Chapter 25 - Review Questions - 2 8; Paired Exercises - 1ab 3a 4ac 9ab 10c 19ac 20a 18 20b 21ac 36 38 39 40 41 42 (Amines, names , uses, reaction- formation of salts, and amides, and Nylons)

Chapter 26 - Review Questions - 1 3 4 6 8; Paired Exercises - 3 4c 9a 8b 21 (stereoisomers) (Optical Isomerism)

Only parts of the chapters below may be covered (to be announced in class and some problems may be assigned)

Chapter 27 (Carbohydrates-Sugars, starch, cellulose, glycogen-their structures)

Chapter 28(Lipids -Fats and steroids- their structures)

Chapter 29 and 30 (Proteins, their structures) (Enzymes, very brief treatment)

Chapter 29(DNA and RNA, their structures)

If time allows some of the following may be covered:

Chapter 14, 15 and 16

Material from other chapters may be added . All above subject to change

All above --- Subject to change (announcements in class).

Snow closing for Drexel: phone 215-895-melt, or see Drexel Web page, or KYW Radio 1060AM --- the Day snow number is 103 and the Evening College snow number is 2103

Additional Information

The last day to drop from this course with an advisor help is **January 17, 2014** Friday of the second week of classes before the offices close and if you do not need your advisor's permission by using Drexel One on-line Sunday January 19 before 11:00 PM this term.
(see below)

The last day to withdraw from this course with an advisor's help is **February 21, 2014** Friday before the offices closes. (see below)

Before you drop or withdraw from a course you should check with your Advisors as there may be consequences. Dropping or withdrawing from a course may affect your academic standing or your financial situation. It may have serious effect on billing at Drexel, financial aid, VA benefits, NCAA athletic eligibility, immigration status for foreign students, and other possible consequences. As a student you are responsible for transactions against your academic record.

If you register for a course, the student's responsibility is to complete the course, drop it, or withdraw from the course. If you register for a course and do complete it, drop or withdraw from the course, eventually an NGR grade will turn to a failing grade F.

Different policies apply to dropping a course and withdrawing from a course (Dropping a course result in the course being removed from your transcript. Withdrawing from a course results in a grade of W on your transcript for that course). Student should consult their Advisors (both academic and financial Aid Advisors) and in some cases the instructor before dropping or withdrawing from the course.

In order to drop or withdraw from a course, a student must have the "Add/Drop/Withdraw" form signed by the course instructor and the student's Academic Advisor. Dropping or withdrawing from the course may affect your billing and academic record (follow procedures and consults Advisors). Forms are available in many Department offices, in the lobby of Goodwin College and at <http://www.drexel.edu/drexelcentral/courses/adjustments/course-withdraw/>
http://www.drexel.edu/provost/policies/course_drop.asp

Incomplete grade "I" or No grade reported or No-Credit. Student must take responsibility to meet the University's policies and deadlines for requesting an incomplete grade and completing a course before the deadline passes. If a student stops attending a course, the student is not automatically removed from the course. The student's responsibility is to complete the course, drop it, or withdraw from the course. If you register for a course and do complete it, drop or withdraw, eventually an NGR (no grade reported) grade will turn to a failing grade F. An **Incomplete grade "I"** will turn to an F (failure) grade if the student does not complete the course.

If a student has an Incomplete grade or a No Grade Reported, the student should see the instructor for the course and the student's Academic Advisor **immediately**,

If the student's financial obligations to Drexel University are not met, the student is not entitled to a grade from the University and from the instructor.

Please read the "Academic Honesty Policy in the student Handbook at <http://www.drexel.edu/studentlife/SLhandbook.htm>. Students are expected to follow these policies. The handbook also explains policies for dealing with cheating and other forms of academic dishonesty. http://www.drexel.edu/provost/policies/academic_dishonesty.asp
http://www.drexel.edu/studentaffairs/community_standards/studentHandbook
http://www.drexel.edu/studentaffairs/community_standards/studenthandbookgeneral_information/code_of_conduct
http://www.drexel.edu/studentaffairs/community_standards/studentHandbook

For the "Americans with Disabilities Act" Drexel University has the "Office of Disability Services at 3201 Arch Street, Suit 210 and see on line <http://www.drexel.edu/oed/disabilityResources/Overview>. This office is to be contacted by the student if special course accommodations, emergency medical information or building evacuations are need. This office will also verify any special needs and give a form to the student to give to the instructor. The student should make the arrangements with this office and inform the instructor within the first two weeks of the term or when a new situation occurs.
<http://www.drexel.edu/oed/disabilityResources/students>