

# CHEM 2311, ORGANIC CHEMISTRY – I

## Fall 2017-Study Abroad Program in Barcelona, Spain

### INSTRUCTOR

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### SCHEDULE

The course will include lectures (prerecorded and in-class), exams, HW, and a final exam. The total course contact is equivalent to 37.5 hours (i.e. 3 semester credits at Georgia Tech).

***You are expected to have viewed the pre-recorded lectures and make annotations to your notes prior to attending in-class lectures.*** Students are expected to spend approximately 1-2 hr each weekday reviewing the online recorded lecture. In-class lectures will focus heavily on solving problems and answering questions.

### CLASS NOTES

Notes for each topic should be downloaded from the web (as PDF files) and printed prior to travel abroad. Topics correspond fairly closely to the chapters, with a little reorganization. *These notes are not designed to be comprehensive.* In fact, they are specifically designed to be incomplete. They are designed to serve as the basis for lecture notes (i.e. making annotations while watching the recorded lecture), not as a replacement for coming to class. In-class meetings will focus heavily on problem solving.

### TEXTBOOKS

"Organic Chemistry", 12<sup>th</sup> edition, by T.W. Graham Solomons and Craig B. Fryhle and "Study Guide and Solutions Manual to Accompany Organic Chemistry". **Wiley Plus** © software is optional (note: WileyPlus does include an ebook and tutorials which you may find helpful). The 11<sup>th</sup> edition of Solomon's Organic Chemistry may also be used.

### MODEL KITS

Many students find model kits useful when studying organic chemistry. You do not need an expensive kit. A small selection of atoms and bonds is useful. Model kits could certainly be shared.

### POLICIES, PROCEDURES AND GRADES

Exam 1	Topics 1 and 2 (Structure and Bonding, Organic Compounds)	100 points
Exam 2	Topics 3 and 4 (Alkanes and Stereochemistry)	100 points
Exam 3	Topics 5 and 6 (Acids/Bases, Nucleophilic Substitution)	100 points
Exam 4	Topics 7 and 8 (Elimination and Addition Reactions)	100 points
Exam 5	Topic 9 (Conjugated Systems, Aromaticity)	100 points
Exam 6	Topic 10 (Determination of Molecular Structure)	100 points
Homework		100 points

The lowest score (i.e. 100points) from exams 1-6 will be dropped. Thus, the course will be graded on the basis of 600 points:

88% (528 points) will guarantee an "A"

75% (450 points) guarantees a "B"

65% (390 points) guarantees a "C"

55% (330 points) guarantees a "D"

### REGRADES

*If you want any work regraded you must make a request and return the assignment within 2 days to the instructor. Work will not be regraded after this deadline.*

## **HOMEWORK**

Homework will be assigned via t-square or podcast. Late assignments will not be accepted.

## **EXAMS: SCHEDULE, MAKE-UPS AND DROPS**

You must take the exam at the assigned lecture time. *Make-ups can only be given if advance notification is given with proper supporting documentation (e.g. medical note, Dean of Student's letter).* Exams not made-up, for any reason, will receive a score of zero.

**Since this course is offered as part of a study abroad program, dropping the course is not permitted. In addition, Institute policies regarding Final Instructional Class Days and Reading Periods are not applicable. Be sure to review the academic course schedule for this study abroad program.**

## **MATERIAL COVERED/STUDENT RESPONSIBILITIES**

You are responsible for all material presented in lectures and in assigned readings. You are also responsible for announcements made in class, which will also be posted on the course t-square site or distributed by email. You must check the web site and your gt email account on a regular basis. Note: There are potential problems associated with automatic forwarding of messages from *gt email account* to other email addresses; check your *gt* account even if you have it set up to forward email elsewhere.

## **THE TECH ACADEMIC HONOR CODE**

You are required to adhere to the Georgia Tech honor code (<http://www.honor.gatech.edu/>). The work submitted on examinations and homework must be entirely your own.

## **WORKING IN GROUPS**

Most learning takes place *outside* of the classroom. Although lectures should put things in perspective, studying additional materials such as the textbook and online resources, and solving the problems is when you will come to terms with the material. I encourage you to work together on reading and problem assignments. Although you might study in groups, remember that you are ultimately responsible for your learning. Everybody can benefit from team work. If you are struggling with the material you stand to learn a lot; if you are an "Organic Whiz" you also stand to learn from the challenge of presenting your understanding to others. You will learn through teaching.

## **COMPETITION AND GRADING**

Formal education often puts students in competition with each other for good grades. We do not believe that competition for grades, and the exclusion of everything else, is the most effective way to foster student development. Although grades will be assigned based on a numerical score which judges attainment on exams, The course is structured such that if you show a desire to learn, put *the effort in, and have some intellectual ability, you can get the grade you want. With this in mind, please take the time to read the Grades, Expectations and Minimum Requirements section, and decide what you want from the course.*

## **CANCELLATION OF CLASSES**

If class is cancelled, a make-up lecture and any change in assignment deadlines will be announced.

## **TIME COMMITMENTS**

For each lecture you should aim to put in *at least* another two hours of your own time. You will need to spend more time preparing for exams. Some students will require more, some less.

## **GRADES, EXPECTATIONS AND MINIMUM REQUIREMENTS**

(adapted from J. H. Williams in *The Teaching Professor*, Aug 1993)

"D" -55%- Some demonstration of detailed knowledge of organic reactions.

"C" -65%- Detailed knowledge of structure and bonding, be able to show movement of electrons during reactions, know individual organic reactions.

"B" -75%- Requirements for a "C", plus some demonstrated success of multistep synthesis of molecules, some success showing movement of electrons for multistep reactions.

"A" -88%- Requirements for a "B", plus: write consistently good complete pathways for

multistep reactions based on simple mechanistic concepts showing flow of electrons in each step. Propose good syntheses for molecules using a string of individual organic reactions.

*“A” students have virtually perfect performance. Their commitment to the class resembles that of the teacher. They always read the assignment, and their attention to detail is such that they occasionally catch the teacher’s mistakes (we all make them!). An “A” student is CREATIVE, COMMITTED, ORGANIZED, and CURIOUS, has a RETENTIVE MIND (and exercises it), has a WINNING ATTITUDE, and SHOWS INITIATIVE.”*

***If every student gets 88+%, everyone gets an “A”***

### **SOME STUDY TIPS**

*Understand and Rationalize.* Read the text and online resources, prepare your own summaries. Typically each section in the text can be generalized in one or two lines or equations. Read the chapter summaries. Do you understand each point? Can you apply each concept? Work as many of the problems in the book or online as possible. If you have no trouble with the first few parts of a multi-part question, you might want to pick a few of the latter parts at random. Study in groups. ***Keep up to date! Ask Questions!!***

<b>CHEM 2311 Fall 2017</b>		
<b>ORGANIC CHEMISTRY - I</b>		
<b>Topic</b>	<b>Prelecture Reading</b>	<b>Lecture period</b>
Topic 1-Structure and Bonding	1.1-1.17	1
Topic 2-Organic Compounds	2.1-2.14	1
Topic 3-Alkanes	4.1-4.18, 10.1-6	2
Topic 4-Stereochemistry	5.1-5.9	3
Topic 4-Stereochemistry	5.10-18	4
<b>Exam 1 (Topics 1-2), Exam 2 (Topics 3-4)</b>		5
Topic 5-Acids and Bases	3.1-8	6
Topic 5-Acids and Bases	3.9-3.16	7
Topic 6-Nucleophilic Substitution	6.1-7	8
Topic 6-Nucleophilic Substitution	6.8-14, 7.12, 7.14, 11.5-12	9
<b>Exam 3 (Topics 5-6)</b>		10
Topic 7-Elimination Reactions	7.1-9	11
Topic 7-Elimination Reactions	7.10-18, 20.12	12
Topic 8-Additions to Alkenes/Alkynes	8.1-10	13
Topic 8-Additions to Alkenes/Alkynes	8.11-20, 11.13-11.15	14
<b>Exam 4 (Topics 7-8)</b>		15
Topic 9- Conjugated Systems & Aromaticity	13.1-10	16
Topic 9- Conjugated Systems & Aromaticity	14.1-10	17
Topic 10- Determination of Molecular Structure	2.15-16, 9.1-4, 9.10-11, 14.11	18
Topic 10- Determination of Molecular Structure	9.5-8, In class problems	19
<b>FINAL: Exam 5 (Topic 9) + Exam 6 (Topic 10)</b>		