CHEM F325
Organic Chemistry II
Spring 2018

CRN(s): 33324, 33325, 33326, 37807; 4 credits
Lecture: REIC 202, MWF 1:00-2:00 PM
Prerequisite: Chem F321 with grade of C or better.

Lab: REIC 241, Various Times
Lab Instructor: Thomas Green, Ph.D.

Lecture Instructor: Jennifer Guerard, Ph.D.
Office: REIC 180
Phone: (907) 474-5231

Office Hours: Wed. 10:30am-12:30pm
Email: jguerard@alaska.edu

Course Description: *A systematic study of the more important functional groups of carbon compounds, including their mechanisms of reaction, methods of synthesis, and physical and spectroscopic properties. Lab portion will include an introduction to synthetic techniques and spectroscopy.*

Course Goals. The course goals are to know reaction chemistry of major functional groups of organic molecules, including writing mechanisms for organic reactions, how to write organic reactions in a logical sequence to demonstrate how a molecule might be synthesized in the laboratory, and the use of spectroscopic techniques to determine structure of organic molecules.

Course Structure. The coursework will follow topics in the order described on the Tentative Lecture Schedule. The instructor will lecture using a combination of slides and whiteboard, providing copies of notes to the students via Blackboard. Clickers, quizzes, homework, in-class activities, and exams will assess student understanding of concepts. Lab schedule/syllabus will be handed out during lab sections.

Course Materials.

Required:
- **Textbook package sold via UAF Bookstore, includes**:
  - Joel Karty *Organic Chemistry: Principles and Mechanisms*. Norton, 2014
  - Online Homework: Subscription to Smartwork (included with all textbook pkgs)
- **NON-programmable, NON-graphing scientific calculator**
- **Turning Technologies license AND device** (either hand-held clicker or mobile device with Responseware)

Recommended:
- **Workbook:** Klein, D. *Organic Chemistry as a Second Language: Second Semester Topics*, 3rd ed. Wiley, 2012
- Eubanks, I. Dwaine. *Preparing for Your ACS Examination in Organic Chemistry: The Official Guide*
- Molecular model kit

Important Dates.

Jan. 17th: First day of class
Jan. 26th: Deadline for adding classes, late registration, faculty-initiated drops. Last day to drop with no appearance on academic record
Feb 14th: EXAM I (Ch 16-19)
Mar. 9th: EXAM II (Ch 20-21)
Apr. 6th: EXAM III (Ch 22-24)
Mar. 30th: Last day to withdraw or faculty-initiated withdrawal with W
Apr 25th: EXAM IV (Ch 25-26)
Apr. 30th: Last day of instruction
May 3rd: FINAL 1-3pm (ACS FINAL**)**
May 9th: Grades Posted

Student Learning Outcomes. Broadly, at the end of this course, students should be to:

1. Understand fundamental concepts of bonding and acidity of organic functional groups.
2. Name a variety of organic compounds.
3. Predict the reactivity of organic compounds involving nucleophilic and electrophilic substitution, elimination, and addition mechanisms and combinations thereof.
4. Know common reagents used for hydrocarbon transformation into other functional groups.
5. Interpret IR, NMR, and mass spectra of organic compounds to arrive at a structure.
6. Draw and interpret 3D structures of stereoisomers.
7. Write out synthetic pathways using the correct order of reactants and reagents in order to arrive at a target molecule.

A detailed list of more specific learning outcomes will be posted on Blackboard before each quiz.

Evaluation and Grade Assignment.

Smartwork HW:	120 points
In class quizzes	100 points
EXAM 1 (Feb 14, 2018):	100 points
EXAM II (Mar 9, 2018):	100 points
EXAM III (Apr 6, 2018):	100 points
EXAM IV (Apr 25, 2018):	80 points
Comprehensive Final:	150 points
Total Lecture Points:	750 points
Total Lab Points:	250 points
Total Course Points:	**1000 points**

Grading:

A = 900 – 1000 points
B = 800 – 899 points
C = 700 – 799 points
D = 600 – 699 points
F = 0 – 599 points

I may elect to lower the grade point cutoffs, but will not raise them. I will not be using +/- grading.

Notes and Policies.

Smartwork homework. Instructions are on Blackboard under Course Materials for Smartwork registration. You will need: 1) Your UAF email. 2) Course enrollment key (posted on Blackboard) and 3) Registration code from W. W. Norton. **The first assignment is due on Monday, Jan 22nd at 1:00 PM.** Expect homework to take *at least* a few hours each week. **Late assignments are not accepted.** Due dates are listed in the syllabus and are due at the start of class on dates shown. HW grade will be averaged and scaled to 120 points. Extra credit Smartwork assignments (see syllabus) will average into the total HW score, effectively counting as two extra optional assignments.

Class Participation. Most class periods will contain individual or group problem activities to facilitate learning, which may occur on paper or by clickers. Several in-class activities will require individual responses using **Turning Technologies Clickers. It is thus important to attend and bring your clicker to class every day**. ***Quizzes may be administered by clicker!!!***

It is the student's responsibility to bring the clicker/responseware-installed-device to each class, replace if lost, verify it is registered correctly on the instructor's database, and keep it supplied with fresh batteries. **It is ultimately the student's responsibility** to address problems with their clicker and/or check with the instructor concerning their clicks. **Clicker IDs must be registered through Blackboard by SUNDAY, Jan 21st, 11:59 PM.** Clicker registration directions are posted on Blackboard. **A purchased license with Turning is REQUIRED** to be able to see your responses, *even if* using an older clicker.

Exams. No electronic devices are allowed during exams other than a non-programmable scientific calculator. You must turn in your exam before leaving the room. Molecular model kits are allowed during all exams. *Use of cell phones or electronic devices other than a non-programmable scientific calculator during exams constitutes cheating and will result in an F in the course.* ****ACS Final Exam**. The final exam will be the American Chemical Society Organic Chemistry exam, covering the entire 2-semester course sequence of organic chemistry (CHEMF321 & CHEMF325).

Quizzes. 12 quizzes will be given out over the term, each worth 10 points (see schedule). The lowest 2 scores will be dropped. They may be administered via clickers (see above) or via paper/pencil, and students will be notified ahead of time of the format for upcoming quizzes.

Make-up exams or quizzes are only allowed in the event of a legitimate excuse as determined by the instructor. If you anticipate an absence from an exam, bring it to my attention *before* the exam date, or in the case of unexpected absences, within one business day.

Mobile Devices and Laptops. Mobile devices must be turned to silent or "vibrate" mode during class. Use of electronic devices that facilitate learning are permitted. Any other use is prohibited.

Instructor-Initiated Withdrawals. Until **Friday, March 30th**, the instructor has the right to withdraw a student who has not participated substantially in the course. Any (or combination) of the following constitute non-participation: 1) Missed exam or 2 quizzes without excused absence, 2) At least 2 incomplete homework assignments, or 3) Less than 50% attendance as registered by clickers.

Honor Code. Students must adhere to UAF policies, the student code of conduct as well as the University of Alaska *Honor Code*. **Chemistry Department policy states any student caught cheating on graded work will be assigned a course grade of F. Course drop forms will not be signed in these cases**. Examples of cheating include, but are not limited to: 1) copying another student's answer or allowing your answers to be copied during a quiz or exam, 2) using unauthorized resources during a quiz or exam, or 3) using another student's clicker for any reason.

Support & Accommodations. Questions on content, studying? Use office hours, or email instructor!

Chemistry Learning Center (CLC) – CHEM 321 TAs keep regular office hours, which can be found on the CLC calendar: https://www.uaf.edu/chem/clc/. Chemistry computer lab (REIC 170, 172) is available for **course related activities** - See http://www.uaf.edu/chem/instrumentation/policies.

Disabilities Services. The Office of Disability Services implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (*208 Whitaker, 474-5655) to provide reasonable accommodation to students with disabilities.

Veteran Support Services. Walter Crary (wecrary@alaska.edu) is the Veterans Service Officer at the Veterans Resource Center, 111 Eielson Building, 474-2475. Fairbanks Vet Center: 456-4238. VA Community Based Outpatient Clinic at Ft. Wainwright: 361-6370.

Student Support Services. The Student Support Services (SSS) program located in 512 Greuning (474-6844), provides opportunities for academic development, assists students with college requirements, and serves to motivate students toward successful completion of their degree program.

Amending this Syllabus*: Before the drop date, I may revise the syllabus to correct for any errors. Revision at a later time would require majority vote by students present in class on day issue is decided. Adjustments to the lecture schedule and homework due dates may be made at the instructor's discretion anytime during the semester. Any revisions will be distributed via Blackboard and announced in class.*

	Date		Assigned Readings	Klein	Assignments & Quizzes
Week 1	W	1/17	17a: 17.1-17.4: Nuc Add I	Ch 6	
	F	1/19	17b: 17.5-17.9: Nuc Add I		
Week 2	M	1/22	17c: 17.10-17.13: Nuc Add I		**HW 17a due**
	W	1/24	17c: 17.10-17.13: Nuc Add I		**Quiz 1, HW 17b due**
	F	1/26	18a: 18.1 – 18.3 Nuc Add II	Ch 6, 8	**HW 17c due, HW xc1 due (rev.)**
Week 3	M	1/29	18b: 18.4 – 18.9 Nuc Add II		**HW 18a due**
	W	1/31	18c: 18.10-18.11 Nuc Add II		**Quiz 2,**
	F	2/2	18c: 18.10-18.11 Nuc Add II		**HW 18b due**
Week 4	M	2/5	Ch 16: Mass Spectrometry, Dr. GREEN		**HW 18c due**
	W	2/7	19a: Org. Synthesis 2		**Quiz 3**
	F	2/9	19b: Org. Synthesis 2		**HW 19a due**
Week 5	*M*	*2/12*	*EXAM I Review*		**Quiz 4, HW 19b due**
	W	**2/14**	**EXAM I: Ch 16-19**		**HW 19c due**
	F	2/16	20a: 20.1-20.3: Nuc. Add.Elim. I	Ch 7	**HW xc2 due (mass spec)**
Week 6	M	2/19	20b: 20.4-20.5: Nuc. Add. Elim. I		**HW 20a due**
	W	2/21	20c: 20.6-20.8: Nuc. Add. Elim. I		**Quiz 5, HW 20b due**
	F	2/23	21a: 21.1-21.3: Nuc. Add. Elim. II		**HW 20c due**
Week 7	M	2/26	21b: 21.1-21.3: Nuc. Add. Elim. II		**HW 21a due**
	W	2/28	21c: 21.4-21.8: Nuc. Add. Elim. II		**Quiz 6, HW 21b due**
	F	3/2	21c: 21.9-21.10: Nuc. Add. Elim. II		
Week 8	M	3/5	21d: 21.11-21.14: Nuc. Add. Elim. II		**HW 21c due**
	W	*3/7*	*EXAM II Review*		**Quiz 7, HW 21d due**
	F	**3/9**	**EXAM II: Ch 20-21**		
Week 9	M	3/19	22a: 22.1 – 22.7: EAS I	Ch 4	
	W	3/21	22b: 22.8-22.10: EAS I		**HW 22a due**
	F	3/23	23a: 23.1-23.6: EAS II		**Quiz 8, HW 22b due**
Week 10	M	3/26	23b: 23.7-23.9: EAS II		**HW 23a due**
	W	3/28	23c: 23.10-23.14: EAS II	Ch 5	**HW 23b due**
	F	3/30	24a: Diels Alder	Ch 10	**Quiz 9, HW 23c due**
Week 11	M	4/2	24b: Pericyclic Reactions		**HW 24a due**
	W	*4/4*	*EXAM III Review*		**Quiz 10, HW 24b due**
	F	**4/6**	**EXAM III: Ch 22-24**		
Week 12	M	4/9	25a: 25.1-25.4: Free Radicals		
	W	4/11	25b: 25.5-25.9: Free Radicals		**HW 25a due**
	F	4/13	25c: 25.5-25.9: Free Radicals		**Quiz 11, HW 25b due**
Week 13	M	4/16	26a: 26.1 – 26.4: Polymers		**HW 25c due**
	W	4/18	26b: 26.5 - 26.9: Polymers		**HW 26a due**
Week 14	M	4/23	*EXAM IV Review*		**Quiz 12, HW 26b due**
	W	**4/25**	**EXAM IV: Ch 25-26**		
	F	4/27	Radicals: can't live with 'em, can't live without 'em: Dr. OLIVER		
Week 15	*M*	*4/30*	*Final REVIEW*		
	W	*5/2*	*Final REVIEW*		**In-class xc opportunity**
	Th	**5/3**	****ACS COMPREHENSIVE FINAL 1-3 PM**		