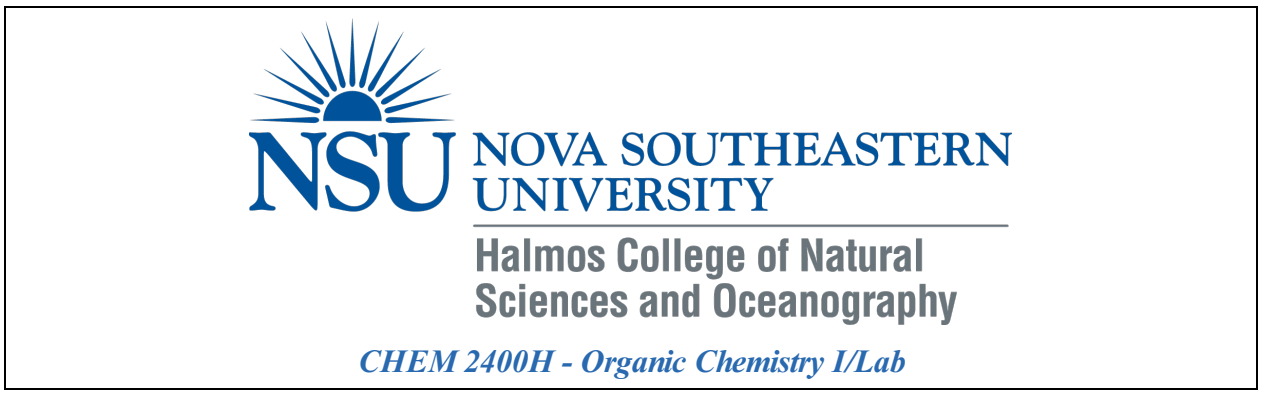

I. Course Information

Course: CHEM 2400H - Organic Chemistry I/Lab
Semester Credit Hours: 4.0
Course CRN and Section: 20152 - DA1, 20153 - DA2
Semester and Year: Fall 2017
Course Start and End Dates: 08/21/2017 - 12/10/2017
Building and Room: Mailman/Hollywood - 311

II. Instructor Information

Professor: Dr. Beatrix Aukszi
Email: ba285@nova.edu
Phone: P124
Office Hours: M, W 10:00am-12:00pm

III. Class Schedule and Location

CRN	Day	Date	Time	Location	Building/Room
20152	TR	08/22/2017 - 10/05/2017	1:00 PM - 2:15 PM	Ft Lauderdale/Davie Campus	Mailman/Hollywood-311
20152	T	08/22/2017 - 09/12/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Parker Building-107
20152	T	09/19/2017 - 09/19/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Parker Building-107
20152	T	09/26/2017 - 10/03/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Parker Building-107
20152	T	10/10/2017 - 10/10/2017	1:00 PM - 2:59 PM	Ft Lauderdale/Davie Campus	Mailman/Hollywood-311
20152	TR	10/17/2017 - 11/30/2017	1:00 PM - 2:15 PM	Ft Lauderdale/Davie Campus	Mailman/Hollywood-311
20152	T	10/17/2017 - 11/07/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Parker Building-107

20152	T	11/14/2017 - 11/14/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Mailman/Hollywood-311
20152	T	11/21/2017 - 11/28/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Parker Building-107
20152	F	12/08/2017 - 12/08/2017	8:00 AM - 10:00 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-1053/1054
20153	TR	08/22/2017 - 10/05/2017	1:00 PM - 2:15 PM	Ft Lauderdale/Davie Campus	Mailman/Hollywood-311
20153	R	08/24/2017 - 09/14/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Parker Building-107
20153	R	09/21/2017 - 09/21/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Parker Building-107
20153	R	09/28/2017 - 10/05/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Parker Building-107
20153	T	10/10/2017 - 10/10/2017	1:00 PM - 2:59 PM	Ft Lauderdale/Davie Campus	Mailman/Hollywood-311
20153	TR	10/17/2017 - 11/30/2017	1:00 PM - 2:15 PM	Ft Lauderdale/Davie Campus	Mailman/Hollywood-311
20153	R	10/19/2017 - 11/09/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Parker Building-107
20153	R	11/16/2017 - 11/16/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Mailman/Hollywood-311
20153	R	11/23/2017 - 11/30/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Parker Building-107
20153	F	12/08/2017 - 12/08/2017	8:00 AM - 10:00 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-1053/1054

IV. Course Description

This course and the related lab is the first part of a two-semester sequence that studies the chemistry of carbon compounds, including their structure, nomenclature, preparation, reactions, analysis, spectroscopy, and properties. Reaction mechanisms are stressed within a functional group framework. The laboratory session introduces basic laboratory techniques frequently utilized in organic syntheses. Prerequisite: CHEM 1310 OR CHEM 1310H. Honors students only. Frequency: Odd Year Fall.

V. Course Objectives / Learning Outcomes

1) Apply the rules of organic nomenclature, including the ability to name organic compounds and draw correct structures from names.
2) Describe chemical structures and relate them to physical properties of organic compounds.
3) Describe and apply fundamental reactivity concepts such as acidity, basicity, electrophilicity, nucleophilicity, electron delocalization and rules of resonance.
4) Describe the mechanisms and outcomes of addition, substitution and elimination reactions of simple

hydrocarbons.
5) Describe the mechanisms and outcomes of addition, substitution, and elimination reactions of simple organic compounds.

VI. Materials and Resources

Book Url: NSU Book Store
Section Required Texts and Material: Organic Chemistry 2e; Author: David Klein, Publisher: Wiley; Year: 2015, Edition: 2, ISBN-13: 9781118454312
Microscale Organic Laboratory: with Multistep and Multiscale Syntheses, Author: Mayo, Pike, Forbes; Publisher: Wiley, John & Sons, Year: 2015, Edition: 6
ISBN-13: 9781118083406
Section Recommended Texts and Materials: Molecular Model Kit, Publisher: Pearson
ISBN-10: 0139554440, ISBN-13: 9780139554445

VII. Course Schedule and Topic Outline

Course Schedule:
Class and lab schedules are subject to modification, but not without prior notification.
CHAPTERS 6 AND 12 ARE FLOATING CHAPTERS, MEANING, THEY WILL BE REFERENCED ALL THROUGHOUT THE TERM.

Date	Day	Topic
Aug. 22	T	Chapter 1. A review of general chemistry
Aug. 24	R	Chapter 1. cont'd and Chapter 2. Molecular representations
Aug. 29	T	Chapter 2. cont'd and Chapter 3. Acids and Bases (Chapter 6)
Aug. 31	R	Chapter 3. cont'd
Sept. 5	T	Chapter 3. cont'd and Chapter 4. Alkanes and Cycloalkanes
Sept. 7	R	Chapter 4. cont'd
Sept. 12	**T**	**Exam I. Ch. 1-4**
Sept. 14	R	Chapter 4. cont'd
Sept. 19	T	Review of Exam I and Chapter 6.1-6.7: Chemical reactivity and Mechanisms (Chapter 5: Stereoisomerism will be covered in the lab: weeks of Sept. 18th /25th)
Sept. 21	R	Chapter 8.1-8.5: Alkene structures
Sept. 26	T	Chapter 8.1-8.5 cont'd and Chapter 9: Addition Reactions of Alkenes
Sept. 28	R	Chapter 9 cont'd
Oct. 3	T	Chapter 9 cont'd
Oct. 5	**R**	**Exam II: Ch. 1-6, 9-10, 12, 17**
Oct. 10	*T*	Chapter 9 cont'd, Chapter 10: Alkynes and Chapter 7: Substitution Reactions *Midterm exam week: Check Course Wizard for time and location*
Oct. 12	*R*	*Midterm exam week: Check Course Wizard for time and location*

Oct. 17	T	Review of Exam II. and Chapter 7 cont'd
Oct. 19	R	Chapter 7 cont'd and Chapter 6.8-6.12
Oct. 24	T	Chapter 7 cont'd
Oct. 26	R	Chapter 8.6-8.14: Elimination reactions
Oct. 31	T	Ch. 8 cont'd
Nov. 2	R	Ch. 8 cont'd and Chapter 12. Synthesis
Nov. 7	**T**	**Exam III: Ch. 1-8, 12**
Nov. 9	R	Chapter 13: Alcohols and Phenols
Nov. 14	T	Review of Exam III. and Chapter 13 cont'd (Ch. 15-16 will be covered in the lab the week of Nov. 13th)
Nov. 16	R	Chapter 14: Ethers and epoxides and Chapter 17: Conjugated Pi systems
Nov. 21	T	Chapter 17 cont'd
Nov. 23	*R*	*University Holiday*
Nov. 28	T	Chapter 11. Radical Reactions
Nov. 30	**R**	**Exam IV: Ch. 1-11, 13-16**
Dec. 8	**F**	**Final (8:00am-10:00am) ACS exam** *Check Course Wizard for information*

LABORATORY SCHEDULE: Fall 2017 *Experiment titles are in italics*!

Please follow the detailed guidelines posted on BB.

Abbreviations: F.R.: Full report, S.R.: Short report

Pre-lab /Technique/ Lab report numbers do not correspond to lab manual, they simply indicate the order of experiments performed.

Week	**Chapt.- Exp. #**	**Title**
Aug. 21	Ch. 1-2	Lab organization, policies, safety
Aug. 28	Ch 4, Ch. 5-Tech. 5 Ch 6-Exp. 1	Purification and Characterization methods I: *Recrystallization of benzoic acid and simple, un-evacuated melting point determination of benzoic acid* **Pre-lab 1 + Technique 1: Packing of capillaries**
Sept. 4	-	*No Labs. University holiday.*
Sept. 11	Ch. 5: 6A Ch. 6-Exp. 1	Characterization method II: *Thin-layer chromatography of analgesics* **S.R. 1** **Pre-lab 2 + Technique 2: TLC spotting technique**

Sept. 18	Lecture notes	*Chapter 5: Stereoisomerism* (See Course Wizard for class location)
Sept. 25	Lecture notes + Lab handout	*Stereochemistry Exercises* **(no lab report!)** **Technique 3+4: drawing and designation of one E/Z and one R/S isomeric pair (double technique grade)**
Oct. 2	Ch. 5-Tech. 2, 3 Ch. 6- Exp. 3B Book Ch. 14. IR	Purification and Characterization methods III: *Fractional distillation of a binary mixture using a Hickman still head and IR analysis* **F. R. 1** **Pre-lab 3 + Technique 5: Distillation set-up + fraction collection**
Oct. 9	-	*Midterm Exam week - No labs*
Oct. 16	Ch. 5-Tech. 4 Ch. 6- Exp. 4C	Separation methods: Extraction; *Separation of an acid, a base and a neutral compound* (Review the Henderson-Hasselbalch equation) **S. R. 2** **Pre-lab 4 + Technique 6: Extraction**
Oct. 23	Ch. 7: Exp. A2b	*Bromination of (E)-stilbene: meso-Stilbene dibromide* **F.R. 2; Pre-lab 5**
Oct. 30	Ch. 6: Exp. 14	*Diels-Alder Reaction: 4-cyclohexene-cis-1,2-dicarboxylic acid anhydride* **S.R.3; Pre-lab 6**
Nov. 6	Handout on Blackboard	*Examining S_N1 and S_N2 reactions* **S.R. 4** **Pre-lab 7: Prediction table of reaction outcomes must be completed!** **Pre-lab 7: download the lab protocol from BB, and copy it into notebook. (do not glue it in)**
Nov. 13	Lecture notes	*Chapter 15 and 16: Spectroscopy*
Nov. 20	-	*No Labs. University holiday.*

VIII. **Assessments**

Exams (4 @ 10% ea.)	40%	400 points	Lab grade will include:	
Class Presentations	5%	50 points	2 full reports: 2*40 points	80points
WileyPlus	5%	50 points	4 short reports: 4*18 points	72points
Lab (80+72+56+42points)	25%	250 points	7 Pre-lab: 7*8 points	56points
Final Exam	25%	250 points	6 techniques: 6*7 points	42points

Total	**100%**	**1000 points**

IX. Grading Criteria

Grading Scale:	
A	**1000-900**
A-	**899-880**
B+	**879-850**
B	**849-800**
B-	**799-780**
C+	**779-750**
C	**749-640**
C-	**639-620**
D	**619-600**
F	**599-**

Final Grade:
Grading Scale:
Class exams will be based on the material previously covered, including material from the previous class.
NO, YOU CANNOT CRAM IN THIS COURSE! You've been warned!
The scale will never be raised, but may be lowered at the discretion of the professor.

X. Course Policies

General Policy:

1. CONTACT THE PROFESSOR IF YOU ARE HAVING TROUBLE AS SOON AS POSSIBLE!
2. Attend class. Obtain notes from Blackboard, read TEXTBOOK before class and be prepared for class discussion.
3. **Cell phones must be turned off during class, and lab, especially during exams. Cell phones kept turned on during an exam indicate an intended use for academic misconduct, and will be dealt as such**.
4. Come prepared to perform each lab. Unsafe behavior in the laboratory or attending unprepared will result in **immediate dismissal**, earning zero credit for that experiment. Submit well-written lab reports. **Late reports will not be accepted. Reports not submitted on Turnitin.com will not be graded, and will count as a zero grade.**
5. **ALL LAB REPORTS MUST BE SUBMITTED TO THE TURNITIN SYSTEM. (ww.turnitin.com)** Please see registration information below.
6. Class exams will be based on the material previously covered, including material from the previous class.
7. **Partners in the lab are only allowed to share the data they jointly produced, which must match between partners. Each student needs to complete their OWN lab report, including structure/mechanism drawing, data analysis and report writing INDEPENDENTLY and INDIVIDUALLY. Producing the lab report in any joint effort or fashion by lab partners will be considered plagiarism and treated as such.**
8. **THE LAB GRADE WILL DEPEND ON THE ORIGINALITY REPORTS GENERATED BY THE TURNITIN SYSTEM. HIGH LEVEL OF SIMILARITIES WITH PREVIOUSLY PUBLISHED MATERIAL WILL RESULT IN: 1, REPORTING THE CASE TO THE DEAN'S OFFICE; 2, GRADE PENALTY. SEVERE/REPEAT OFFENSES WILL RESULT IN FAILURE OF THE ENTIRE COURSE.**
9. **No lab or exam grades will be dropped. There will be no makeup exams provided unless a written, substantial and acceptable proof is presented either BEFORE THE EXAM COMMENCES, OR WITHIN A 24 HOUR PERIOD PAST THE EXAM.**
10. **Important:** the final examination is a standardized test published by the ACS (American Chemical

Society). **You cannot write on the test. If you do so, your final exam will not be graded!!**

To register for Turnitin use the following information.
PLEASE MAKE SURE THAT YOU REGISTER FOR THE PROPER CLASS SESSION!

- Class name: Fall 2017-Org 1H-20152-DA1-Tues
- Class ID: 15763929
- Password: O1H-Tues-F17

- Class name: Fall 2017-Org 1H-20153-DA2-Thur
- Class ID: 15778099
- Password: O1H-Thur-F17

Please check Turnitin for lab report deadlines. Due dates will not be announced in class.

XI. University Policies

Students should visit http://www.nova.edu/academic-affairs/nsu-syllabus-policy.html to access additional required college-wide policies. It is your responsibility to access and carefully read these policies to ensure you are fully informed. As a student in this class, you are obligated to follow these college-wide policies in addition to the policies established by your instructor.
The following policies are described on this website:

- Academic misconduct
- Last day to withdraw
- Email policy
- Student course evaluations
- Student responsibility to register
- Student responsibility for course prerequisites

Academic Resources

Nova Southeastern University offers a variety of resources that may aid in student success. Among these resources are:

Accommodations for students with documented disabilities: For more information about ADA policy, services, and procedures, students may call the Office of Student Disability Services at 954-262-7189 or visit http://www.nova.edu/disabilityservices.

Tutoring and testing center:
Students are encouraged to use the free, individualized tutoring services offered by the Tutoring and Testing Center (TTC). TTC provides a supportive atmosphere in which tutors and students work collaboratively on improving students' writing, math and/or science skills. http://www.nova.edu/tutoring-testing/index.html