NOVA SOUTHEASTERN UNIVERSITY
Halmos College of Natural Sciences and Oceanography

CHEM 2400 - Organic Chemistry I/Lab

I. Course Information

Course: CHEM 2400 - Organic Chemistry I/Lab
Semester Credit Hours: 4.0
Course CRN and Section: 20145 - DA5, 20146 - DA6
Semester and Year: Fall 2017
Course Start and End Dates: 08/21/2017 - 12/10/2017
Building and Room: Carl DeSantis Building - 2101/2102

II. Instructor Information

Professor: Dr. Venkatesh M Shanbhag
Email:
Phone: 954-262-8331
Office Hours: MTWThF 9-10Lab is taught by Dr. Carmit Alexenberg

III. Class Schedule and Location

CRN	Day	Date	Time	Location	Building/Room
20145	T	08/22/2017 - 10/03/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Panza Science Annex-5
20145	TR	08/22/2017 - 10/05/2017	1:00 PM - 2:15 PM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-2101/2102
20145	T	10/10/2017 - 10/10/2017	1:00 PM - 3:00 PM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-2101/2102
20145	T	10/17/2017 - 11/28/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Panza Science Annex-5
20145	TR	10/17/2017 - 11/30/2017	1:00 PM - 2:15 PM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-2101/2102
20145	F	12/08/2017 - 12/08/2017	8:00 AM - 10:00 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-1124
20146	TR	08/22/2017 - 10/05/2017	1:00 PM - 2:15 PM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-2101/2102

20146	R	08/24/2017 - 10/05/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Panza Science Annex-5
20146	T	10/10/2017 - 10/10/2017	1:00 PM - 3:00 PM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-2101/2102
20146	TR	10/17/2017 - 11/30/2017	1:00 PM - 2:15 PM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-2101/2102
20146	R	10/19/2017 - 11/30/2017	2:30 PM - 5:15 PM	Ft Lauderdale/Davie Campus	Panza Science Annex-5
20146	F	12/08/2017 - 12/08/2017	8:00 AM - 10:00 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-1124

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. Frequency: Every Fall and Winter.

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) Correlate molecular structure and spectroscopic behavior.
4) Describe and apply fundamental reactivity concepts such as acidity, basicity, electrophilicity, nucleophilicity, electron delocalization and rules of resonance.
5) Describe the mechanisms and outcomes of addition, substitution and elimination reactions of simple organic compounds.
6) Describe and perform basic organic laboratory techniques.

VI. Materials and Resources

Book Url: NSU Book Store

Section Required Texts and Material:

Organic Chemistry Author: D. Klein Publisher: Wiley Year: 2015 Edition: 2	ISBN- 9781118454312
Microscale Organic Laboratory: with Multistep and Multistep Author: Mayo, Pike,and Forbes Publisher: Wiley Year: 2015 Edition: 6	ISBN- 9781118454312

Section Supplemental Material: Flash drive, Composition notebook, Lab coat, Goggles

VII. Course Schedule and Topic Outline

Topic Outline:

(Test dates may be moved as needed, but will be announced ahead of time)

Week of	Tentative Topic *Class schedule subject to modification as needed to meet the flow of concept"*
Aug. 21	Nature of Organic Compounds, bonding, Molecular shapes, polarity Classification, Nomenclature of organic compounds
Aug 28	Bond properties, isomerism, Infrared spectroscopy
Sept 4	Organic reactions and their pathways, Reaction dynamics
Sept 11	Acids and bases, Stability of ions, resonance
Sept 18	Concepts: Resonance, induction, stability and strain ***Exam 1***
Sept 25	Alkanes, cycloalkanes Conformations and isomers, Radical reactions of alkanes, halogenation
Oct 2	Stereochemistry nucleophiles and electrophiles
Oct 9	Alkenes and alkynes
Oct. 16	Electrophilic additions, regio- and stereo chemistry ***Exam 2***
Oct. 23	Electrophilic additions, regio- and stereo chemistry
Oct 30	Electrophilic additions of alkynes Conjugated dienes and reaction
Nov. 6	Substitutions and eliminations
Nov. 13	Alcohols Synthesis and reactivity, ethers and epoxides
Nov. 20	***Exam 3***
Nov. 27	Organometallic reactions, Spectroscopy Nuclear magnetic resonance
Dec.4	Final *http://www.fcas.nova.edu/coursewizard/crninfo.cfm?txtTerm=201820*

Tentative Lab Schedule Actual experiments may vary, appropriate information will be provided			
Week of	**Lab**	**Chap**	**Description**
Aug. 21	**0**		Instructions, Safety
Aug. 28	**1**		Lab Lecture Molecular Structure-- Molecular Modeling Exercises
Sep. 4	**1**	**handout**	Synthesis and purification techniques, Aspirin, Tylenol, Caffeine
Sept.11	**2**	**4, 6.1**	Purification: Crystallization, Melting point (handout)
Sept. 18	**3**	**5**	Separation: Simple and Fractional Distillation (handout)
Sept. 25	**4**	**5**	Separation: Thin Layer Chromatography (handout)
Oct 2			Lab Lecture
Oct. 9			Mid term week Lab lecture

Oct. 16	**6**	**6.4C handout**	Separation: Extraction methods
Oct. 23	**7**	**handout**	Green Chemistry: Bromination and debromination of Cholesterol (handout)
Oct 30	**8**	**7A**	Addition and elimination: Stilbene - to - diphenylacetylene (handout)
Nov. 6	**9**	**6.9**	Dehydration of Alcohol (handout)
Nov. 13	**10**	**6.14**	Diels Alder Reaction
Nov. 20			Problem Solving Session
Nov. 27			Lecture Catch-up
Dec. 4			No Lab

VIII. Assessments

The grade for the course is computed by weighing lecture course work (75%) and lab work (25%)
The classroom performance is based on four examinations, homework and quizzes (tentative). Homework must be completed in timely manner in a composition notebook. It would be collected periodically for grading. Class exams cover the material covered up to and including the material discussed in the previous class. The test may have some multiple choice and some free response questions**.** Quizzes may be administered at the beginning of each lab. The final exam will be comprehensive and cumulative.

IX. Grading Criteria

Grading Scale:

Lecture grade weight

Exam 1	20%
Exam 2	20%
Exam 3	20%
Pretest/Quizzes	5%
Final Exam	35%

Lab grade weight

Lab reports	70%
Quizzes	20%
Lab Notebook	10%

Final grade criteria

90% and above	A
80% to 89.9%	B
70% to 79.9%	C
60% to 69.9%	D
Others	F
+/- system may be used	

X. Course Policies

General Policy:

24 hour policy: Communicate, by e-mail, within 24 hours between 8 am-5 pm**,** about missed lab, missed exam, lab report submission delay and any other deadlines.

Electronic device: Turn off all devices (smart phone, computer, tablet, etc.) during the class and lab.

Etiquette: Consuming food in the class and lab is unacceptable**.** Restroom trips in the middle of the class are unacceptable. If you arrive late, take the seat in the back.

Makeup: Only with the documented university-sanctioned makeup test may be allowed; labs cannot be made up. Report submission based on borrowed data is misconduct.

Misconduct: Plagiarized report submission, unauthorized use of resources during tests, unapproved recording of conversations in the class constitute academic misconduct.

Lecture

- Attendance is <u>required</u> in all lecture sessions.

- You will be responsible for all the material covered in the class and assigned for the read.
- There shall be no recording device, computer, any electronic communication devices active during the class and exam.
- Academic dishonesty (cheating, plagiarism, bribery, etc.) on exams, assignments, will be dealt with a harsh penalty; at minimum, with a failing grade in the course. Any sign of cheating during the test will result in a zero on that test and will be referred for administrative evaluation and I always seek maximum penalty prescribed. This may result in probation or suspension. Consult student handbook.

Lab

- Attendance is required in all lab sessions.
- You are responsible for coming prepared for performing the lab. Pre-lab reading and assignments must be completed.
- There will be no drop labs. All labs must be performed.
- Lab reports are due within the prescribed time. Late reports are not accepted.
- Unpreparedness and unsafe behavior in the lab will result in immediate expulsion from the lab.
- Plagiarism on a lab report will not be tolerated; any such event will be documented and will be dealt with a harsh penalty; at minimum, with a failing grade in the lab.

What is unprofessional behavior?
Consistent late arrival, leaving the class early, disruption by devices, eating food, drinking beverages, leaving to the restroom, general disruptive behavior due to not studying prior to class and other general disruptive behavior generally emanating from unpreparedness will be considered unprofessional and is strongly discouraged.

What constitutes cheating / plagiarism?
The use of notes, books and any other resources such as programmable calculators with stored information during the exam, copying from another student during a test, submitting work without proper citation of source, submitting lab reports where information is lifted from another person's work (present or past), shared pre-lab write-ups; all these examples of academic misconduct. A student can become an unwilling participant in the cheating process by not being careful to cover the test so that a neighbor would not cheat. Whether you are a willing or an unwilling participant, the penalties are the same!

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