NorthCentral MISSOURI COLLEGE

SYLLABUS
Course Title : Organic Chemistry 2
Spring Main Session 2020

Course Number: CH215 E1

Class/Lab Times and Location: Online

Instructor Information:

Name: Jeff Grell
Phone: 660-357-6307 (direct line) or 660-359-3948, extension 1307
Office: Hoffman Hall 020 (check Hoffman Hall 014 as well)
Email: jgrell@mail.ncmissouri.edu (preferred method of contact)
In-Person Office Hours: MTWThF: 7 AM – 8 AM and 2 PM – 3PM

For students not able to come to campus for in-person office hours, please email the instructor your questions. You may also contact the instructor by phone. Writing out formulas and diagrams in email (or in Word/PDF form) is often awkward and time-consuming. To facilitate communication, please feel free to take a picture of the item or scan the page and email it to the instructor as an attachment. You may use your cell phone to take a picture.

*Faculty will respond to email/phone messages within 48 hours Monday-Friday. All email correspondence is through NCMC student email.

Course Description: Organic Chemistry 2 is the second in a two course sequence covering the fundamental aspects of organic chemistry such as nomenclature, chemical and physical properties, reactions, syntheses, and mechanisms for the major classes of organic compounds. Multistep syntheses and reaction mechanisms are emphasized. The laboratory component introduces the student to the techniques of modern and classical experimental organic chemistry with an emphasis placed on synthesis, purification, isolation, and characterization of organic compounds.

Prerequisites: CH 210 (Organic Chemistry 1)

Credit Hours: 5 (4 lecture, 1 laboratory)

Textbook and /or Supplementary Materials:

Recommended: Organic Chemistry, Principles and Mechanisms, 2nd Edition by Joel Karty (ISBN 978-0-393-63074-0) or an equivalent organic chemistry textbook.

Recommended: An organic chemistry model set to help you visualize the spatial arrangements of atoms.

Required: Purchase of access to Smartwork5, the web-based homework and quiz software.

Required: Purchase of access to Brigham Young University's Virtual Organic Chemistry Lab software.

Required: Purchase of a lab kit from Carolina Scientific. For students taking just CH 215, please purchase the following kit (#582195) at https://www.carolina.com/catalog/detail.jsp?prodId=5821945

Student Learning Objectives:

Student Learning Objective Upon successful completion of this course the student will be able to:	**Assessment Method** Describe the assessment tool/s used to demonstrate each student learning outcome.
1. Utilize the language of MO theory to describe conjugation and aromaticity.	Test 1
2. Determine the structure of elementary organic compounds using NMR, IR, MS, and UV-Vis techniques.	Test 1 and select labs.
3. Predict the products and present reasonable mechanisms for the nucleophilic addition and acid-catalyzed addition to carbonyl compounds.	Test 2
4. Use the chemistry of carbonyl compounds in the synthesis of more complicated organic molecules.	Test 2
5. Apply electrophilic aromatic and nucleophilic aromatic substitution reactions.	Test 3
6. Use the Diels-Alder and other pericyclic reactions in the synthesis of organic molecules.	
7. Predict the products of radical reactions as applied to free-radical halogenation and polymerization.	Final Exam
8. Demonstrate proficiency in organic chemistry laboratory techniques.	Labs

Topics Covered:

1. **Mass Spectrometry and fragmentation patterns.**
2. **Infrared Spectroscopy and functional group identification.**
3. **UV/Vis Spectroscopy.**
4. **^{1}H NMR and ^{13}C NMR spectroscopy.**
5. **Reactions and synthesis of carboxylic acids and carboxylic acid derivatives.**
6. **Reactions and synthesis of aldehydes and ketones.**
7. **Enols and enolate ion chemistries.**
8. **Aromaticity.**
9. **Reactions of benzene and substituted benzene compounds.**
10. **Amines: Synthesis and reactions, purification techniques.**
11. **A sampling of heterocycle reactions.**
12. **Aspects of catalysis in modern organic chemistry.**
13. **Biochemical pathways viewed from the perspective of mechanistic organic chemistry.**
14. **Synthetic polymers and selected aspects of polymer science.**
15. **Pericyclic reactions, including the Diels-Alder reaction.**
16. **Radical reactions.**

Course Requirements:

Should you have questions, please contact the instructor and/or come to the instructor's office hours.

Weekly homework will be assigned from Smartwork5. Each homework is worth 20 points.

Each quiz is worth about 30 points and there will be approximately 6 quizzes.

There will be 3 tests and each test is worth 100 points. All tests are cumulative, with a focus on material that has not yet been tested. The final exam is cumulative and worth 100 points.

All homework, quizzes, test, and the final exam can be found on the Smartwork5 platform.

All homework, quizzes, tests, labs, and the final exam are open book, open notes, open internet. You are encouraged to consult the internet (Google, Wikipedia, YouTube, etc.) and any human being (other students, a chemistry teacher, a tutor, your family friend, etc.). There is no time limit for taking the quizzes, tests, and the final exam. You may open/close the quizzes/tests/final as many times as you like, but you are allowed only one submission. Make sure to understand the concept/question/solution/experiment as otherwise you are cheating yourself out of a high quality education.

Each Lab is worth 20 points. There will be about 12 labs.

Please be sure to check your grades on Blackboard regularly and alert the instructor if there are any discrepancies.

This course requires a minimum of two hours of out-of-class work for every one hour of faculty instruction.

Grading Scale:

90-100 A
80-89 B
70-79 C
60-69 D
<60 F

Instructional Methods and Techniques:

1. recorded lectures (on YouTube)
2. individual and group work
3. lecture notes
4. labs

Attendance and Class Participation:

Absences reduce the value of the learning experience and reduce the probability of passing the course as research indicates successful college students attend class regularly. *NCMC strongly encourages students to attend classes on a regular basis as registration for any NCMC course presupposes that the student will attend all scheduled classes, laboratories, and clinicals.* **Failure to attend class does not constitute an official standard withdrawal.** Students are responsible for withdrawing from classes. If a student knows they are going to be absent for a college-sponsored event, they must inform the instructor prior to that absence so that arrangements can be made for classwork, assignments, and/or tests.

After the published Add/Drop date, students are financially responsible for costs associated with classes from which they have withdrawn. Students are also financially responsible for the course under the Administrative Drop Policy.

Administrative Drop Policy:

- In an 8-week or full semester on-ground class, if a student fails to attend during the **first ten calendar days** of the semester, an administrative drop will occur. In a 4-week class, if a student fails to attend during the **first six calendar days** of the semester, an administrative drop will occur.

- In an 8-week or full-semester online class, if a student does not complete at least one substantive activity (activity or assignment that impacts the final grade) during the **first ten calendar days** of the semester, an administrative drop will occur. In a 4-week online class, if a student fails to complete at least one substantive activity (activity or assignment that impacts the final grade) during the **first six calendar days** of the semester, an administrative drop will occur.

Academic Misconduct

Academic integrity is expected and required of all NCMC students. Students and faculty are responsible and accountable for personally upholding that integrity. Each instructor is assigned jurisdiction for class conduct and grades. Cheating will not be tolerated, and students found guilty of cheating in any way will be disciplined according to the following policy.

Cheating Offenses

Cheating offenses include, but are not limited to, the following:

- Copying from another student in an examination situation.
- Using unauthorized material or aids in the preparation of an assignment, paper or project.
- Possessing unauthorized material or aids in an examination situation.
- Allowing another person to take an examination in one's place.
- Altering or falsifying academic records in any way.
- Submitting false medical, academic or other documentation required by the college.
- Improperly obtaining an examination prior to the examination.
- Aiding or abetting anyone in a cheating offense.
- Plagiarizing materials or works, in whole or in part, prepared by another person without citing appropriate reference credit.
- Copying and submitting, in whole or in part, the work of another in an assignment, report, paper, project, etc. as one's own.
- Claiming to have completed assigned tasks that were, in fact, completed by another person.
- Failing to accurately document information, wording, or visual images obtained on the World Wide Web.
- Violating federal copyright laws including unauthorized duplication of copyrighted materials.

Procedure

1. When a student is suspected of cheating, the instructor or other individual who suspects the student of cheating will, at the earliest opportunity, investigate the situation, discuss the matter with the student and come to a decision regarding the student's innocence.

2. In the event a decision is made that the student is responsible of cheating, before determining an appropriate penalty, the course instructor will ascertain from the Dean of Instruction whether the student has been found responsible of any previous cheating offense while enrolled at North Central Missouri College.

3. In the event that the instructor determines this to be a first offense for the student, the instructor will apply an appropriate penalty. The instructor should give due consideration to the seriousness of the offense as well as the impact of the penalty imposed on the student's education. The penalty should also be consistent with the range of penalties outlined in this policy.

4. The instructor will inform the Dean of Instruction of the cheating offense and the penalty applied.

5. In the case of a second offense by the student, the Dean of Instruction will determine the appropriate penalty for this offense and will ensure that the penalty is more severe than the penalty imposed for the previous offense. The student will be advised that if found responsible of a third offense of academic dishonesty at North Central Missouri College, the penalty of expulsion from the College could result.

Penalties

A student responsible of cheating will be subject to a penalty appropriate to the nature and seriousness of the offense.
A record of all such cases will be kept in the office of the Dean of Instruction. Second offenses for the same individual will be subject to a more serious penalty than the one previously imposed.
The following penalties may be applied:

- Reprimand.
- Requirement that the student repeats and re-submits the same or alternate assignment. In such cases, the grade or mark awarded will be reduced or limited at the discretion of the faculty member.
- A mark of "0" will be given for the assignment with no opportunity to resubmit. This may result in failure of the course.
- A failing (F) grade will be awarded in the course.
- Automatic failing (F) grades in all courses in which the student is registered, and no tuition or fees will be refunded for that semester. This penalty will only be imposed by the Dean of Instruction.
- Expulsion from North Central Missouri College, permanently recorded on the student's record. This penalty will result in automatic failing (F) grades in all courses in which the student is registered, and no fees will be refunded for that semester.

Special Accommodations:

North Central Missouri College complies with Section 504 of the Rehabilitation Act of 1973 and the American with Disabilities Act of 1990. Students with documented disabilities who need special classroom accommodations must make their requests in writing to: Accessibility Services, Alexander Student Center, 1301 Main Street, Trenton, MO 64683 or call 660-359-3948, ext. 1405 for an appointment. Services provided can be found at: http://www.ncmissouri.edu/accessibility-services/

If you have been approved for an accommodation, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately.

Title IX:

In accordance with Title IX of the Education Amendments of 1972, NCMC prohibits sex discrimination and is committed to fostering a learning environment that is safe, inclusive, and fosters academic success. Sex discrimination involves differential treatment or adverse action based on a person's real or perceived sex, gender identity and/or gender expression. Sex discrimination includes discrimination on the basis of pregnancy, sexual orientation, gender identity, and failure to conform to stereotypical notions of femininity and masculinity, as well as same gender harassment. Sexual harassment is a form of prohibited sex discrimination, and sexual violence is a particularly severe form of sexual harassment.

If you or someone you know experience gender-based discrimination, harassment, or violence, please contact Dr. Kristen Alley, Title IX Coordinator, Alexander Student Center, 1301 Main Street, Trenton, MO 64683 660-359-3948, ext 1400, kalley@mail.ncmissouri.edu. More information can be found at: http://www.ncmissouri.edu/titleix/

Chemicals:

Chemicals are used throughout the campus environment, including particular coursework. As a result, there may be exposure to volatile and toxic substances/chemicals. If a student has an existing or pre-existing condition, including pregnancy, and is concerned about the risk of possible exposure, it is the student's responsibility to notify the instructor and work with the Accessibility Services Office to determine what alternative arrangements can be made.

Academic Alert:

Success in this course is important. When the instructor believes that a referral to the Academic Alert Program will help a student academically, information will be sent to appropriate college personnel. As a result, the student may be contacted by other faculty/staff in order to develop an

intervention that will help in achieving educational goals. Please take advantage of these and other resources while at NCMC.

Communications:

Students are required to use their NCMC student email account for any correspondence within the college. Students are also highly advised to check their email and SAIL accounts on a regular basis.

Finals:

If an emergency occurs that prevents the administration of a final examination, the student's final course grade will be calculated based on the work in the course completed to that point in time and the faculty member's considered judgment. Final exams will not be rescheduled, and a grade of "I" will not be given as a result of the missed exam. This Finals policy does NOT apply to online courses.