

## Chemistry 3719: Introduction to Organic Chemistry I

**MWF: 8:30-10:20 Ward Beecher 6030**

**Instructor:** Professor Douglas T Genna

**Office:** 5009 Ward Beecher

**Office Hours:** T, Th, 10:00 am-12:00 pm on Webex

**Email:** dtgenna@ysu.edu

**Website:** www.gennalab.com

**Textbook:** "Organic Chemistry" 3<sup>rd</sup> or 2<sup>nd</sup> Ed. By David Klein  
A small set of molecular models ([Molecular Models](#)) are highly recommended

*"Asking a question may lead to a temporary embarrassment, but not asking the question will lead to a permanent embarrassment"*

### General

Organic compounds, reactions and theories. Typical preparations and procedures of analysis. Three hours lecture, three hours lab-discussion.

### Course Content, Goals, Learning Objectives

Content	Goals	Learning Objectives
Chapter 1-2	Transition from General Chemistry to the Organic world by reviewing basic chemical concepts, trends, bonding patterns and molecular shapes.	To be able to understand the types of bonding that carbon participates in; use molecule shape and electronegativity to predict properties.
Chapter 3	Survey the common classes of organic acids and bases and their reactivity/stability; learn pKa values and their application in acid-base problems.	A sound understanding of the factors leading to reactivity; be able to apply pKa values to decide where an equilibrium will lie.
Chapter 4-5	To study the structures of organic molecules in detail as well as the devices used to convey shape and overall 3-dimensional geometry.	An ability to predict structure and geometry by knowing hybridization patterns; know how to work with chirality and stereoisomers.
Chapter 6	Cover the basics of chemical reactivity and organic mechanism; the devices used to express chemical change through making and breaking bonds.	Understand ideas of entropy and enthalpy as applied to organic molecules; be able to use curved arrows to detail chemical change.
Chapter 7	To apply the curved arrow notation to substitution and elimination reactions; study the factors that lead to the change in reaction pathway.	Be able to recognize factors that differentiate between substitution and elimination routes; devise syntheses based on product needed.
Chapter 8	A detailed study of addition reactions of alkenes to give functionalized products; use of curved arrows to describe concerted and stepwise processes.	Assimilate the main alkene addition reactions into the synthetic toolkit; be able to predict outcomes and develop complex syntheses.
Chapter 9	Introduce alkynes as unsaturated carbon substrates; study their addition reactions and use as powerful carbon-based nucleophiles in synthesis.	Understand the central role of alkyne anions as nucleophiles in C-C bond construction; be able to incorporate into multistep synthesis.
Chapter 10	Study the radical-based reactions of simple organic substrates, including the stereo- and regiochemical possibilities and outcomes observed.	Be able to spot radical-based mechanisms, use the single-headed arrow notation, and apply radical chemistry to synthetic problems.
Chapters 11	To apply the reactions from the first semester to the task of multistep synthesis; planning sequences and producing end-products efficiently.	Develop an ability to synthesize molecules by employing reactions from the first semester; use retrosynthesis to ensure logical planning.

The lecture and laboratory portions of the Organic Chemistry sequence coincide as much as possible since everything discussed in lecture is the result of past experimental work. You will certainly find yourself using the lecture text to work out problems from the lab, and hopefully this will help you see that lab and lecture are closely interconnected and that this is a subject based on experiment.

There will be practice problems and old exams posted on blackboard. These will not be graded, and will not be discussed in class. But you are more than welcome to discuss them with me during office hours. It will be beneficial for you to do them, as they often, but not always, mirror what I will ask on quizzes and exams.

In addition to problems posted on blackboard, there are problems posted on Professor Norris' website (<http://dr-peter-norris.com>). You are encouraged to do these as a supplement to doing ALL of the book problems. There is no shortage of practice problems for you to do.

### **Grades:**

This course will be out of a total of 500 points.

Exam 1 (1 hour) – 100 points (5/27/2022)

Exam 2 (1 hour) – 100 points (6/17/2022)

Final (2 hours) – 200 points (7/1/2022)

Homework – 100 points

The approximate final grading rubric will be used with adjustments being made as needed to better demonstrate overall class performance.

**A 100-88%**

**B 87-76%**

**C 75-60%**

**D 59-50%**

**F <50%**

**Homework:** There are homework assignments for each chapter on blackboard. Each assignment consists of 10 randomly chosen multiple choice questions from the material covered in the chapter. They are untimed, each assignment once opened should be completed in a single sitting. Please budget your time accordingly.

Chapters 1-4 are due by 8:00 am on 5/27/2022(day of Exam 1); Chapters 5-7 are due by 8:00 am on 6/17/2022 (day of Exam 2) and Chapters 8-10 are due by 8:00 am on 7/1/2022 (day of the Final).

**Request for “Incomplete”:** A request for a grade of “Incomplete” (I) in the course will be considered only if more than 60% of the assignments have been completed as scheduled. An "I" will be submitted only when the cause is deemed justifiable and approved by both the instructor and the department chairperson (see YSU Bulletin).

**Students with Disabilities:** In accordance with University procedures, if you have a documented disability and require accommodations to obtain equal access in this course; please contact me privately to discuss your specific needs. To coordinate reasonable accommodations, you must be registered with the Center for Student Progress Disability Services, located in Kilcawley Center Room 2082. You can reach CSP Disability Services at 330-941-1372.

**Statement of Non-Discrimination:** Youngstown State University does not discriminate on the basis of race, color, national origin, sex, sexual orientation, gender identity and/or expression, disability, age, religion or veteran/military status in its programs or activities. Please visit the [EIT Homepage](#) for the contact information of persons designated to handle questions about this policy.

**Academic Misconduct:** The [YSU Code of Conduct](#) prohibits a variety of actions, such as disruptive behavior; misuse or abuse of equipment; threat, intimidation, stalking or harassment; indecent or disorderly conduct; public intoxication; possession of controlled substances, alcohol, or firearms; and any behavior that endangers the safety, health, or life of any person (including self). As outlined in *The Student Code of Conduct*, all forms of academic dishonesty are prohibited at Youngstown State. This includes plagiarism, the unauthorized use of tools or notes in taking tests or completing assignments, fabrication of data or information used for an assignment, working with others without permission from the instructor, and more. A student who is believed to have violated the academic integrity policy will meet with the instructor to discuss the allegations. The student may accept responsibility for the violation and any sanctions selected by the instructor, or they have the right to ask for a hearing before a hearing panel. The full Academic Integrity policy can be found in Article III. 1. of *The Student Code of Conduct*, while further information on University procedures for alleged academic integrity violations can be found in Article V.

If you are caught cheating, **you will at least be given an F grade on that particular assignment and perhaps for the entire course. Do not jeopardize your future by cheating.**

**Course Materials:** All course materials (including : old exams and their answer keys, this semester's exams and answer keys, practice questions, old quizzes, etc.) provided by the instructor are for your personal use. Sharing of these materials with individuals not enrolled in this class is prohibited. This includes uploading course documents to academic sharing sites such as StudyBlue. Sharing of course materials without expressed written consent from the instructor amounts to theft of intellectual property and the offending individual runs the risk of prosecution.

### 3719 Organic Chemistry 1 Schedule Summer 2021

Class Period	Date	Topic
1	5/16	Syllabus review. Chapter 1 (through hybridization)
2	5/18	Finish Ch. 1, Ch. 2 through functional groups.
3	5/20	Finish Ch. 2. Ch. 3 Acid/Base Chemistry through conj. Base stability
4	5/23	Finish. Ch. 3, Handout on acid/base chem, Ch. 4 through naming
5	5/25	Finish Ch. 4
6	5/27	<b>Exam 1</b>
7	5/30	<b>No Class Memorial Day</b>
8	6/1	Ch.5 through diastereomers
9	6/3	Finish Chapter 5. Chapter 6 up to kinetics vs thermodynamics
10	6/6	Finish Chapter 6. Chapter 7 through SN2
11	6/8	Chapter 7 SN2 and Sn1
12	6/10	Practice substitution problems and Intro to elimination
13	6/13	Chapter 7 E2 and E1
14	6/15	Chapter 7 controlling outcomes and review. Chapter 8 start.
15	6/17	<b>Exam 2</b>
16	6/20	<b>NO Class Juneteenth</b>
17	6/22	Chapter 8 through ozonolysis
18	6/24	Intro to synthesis and chapter 9 through hydration of alkynes
19	6/27	Finish chapter 9. Chapter 10 through radical inhibition
20	6/29	Finish Chapter 10. Chapter 11/review
21	7/1	<b>Final Exam</b>

Schedule is subject to change