

~Course Syllabus~

**CHM 224: ORGANIC CHEMISTRY for Life Sciences II**  
**Spring 2024**

*Section A:* McAllister Hall, Room 115; MWF 8—8:50 am

*Section C:* McAllister Hall, Room 119; MWF 10—10:50 am

Instructor: Dr. Gary Breton

McAllister Hall, room 305; ph. 706-290-2661; email: [gbreton@berry.edu](mailto:gbreton@berry.edu)

Office Hours: M, T, H, F 1-3 pm (and always by appointment!)

**Course Description:** Continuation of organic chemistry with a focus on the organic chemistry of living systems. Topics include the concept of aromaticity, the chemistry of aromatics, carbonyl-containing functions, carbohydrates, lipids, and amino acids. *This course is not intended for chemistry or biochemistry majors.*

Semester credit hours: 3—2—4. Course prerequisite: CHM 221 or 223.

**Textbook:** There is no textbook requirement, but students are encouraged to use the freely available textbook *Organic Chemistry* by Dr. John McMurray available at OpenStax: <https://openstax.org/details/books/organic-chemistry>

**Methods of Instruction:** The course meets three times a week for 50 minutes each. The material is presented via dynamic lectures and supported by appropriate presentations and demonstrations. Specially crafted chapter outlines are made available to students in PDF format to be used as a note-taking guide during each class. Students are engaged during classroom time via timely discussions and lively question/answer exchanges. Lectures are recorded and uploaded to a readily available website. Access to the instructor outside of class is encouraged via email and office hours. The course relies heavily upon support materials posted to the website:

<http://garybreton.com/CHM224/>

The course is further supported with hands-on laboratory exercises (one two-hour lab per week). *Note that material may be covered in class that is not in the textbook.*

**Purpose of the Course:** Organic compounds (i.e. carbon-containing molecules) are fundamental to sustaining life. All living creatures, whether animal or plant, require organic chemicals to survive. In this course the student will build upon the fundamental principles and reactions visited in the first semester of the course. Newly introduced organic reactions and reactivity will be framed relative to topics of current interest and to important concepts in biochemistry. This course will emphasize the importance of understanding key concepts and applying those concepts to novel problems. The laboratory portion of the course will provide hands-on investigation and testing of a number of the reactions we discuss in the lecture and demonstrate the practical utility of these reactions.

**Student Learning Outcomes:** By the end of the course the students will demonstrate their knowledge of and ability to apply fundamental organic chemical principles accepted by the greater chemistry community. In particular, students (1) will be familiar with many fundamental types of organic chemical reactivity, (2) will understand how these reactions and related concepts

are of practical application (e.g., anesthetics, fuels, artificial sweeteners, etc.) and are involved in important biochemical processes (e.g., peptide formation, carbohydrate metabolism, etc.), (3) will be able to apply appropriate technical terminology and nomenclature to organic phenomena and organic molecules, respectively, and (4) be prepared to apply this knowledge toward practical use in the associated laboratory course.

**Assessment Measures:** Upon course completion students will (1) demonstrate student learning outcome (SLO) one to three as measured by four examinations (including a cumulative final examination) at a level of at least 60% (a "D" average), (2) demonstrate SLO one to three as measured by Chapter problem sets at a level of at least 60% (a "D" average), and (3) demonstrate SLO four as measured by satisfactory weekly laboratory reports (total laboratory report points of 60 out of the total possible 100 points [60%]).

**Attendance Policy:** Students are expected to attend ALL lecture classes and the associated lab sections. Attendance will be recorded. Excuses for missed class time should be directed to the instructor immediately upon return to the class. If a student misses several classes in succession the Associate Provost will be notified to check on the welfare of that student. The recorded lectures will serve as the means by which students can "catch up" on a missed lecture.

Students should make every effort to attend the exam as scheduled. Proper documentation for a missed exam due to a legitimate reason (medical excuse or school-sanctioned activity) must be presented to the instructor *before* the exam (where possible) or as soon as is feasible. However, make-up exams will be given at the discretion of the instructor.

Missed labs for a legitimate documented reason will be excused with permission from the professor. Make-up laboratory sessions will take place at the discretion and permission of the laboratory instructor. *No more than three missed labs (even for documented reasons) will be allowed otherwise a grade of 0 will be afforded as a final laboratory grade. Furthermore, a student that fails to achieve an overall lab score >59.9% will receive an automatic "F" in CHM 224. A student must successfully pass the laboratory component in order to pass the class!*

**Academic Integrity:** Students are expected to uphold the policy on academic integrity as outlined in the Viking Code. While collaboration on problem sets is allowed and encouraged, exams are meant to be individual efforts ONLY. *On any exam on which cheating is confirmed to the satisfaction of the instructor, a grade of 0 will be posted as a grade.* For any transgressions, additional disciplinary measures may follow at the discretion of the instructor or College. *Please consult with the professor if there are any questions about what constitutes proper activity on any assignment or exam!*

**Accommodation Statement:** Students with disabilities who believe that they may need accommodation in this course are expected to contact the Academic Success Center in Evans Hall (room 106, campus extension 4080) as soon as possible to ensure that such accommodations are implemented in a timely manner. *Failure to do so suggests no accommodation is required.*

**Tutorial Availability:** ALL students can benefit from regular meetings with a peer tutor! Working with a tutor allows you to discuss class concepts from a different vantage point from that of the instructor and can be an invaluable learning tool. The Chemistry Department works with the Academic Success Center to provide suitable tutors.

**Evaluation and Grading:**

Semester Exams (3)	55 pts
Final exam	20
Problem sets	10
Lab grade	<u>15</u>
	100 pts total

*Potentially Helpful Final Exam Grade Substitution Policy*

Given that any student can have a poor exam grade during the semester that could have negative consequences on their overall course grade, each student is allowed to substitute the grade earned on their Final Exam for ONE of the 3 Semester Exam grades. The Final Exam, which is cumulative and a good reflection of a student's overall comprehension of the course material, will continue to count for 20% of the grade.

*Letter Grade Equivalencies*

Final grade tallies are rounded to the nearest whole number in the standard mathematically correct manner and the final course letter grade assigned as follows:

93-100%	A
90-92%	A–
87-89%	B+
83-86%	B
80-82%	B–
77-79%	C+
73-76%	C
70-72%	C–
67-69%	D+
60-66%	D
59%	F

## Organic Chemistry for the Life Sciences II

### CHM 224 Spring 2024

*Section A MWF 8-8:50 am, MAC 115*

*Section C MWF 10-10:50 am, MAC 119*

### Schedule of Topics\*

WEEK	MONDAY	WEDNESDAY	FRIDAY
Jan 8–Jan 12	Chapter 17	Chapter 17	Chapter 18
Jan 15–Jan 19	MLK DAY no class	Chapter 18	Chapter 18
Jan 22–Jan 26	Chapter 18	Chapter 19	Chapter 19
Jan 29–Feb 2	Chapter 19	Chapter 19	Chapter 13
Feb 5–Feb 9	Test 1 Chpts 17-19	Chapter 13	Chapter 13
Feb 12–Feb 16	Chapter 14	Chapter 14	Organometallics
Feb 19–Feb 23	Organometallics	Chapter 20	Chapter 20
Feb 26–Mar 1	Chapter 20	Chapter 20	Test 2 Chpts 13, 14, OM, 20
Mar 4–Mar 8	SPRING BREAK no class	SPRING BREAK no class	SPRING BREAK no class
Mar 11–Mar 15	Chapter 24	Chapter 24	Chapter 24
Mar 18–Mar 22	Chapter 21	Chapter 21	Chapter 21
Mar 25–Mar 29	Chapter 21	Chapter 21	GOOD FRIDAY no class
Apr 1–Apr 5	Chapter 26	Chapter 26	Chapter 26 <i>Last day to W</i>
Apr 8–Apr 12	Test 3 Chpts 24, 21, 26	Chapter 23	Chapter 23
Apr 15–Apr 19	Chapter 23	Chapter 25	Chapter 25
Apr 22–Apr 26	Chapter 25	no class	no class

*\*Approximate schedule, subject to adjustment as needed*

NOTE: The *cumulative* final exam will be:  
 Section A: Monday April 29<sup>th</sup> from 8–10 am  
 Section B: Friday April 26<sup>th</sup> from 11am – 1 pm