

**Topic: Research in Green Organic Chemistry**

Instructor: Dr. Carl Lecher  
Office: MH 350  
Lab: MH 351, times to be arranged  
Credit: Variable credit hours  
Office Hours: Come as you please

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**Course Description**

This course provides the opportunity for students with strong chemistry background and skills to carry out laboratory or computational research on a topic chosen by agreement with a faculty member, perform appropriate literature searches related to their chosen topic, analyze data, and report their findings through an ACS-style manuscript and a formal oral presentation. Papers of sufficient merit and novelty may be presented at a regional research conference.

**Required Course Materials**

*Green Organic Chemistry, Strategies, Tools, and Laboratory Experiments*, Kenneth Doxsee and James Hutchison, Brooks/Cole, ISBN 0-534-38851-5

Carbonless Duplicative Student Lab Notebook or approved notebook

**Course Objectives - General**

The successful student, upon completion of this course, should be able:

1. to demonstrate a sound understanding of the scientific method;
2. to demonstrate analytical mentality and precise thinking;
3. to demonstrate scholarship and dedication to the study of chemistry;
4. to demonstrate an openness to scientific criticism;
5. to perform research in an ethical manner;
6. to demonstrate sound research skills, including the ability to design and conduct chemical experiments;
7. to utilize chemical literature;
8. to maintain proper laboratory records;
9. to write professional reports;
10. to demonstrate scientific communication skills, including the ability to produce oral and written presentations for an expert and non-expert audience.

**Course Objectives – Topic Specific**

The successful student, upon completion of this course, should be able:

1. to understand the concept of green chemistry;
2. to understand why the study of green chemistry is important;
3. to understand the twelve principles of green chemistry.

**Course Requirements**

1. The student must read all background and supplemental material.
2. The student must conduct literature searches when necessary.
3. A research project proposal must be submitted to and accepted by the instructor.
4. The research must be conducted in a fashion acceptable to the instructor.
5. A comprehensive written report must be submitted to and *accepted* by the instructor. Reports not written at the appropriate level will not be accepted.
6. An oral presentation must be given in a forum approved by the instructor.

### **Grading Basis**

Hours of logged research	25%
Oral presentations	25%
Final paper	25%
Scholarly contribution to research	25%

### **Grading Scale**

The following percents are the cut-offs to earn each grade:

	B+ :	84.0%	C+ :	74.0%	D+ :	64.0%	
A :	90.0%	B :	80.0%	C :	70.0%	D :	60.0%
A- :	87.0%	B- :	77.0%	C- :	67.0%		

### **Attendance Policy**

Attendance of weekly group meetings is mandatory. Weekly attendance in the lab is required. For *each* credit hour, you are expected to spend *three* hours a week (45 total hours) devoted to your project. This includes lab time, time spent on literature research, time spent in consultation with the instructor, and time spent in group meetings or lectures. This *excludes* time spent on your paper and presentation. To document your efforts, it is required that you keep a weekly time log devoted to this course. This will be submitted for instructor approval at the end of the each week.

### **Written Reports**

Hard copy and electronic file due with each submission:

- Draft #1: March 2
- Draft #2: April 4
- Draft #3: April 17
- Final #1: April 27
- Final #2: May 4 (if revisions are required)

### **Oral Presentation**

Friday, February 23 - Butler Undergraduate Research Conference Registration Deadline  
Thursday, April 5 – Presentations to Research Group  
Tuesday, April 10 – Third Annual Marian College Undergraduate Research Symposium in Chemistry  
Friday, April 13 - Butler Undergraduate Research Conference