

Department of Chemistry
CHEM 19000 - Organic Chemistry in the Lab and the Field
Pre-College Summer Course - Session 1

Course Description:

This course is designed to provide students with a unique and hands-on experience that combines ecology, ethnobotany, and organic chemistry, via an exploration of medicinal plants. Students will have the opportunity to visit Schulenberg Prairie at the Morton Arboretum to explore indigenous and folkloric medicinal plants, identify their medicinal properties, and then delve into the organic chemical structures that make these plants effective. Students will also learn organic laboratory techniques and the course will culminate in a lab component where students will utilize the knowledge gained to create their own herbal salve. The course will provide an introduction to the chemical basis of medicinal plants along with the significance of ecological restoration and sustainability in traditional medicinal plant harvesting and utilization.

In addition to lectures, discussions, and labs, class time will also be used for guest lectures and visits to the Schulenberg Prairie and an observation workshop at the Smart Museum of Art. Course assignments will include videos, readings, class discussions, field/reflection journal, lab report, a final paper & a presentation.

Learning Goals:

By the end of this course, students will be able to:

1. Recognize organic chemistry functional groups.
2. Discuss the healing properties and indigenous uses of medicinal plants.
3. Identify the organic functional groups present in molecules.
4. Record observations in both the field and the laboratory.
5. Employ organic chemistry laboratory techniques.
6. Create a medicinal herbal balm.

People:

Prof. Vera Dragisich: Course Instructor

Office Hours: Wednesdays, 4:00-5:00pm in Searle 128

Contact Info: v-dragisich@uchicago.edu, (773)702-3071

TA: Liv Mumma

Office Hours: Mondays, 4:00-5:00pm in Hinds 127

Contact Info: livm@uchicago.edu

Tentative Course Schedule

The tentative schedule of topics, readings, labs, and assessments is given below.
 All assessments will be linked to a Canvas Assignment item with a corresponding due date.
 Topics are listed in normal typeface, readings in *italics*, and assignment due dates in **bold**.

Week #	Monday	Tuesday	Wednesday	Thursday	Friday
1	June 16	June 17	June 18	June 19	June 20
AM	Class Structure *Class Intro	*O-Chem Intro	*St. John's Wort *Gentian	No Class	Guest Speaker: Herbalist Dr. Andrea Marcinkus
PM	UCSTEM History Campus Walk	Group Work: Elements	Group Work: Medicinal Plants		Group Work: Medicinal Plants
	<i>Read: articles on Reflective Journaling & Phytochemistry</i> Due: Daily Journal Reflection	Due: Video Lessons 1&2 w/Quizzes & Daily Journal Reflection	<i>Skim: 3 scientific articles</i> Due: Video Lessons 3&4 w/Quizzes & Daily Journal Reflection	Due: Video Lessons 5&6 w/Quizzes & Daily Journal Reflection	Due: Video Lessons 7&8 w/Quizzes & Daily Journal Reflection
2	June 23	June 24	June 25	June 26	June 27
AM	* Yarrow	*Journaling & Observation	*Organic Chem Functional Groups	*Organic Chem Functional Groups	Field Trip: Morton Arboretum Schulenberg Prairie
PM	Group Work: Medicinal Plants	Smart Museum Visit	Demonstration: Making Nylon	Laboratory/Group Work: Jour de Odor	
	<i>Read: 2 articles on keeping a field journal</i> Due: Video Lessons 9&10 w/Quizzes & Daily Journal Reflection	Due: Video Lessons 11&12 w/Quizzes & Journal Reflection w/ Smart Museum Worksheet	Due: Choice of Medicinal Plant Research & Characterization of Plants for Experiment & Daily Journal Reflection	Due: Lesson 13 w/Quizzes & Daily Journal Reflection	<i>Read: Acid Base Extraction Demo article</i> Due: Field Journal
3	June 30	July 1	July 2	July 3	
AM	*O-Chem Lab Techniques	Laboratory: Making Medicinal Balm	Presentations	Presentations	No Class
PM	Demonstration: Separatory Funnel Acid Base Extraction			*Course Conclusion Reflection	
	<i>Read: Lab Manual/Herbal Balm Experiment Procedure</i> Due: Pre Lab Report & Daily Journal Reflection	Due: Upload Presentation PP & Daily Journal Reflection	Due: & Daily Journal Reflection	Due: Lab Report Write up & Final Project Paper	

Course Materials:

There is no formal textbook for this course. The viewing of lesson videos will be the primary instructional content. These videos are followed by quizzes and are listed as Assignments in Canvas. Readings from a variety of sources including excerpts from textbooks, scientific literature, and articles will also be posted on Canvas and may or may not have formal assignments. There will also be reference books available in the Library Reserves section on Canvas.

Prerequisites:

There are no prerequisites for the class.

Grading and Assessment:

1000 pts are available in this course:

In-Class Participation In-class questions will be posed via the polling software Poll Everywhere so students can actively engage and demonstrate participation during class time.	80 pts
Field/Reflection Journal & Laboratory Report - Daily journal reflections that include minute paper questions (55 pts) - Worksheet from visit to the Smart Art Museum (35 pts) - Field journal from Morton Arboretum Schulenberg Prairie (55 pts) - Research on and characterization of plants for balm experiment (50 pts) - Prelab written prep and Lab Report for balm experiment (105 pts)	300 pts
Quizzes You will asynchronously view video lessons on Canvas (Lessons 1-13) and complete the quizzes following each of the lessons.	325 pts
Final Paper You will write a final paper summarizing a medicinal plant of your choice discussing 1). The plant (where it grows, it's appearance, etc.); 2). The plant's indigenous uses and folklore; 3). Its medicinal properties; 4). The organic structure and functional groups that give the plant its medicinal properties. You will also complete two preparatory activities as follows: - Choice of plant, brief notes on discussion points and bibliography (20 pts) - Short presentation on your herb to peers during class (75 pts) - Final Paper (200 pts)	295 pts
Total:	1000 pts

Late Work: To allow for flexibility as you manage your own academic and personal commitments, two no-questions-asked, 48-hour extensions are granted for any type of assessment in this class **except the in-class Poll Everywhere questions, and the final paper and presentation**. You do not need to request this extension and the late penalty that Canvas automatically applies will be reset for your first two late assignments at the end of the quarter once all work is turned in. Work that is turned in after the 48-hour extension or your third late assignment will have a late penalty applied of 5% per day.

Labs:

Students will research the medicinal properties of a number of different plants and then determine which plants will be used to make their own medicinal herbal balm.

Lab activities will consist of the preparation you do before attending lab, the activities you take part in and the observations you collect during lab, and the analysis and conclusions you draw after lab.

- **Prelab:** To prepare for lab, you will review the posted Lab Manual and complete write-up.
- **Written Observations:** During lab, you will record written observations. You will use these notes to write up your Laboratory Report.
- **Conclusions Report:** After lab, report on your lab conclusions via a written report.

Policies:

Academic Integrity

You are encouraged to discuss lessons and lab reports with other students and in groups. However, what you hand in should be your own. Everything you submit should be entirely your own work. Copying sentences from any materials is considered to be academic dishonesty and you should rephrase. *Do not make copies of or duplicate anyone else's work. Do not copy answers or text verbatim from online sources, including Chat GPT or other generative AI tools.* The University's policies on academic honesty, plagiarism, and academic fraud can be found [here](#).

Instances of academic dishonesty will be reported to the Office of College Community Standards and may result in failure of the course on the first offense regardless of the value of the assignment. Cheating will not be tolerated.

Withdrawal Policies

The deadline to request a Withdrawal (W) from a course is the day before the final exam or before the final project due date.

SDS Accommodations

The University of Chicago is committed to ensuring equitable access to our academic programs and services. Students with disabilities who have been approved for the use of academic accommodations by Student Disability Services (SDS) and need a reasonable accommodation(s) to participate fully in this course should follow the procedures established by SDS for using accommodations. Please complete SDS procedures for requesting accommodations by the first week of class so that we can make arrangements for your accommodations.

To contact SDS: website: disabilities.uchicago.edu
phone: (773) 702-6000
email: disabilities@uchicago.edu

Diversity & Inclusion

The University of Chicago believes that a culture of rigorous inquiry demands an environment where diverse perspectives, experiences, individuals, and ideas inform intellectual exchange and engagement. I concur with that commitment and expect to maintain a productive learning environment based upon open communication,

mutual respect, and non-discrimination. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.

Religious Accommodation Policy:

I welcome and celebrate religious diversity amongst our student body and am committed to ensuring you are able to observe your religious holidays. Be in touch about any course conflicts and we will work together to find a solution. The official UChicago [policy on religious accommodation](#) is as follows, and all instructors must abide by this policy:

"The University of Chicago is home to students of all the world's major religions and, though firmly a secular institution, values the rich diversity of spiritual expression and practice found on campus. It is therefore the policy of the University that students who miss class, assignments, or exams to observe a religious holiday must be accommodated as follows: (i) absences may not be counted as a missed class in any course in which attendance is a measure of academic performance; (ii) reasonable extensions of time must be given, without academic penalty, for missed assignments; and (iii) exams must be reasonably rescheduled without academic penalty."

A Note on Sexual Misconduct:

Our school is committed to fostering a safe, productive learning environment. Title IX and our school policy prohibits discrimination on the basis of sex. Sexual misconduct — including harassment, domestic and dating violence, sexual assault, and stalking — is also prohibited at our school. Our school encourages anyone experiencing sexual misconduct to talk to someone about what happened, so they can get the support they need, and our school can respond appropriately. If you wish to speak confidentially about an incident of sexual misconduct, want more information about filing a report, or have questions about school policies and procedures, please contact our [Title IX Coordinator](#). Our school is legally obligated to investigate reports of sexual misconduct after a formal complaint is filed or signed by the Title IX Coordinator, but a request for confidentiality will be respected to the extent possible. Please note that instructors, including teaching assistants, are mandatory reporters, which means we are professionally obligated to report all instances of sexual misconduct to the Title IX office.

Student Resources and Accommodations:

Unexpected events may arise that affect your ability to study and to complete assignments. This can include illness, family emergencies, financial difficulties, and internal stresses such as intense anxiety or depression. Sometimes students are hesitant to ask for help. Please let us know if you are experiencing a crisis that is affecting your studies. Seeking help early can help you cope with the stress and reduce the impact on your studies. We encourage students to take advantage of the support networks on campus. A good place to start is [Student Wellness](#). "UChicago Student Wellness is committed to promoting the mental health and well-being of UChicago undergraduate and graduate students by providing accessible, high-quality, culturally sensitive mental health services. Students can make an appointment by calling UChicago Student Wellness at 773.834.WELL during business hours or logging in to the [my.WellnessPortal](#) to schedule online." For urgent/emergency care options, visit the [Get Help Now page](#).