

# Chemistry 231, Organic Chemistry I, Fall 2017 Instructor: Misty Peacock

**Course website: Canvas webpage Email:** [**mpeacock@nwic.edu**](mailto:mpeacock@nwic.edu)

**Prerequisites:** MATH 102 and CHEM 113 or CHEM 123

## Required Textbook:

Hart, Craine, and Hart. Organic Chemistry: A Short Course

ISBN 13: 978-0618590735 12th edition

ISBN 13: 978-1111425562 13th edition

Textbook can be bought from various used book suppliers online (Amazon, Powell’s, Valorebooks, Barnes and Nobles, Abebooks etc.) for about $10 - $40. The 13th edition is the most current edition, and about $295 unfortunately. Another way is to RENT the textbook - from sites such as Amazon or Barnes and Nobles. I will put a copy of the 10th edition in the library.

**Lecture Time and Place**: T/TH, 9:30-10:45 PM, Building 16, NE 112.

**Laboratory**: Th 1:30 - 5:00 PM, Building 16, NE 112

**Office Hours**: Building 16, # 108. Tuesday, 11-2; or email to make an appointment.

## Email[: mpeacock@nwic.edu](mailto:mpeacock@nwic.edu) Phone: 360-594-4082

A scientific calculator is highly recommended for this course. A calculator can be checked out from the Media Center, housed in the Library on campus.

*Course Overview*

Organic chemistry is the chemistry of life. We live in the world which is largely shaped by organic compounds: from the water in the streams, the food we eat, the medicine we practice, to the products we produce. Evidence of organic chemistry can be seen in all things living, and this course will introduce students to both the chemistry of living organisms, and how the knowledge of such things can be applied. We will use place-based topics, such as salmon cycles, marine cycling of organic matter, acid rain, and coal production to explore the nature and origins of organic molecules. Organic chemistry is often a required course for environmental science graduate and pre-med, nursing, and medical assistant degrees, and can be used as preparation for courses related to natural resource management and technical fields related to synthesis of chemicals.

*Course description*

Topics include bonding and isomerism, stereoisomerism, alkanes, alkenes, alkynes, polymers, substitution and elimination reactions, alcohols, ethers, lipids, and detergents. Laboratory required, including separation, purification, and identification of organic compounds.

*College mission statements*

“Through education, Northwest Indian College promotes indigenous self-determination and knowledge.”

## Institutional outcomes

As a result of this course, student will work towards:

Native Leadership—To Acquire a Quality Education

1. effectively communicate in diverse situations, from receiving to expressing information, both verbally and non-verbally

## Community minded- to utilize education through work

## 7. Meet the technical challenges of the modern world

## BSNES Program outcomes

Northwest Indian College outcomes related to this course include:

3. Inquiry

Use Indigenous theories and methods to conduct inquiry-based research and evaluation that respond to the needs of Indigenous communities and serve to promote Indigenous self-determination.

4. Communication

Communicate using oral, written, and graphical (visual) methods to support Indigenous self-determination

## Course Outcomes

In this course you will learn to:

1. Collect, analyze, and report scientific data.
2. Predict chemical bonding results of reactions.
3. Use advanced laboratory techniques safely in a laboratory setting.
4. Develop research questions.

*Student Evaluation*

2 exams:

1 final exam:

4 lab reports:

1 Proposal:

10 Quizzes:

6 Problem sets:

100 points

50 points

200 points

100 points

100 points

150 points

**TOTAL:**

**700 points**

*Exams*

Each exam is worth the same amount of points. You will not be allowed to use your phone as a calculator during the exam!

*Lab reports*

In lab, we will emphasize techniques of organic chemistry that are used to measure water quality and everyday surroundings. Labs will focus on the environmental chemistry of local bodies of water, including the Nooksack River and Bellingham Bay. The intent is for students to acquire knowledge of useful chemical lab techniques, and to apply this learning to analyze organic chemistry important to your tribe. Labs are **MANDATORY** and cannot be made up (without extenuating circumstances).

*Proposal*

Towards the end of the quarter, there will be a 2-page proposal, similar to the NSF graduate research proposal that can be applied for in the first 2 years of graduate study. Students will utilize what they have learned about how to conduct research and propose a topic that is meaningful and important in their life.

*Quizzes*

Quizzes will be ~weekly, open book, open note, and online through CANVAS. Late quizzes will not be accepted. You will have 1 week to complete the quiz, but you cannot go back once you’ve answered the question. There is no time limit per question.

*Problem Sets*

Assignments will be ~bi-monthly. You MUST show your work to get credit.

*Important Policies*

* 1. Late work will be marked down 10% each week it is late. No late work will be accepted after December 9th.
  2. To receive credit, you MUST show your work.
  3. To pass the course you MUST complete the final and the proposal. You will not pass the course if you fail to complete both.
  4. Plagiarism (copying someone else’s work) will result in an automatic **ZERO. Repeated plagiarism and you will fail the class.**

*Student Responsibilities*

Get serious about learning! Students make or break a class. You can help yourself and your peers by making a strong and sustained effort to learn chemistry.

1. Performance. Make an effort to perform at a high level. You are expected to keep pace with the class. If you have difficulty with a part of an assignment or exam, make sure that you ask questions in class or come to office hours. It is important to start a good pace and keep it throughout the quarter. Most students that fall behind in science courses do not pass the class.
2. Attendance. If you do not come to class, it is not likely that you will pass Chemistry 231. Please attend class. Attendance is reported to student services and this information will be used to determine who is eligible to receive financial aid checks, among other things.
3. Community. I encourage students to work together. Working together is a great way to learn, but students MUST turn in their own work. Do NOT copy each other’s work.
4. Participation. Ask questions. If there is a concept or problem that you do not understand, make sure that you ask for an explanation. It is OK to repeatedly ask questions until you understand a problem.
5. If you need to use your cellphone, please step outside class so as not to disturb the rest of us. You should be using a scientific calculator, and not your cellphone.

## SCHEDULE

**This is a TENATIVE schedule - expect it to change!**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WK** | **DATE** | **TOPIC** | **Chapt** | **Lab** |
| 1 | 19-Sept | Introduction |  |  |
| 1 | 21-Sept | Bonding and Isomerism | 1 |  |
| 1 | 21-Sept |  |  | Lab Safety |
|  |  |  |  |  |
| 2 | 26-Sept | Alkanes and  Cycloalkanes | 2 |  |
| 2 | 28-Sept | Alkenes and Alkynes, polymers | 3, 14 |  |
| 2 | 28-Sept |  |  | Slime Lab |
|  |  |  |  |  |
| 3 | 3-Oct | Chemistry of Fats | 2 |  |
| 3 | 5-Oct | Alkenes and Esters | 10 |  |
| 3 | 5-Oct |  |  | Esters Lab #1 |
|  |  |  |  |  |
| 4 | 10-Oct | Review |  |  |
| **4** | **12-Oct** | **EXAM I** |  |  |
| 4 | 12-Oct |  |  | Esters Lab #2 |
|  |  |  |  |  |
| 5 | 17-Oct | Reactions and  Energetics | 3 |  |
| 5 | 19-Oct | Reactions and  Energetics | 3, 12 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5 | 19-Oct |  |  | Field trip (boat) |
|  |  |  |  |  |
| 6 | 24-Oct | Pesticides, carcinogens, bad  stuff | 4 |  |
| 6 | 26-Oct | Substitution and  Elimination reactions | 6 |  |
| 6 | 26-Oct |  |  | Field trip (back up) or  Organics #1 |
|  |  |  |  |  |
| 7 | 31-Oct | Review |  |  |
| **7** | **2-Nov** | **EXAM II** |  |  |
| 7 | 2-Nov |  |  | Organics #2 |
|  |  |  |  |  |
| 8 | 7-Nov | Substitution and  Elimination Reactions | 6 |  |
| 8 | 9-Nov | Substitution and Elimination  Reactions | 8 |  |
| 8 | 9-Nov | Saponification |  | Saponification Lab #1 |
|  |  |  |  |  |
| 9 | 14-Nov | Lipids and  Detergents | 15 |  |
| 9 | 16-Nov | Lipids and  Detergents | 15 |  |
| 9 | 16-Nov |  |  | Saponification Lab #2 |
|  |  |  |  |  |
| 10 | 21-Nov | Hormone Chemicals | 7 |  |
| **10** | **23-Nov** | **HOLIDAY** |  |  |
| **10** | **23-Nov** | **HOLIDAY** |  | **NO LAB HOLIDAY** |
|  |  |  |  |  |
| 11 | 28-Nov | Stereoisomerism/ Biotoxins | 5 |  |
| 11 | 30-Nov | Review |  |  |
| 11 | 30-Nov |  |  | Proposal |
|  |  |  |  |  |
| 12 | 5-Dec | FINAL |  |  |
| **12** | **8-Dec** | **NO CLASS** |  |  |
| **12** | **8-Dec** |  |  | **NO LAB** |