

UAF CHEM 104X Syllabus  
Spring 2020  
Weltzin

**Chemistry F104X (online): A Survey of Organic Chemistry and  
Biochemistry  
Spring 2020 Course Syllabus**

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<b>Learning Outcomes</b>	<b>Specific Coverage</b>
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| <ul style="list-style-type: none"><li>• Learn how to write structural formulas to understand the structure of molecules.</li><li>• Be able to identify functional groups as sites for reactions to occur.</li><li>• Be able to name simple organic molecules so that you can accurately interpret the names of chemicals.</li><li>• Chemical isomers can be therapeutic but also life</li></ul> |  |
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**Prerequisites:** Chem F103X, placement in ENGL F111X of higher, placement in DEVM F105 or higher, or permission of instructor.

**Course expectations and outcomes**

Students are expected to attend class; attendance will be monitored from in class clicker responses. Each day *before* class the student should read and digest the portion of the textbook appropriate as per the class schedule. *Active learning* involves the student using their sensory motor cortex (sight, smell, sound, taste and touch) in addition to their intelligence, to solidify through practice a concept the student has just read or heard about. Supplementing the course catalog, the course goals are to continue build the student's skills solving biochemistry problems, reading critically, formulating questions, completing laboratory experiments and communicating information assimilated throughout the course by completing exams. Class conduct should be professional as well as respectful of the rights other students to constructive learning experience.

**Blackboard:** <https://classes.uaf.edu>. Course information, supporting documents and grades for this course will be maintained on the UAF Blackboard website. Time sensitive information and reminders will be sent occasionally to all students enrolled in the course using blackboard, so it is important that you verify that your email address is correct and current.

**Preparation:** It is ***strongly*** recommended that each student reads the portion of the textbook that corresponds to each unit before watching lecture videos, performing lab experiments, attempting OWL, or answering the PackBack curiosity questions (see course calendar).

**Cell phones/Computers:** Mobile devices are not allowed during exams.

**Grading:**

Grades will be posted to Blackboard, which can be accessed from the UAF homepage. Class grades may be adjusted (curved) from the following schedule only in the students' favor.

Evaluation Type	Points
Examination 1	100
Examination 2	100

once via email before the drop; if the student corrects the deficiency, the student may remain in this class. Progress reports for freshman students are due to the Registrar's Office by Monday, Feb. 26, 2018. The grade reported at that time will include the student's scores on the first exam, homework, quizzes and the in-class participation grade. The last day for instructor initiated withdrawal is Friday, March 30, 2018 (W grade appears on academic record). An incomplete grade will only be assigned if a student misses the final exam for an outstanding reason, such as a medical problem, a death in the family, etc.

### Homework

Homework problems will be assigned using questions from the textbook in coordination with the OWLv2 Cengage Learning program. Students should expect between 2 - 3 hours of homework to be assigned each week. Each homework assignment will have a link (or links) in the homework folder for that week on Blackboard. Each link contains a different problem set, so you must complete the exercises in all the links to get full credit. Each problem set is a "Mastery" question where you have to answer correctly two out of three similar types of questions to earn full points. You have a total of nine attempts to currently answer each Mastery question. Homework assignments for the week will be due according to the course schedule below no later than 11pm. It is recommended that students promptly register and log in to OWLv2 Cengage Learning as homework will be assigned within the first class period. You will need your access code that came with your book. If you do not have one anymore, please see me.

\* Occasionally, students experience problems using OWLv2. For example, students may type in a right answer, but OWLv2 will count their answer as wrong. Or, perhaps a student cannot open OWLv2 on his or her particular laptop for some unknown reason. If a student experiences any "electronic" problems using OWLv2, the student must contact Cengage at **1-800-354-9706** or email **support.cengage.com** for help. The Cengage technicians are usually able to resolve the problem. However, if the problem is still not resolved, then the student should contact Dr. Weltzin with the case number given by the Cengage technician. Dr. Weltzin will then notify the Cengage sales team of the problem and give them the case number so that the problem can be resolved.

**PackBack Discussion Board Responses:** We will use **PackBack** as our class discussion board to connect course content to the everyday life. Students are expected to participate actively in the course via responses to discussion questions. Each week Dr. Weltzin will post a question pertaining to an existing application of the course material. Students are expected to provide a thoughtful response to the instructor's question **and** respond at least once to a peer's response. To earn full points, you also need to ask **one** question in response to your peer's responses or the original posted question. Responses will be grade on the quality and detail of the response and sources cited. Additionally, student responses will be checked for plagiarism and originality. If your response has been plagiarized or is very similar to an already posted response, your response will be sent back to you and you will have the opportunity to revise your response so you can earn full points. Students should feel free and are encouraged to ask questions to each other about responses. Students will need to purchase a license ([https://questions.packback.c4\(-\)/5.37 Tm0 .000005\(ono252W\\* nQq9\(q\)-8\(u2 re\)10\(068.86 Tm0 G\)m.\)-4\(pa\)14](https://questions.packback.c4(-)/5.37 Tm0 .000005(ono252W* nQq9(q)-8(u2 re)10(068.86 Tm0 G)m.)-4(pa)14))



Students will not collaborate on any quizzes, in-class exams, or take-home exams that will contribute to their grade in a course, unless permission is granted by the instructor of the course. Only those materials permitted by the instructor may be used to assist in quizzes and examinations. Students will not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses, and other reports. No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors. Violations of the Honor Code will result in a failing grade for the assignment and, ordinarily, for the course in which the violation occurred. Moreover, violation of the Honor Code may result in suspension or expulsion.

### **Student success**

There are a large number of resources to help students who would like to perform at their best. The student may make an appointment to see the instructor for help. (The instructor will attempt to reply to email questions within 24 hours during the school week.) The Chemistry and Biochemistry Department has established the Chemistry Learning Center (CLC), which offers student led instruction. Students may also see a tutor for additional assistance. Laboratory teaching assistants are available for help during posted office hours.

### **Disabilities**

Students with a physical or learning disability are required to identify themselves to the Disability Services office, 474-7043, located in the Center for Health and Counseling. The student must provide documentation of the disability. Disability Services will then notify the instructor of special arrangements for taking tests, working homework assignments, and doing lab work.

**Computer Access:** Currently Department of Computing and Communications (DCC) maintains two open labs on campus: the Bunnell Lab, and the Node (Rasmussen library). The Node has 24-hour access.

**Support Services:** Support can be obtained through the University of Alaska Library system, online resources, and the instructor. Additional services are available through Student Support Services (<http://www.uaf.edu/sssp/>) at UAF.

**Classroom Etiquette:** The purpose of this information is to assist students in understanding proper classroom behavior. The classroom should be a learning centered environment in which faculty and students are unhindered by disruptive behavior. Students are expected to maintain proper decorum in the online classroom including during lab and when responding on the discussion board. Students are expected to be honest, professional, and courteous at all times. The University of Alaska Fairbanks is an institution of higher education that promotes the free exchange of ideas. However, students must adhere to the rules set forth by the University and the instructor. Failure to comply with classroom rules may result in dismissal from the class and/or the University. Faculty have the authority to manage their classrooms to ensure an environment conducive to learning. The University of Alaska Student Code of Conduct (the Code), part of the Board of Regents Policy 09.02, is available at <https://www.alaska.edu/bor/policy/09-02.pdf>. You should be familiar with the Code as you will be held accountable to maintain the standards stated within. The Code includes the following statements:

P09.02.020.A As with all members of the university community, the university requires students to conduct themselves honestly and responsibly and to respect the rights of others. Students may not engage in behavior that disrupts the learning environment, violates the rights of others or otherwise violates the



## Class Schedule

Unit (Chapter) [Monday date]	Topic and Activities	Assignment Due date
1 (Ch 10) [1/13]	<p><b>Welcome and intro organic chemistry: Alkanes</b></p> <ul style="list-style-type: none"> <li>• <b>Reading:</b> <ul style="list-style-type: none"> <li>○ Welcome letter</li> <li>○ Ch. 10</li> <li>○ Review Ch 3</li> <li>○ Read “How to draw a Lewis dot structure” handout</li> <li>○ Lecture Notes</li> </ul> </li> <li>• <b>Watch:</b> <ul style="list-style-type: none"> <li>○ Welcome video</li> <li>○ Video 1.1: Intro to Organic Chemistry</li> <li>○ Video 1.2: How to Draw Structural Formulas</li> <li>○ Video 1.3: Example: Drawing Structural Formulas</li> <li>○ Video 1.4: Building functional groups</li> </ul> </li> <li>• <b>Simulations and Exercises:</b> <ul style="list-style-type: none"> <li>○ On your own or with a buddy, <b>draw and build functional groups</b> covered in chapter 10, table 10-3</li> <li>○ Go to <a href="https://www.easynotecards.com/notecardset/6736">Functional Groups Matching Game</a> (<a href="https://www.easynotecards.com/notecardset/6736">https://www.easynotecards.com/notecardset/6736</a>)</li> <li>○ Review functional groups</li> <li>○ Play <b>Functional Groups Matching Games</b></li> <li>○ <i>Optional:</i> Play <a href="#">Functional Groups Bingo</a></li> </ul> </li> <li>• <b>Lab Investigation:</b> <ul style="list-style-type: none"> <li>○ No Lab Experiment- <i>Have you ordered your kit?</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• PackBack Curiosity Question #1: Who are you? (Introduce yourself)</li> </ul>

<p>3 (Ch 15) [1/27]</p>	<p><b>Chirality: The Handedness of Molecules</b></p> <ul style="list-style-type: none"> <li>• <b>Reading:</b> <ul style="list-style-type: none"> <li>○ Ch. 15</li> <li>○ Lecture Notes</li> </ul> </li> <li>• <b>Watch:</b> <ul style="list-style-type: none"> <li>○ Video 3.1: Learn to identify stereoisomers</li> <li>○ Video 3.2 Racemic mixtures</li> <li>○ Video 3.3: How to name enantiomers</li> <li>○ Video 3.4: Determining number of stereoisomers and identifying diastereomers</li> </ul> </li> <li>• <b>Lab Investigation:</b> <ul style="list-style-type: none"> <li>• Safety lab, measurement and uncertainty, and graphing</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• PackBack Curiosity Question #3: Ibuprofen (Friday, 1/31)</li> <li>• OWL HW #3 (Monday, 2/3)</li> <li>• Lab Report- Safety lab (Tuesday, 2/4)</li> <li>• <b>Exam 1 due next week (covering units 1-3)</b></li> </ul>
<p>4 (Ch 30) [2/3]</p>	<p><b>Nutrition and Digestion</b></p> <ul style="list-style-type: none"> <li>• <b>Reading:</b> <ul style="list-style-type: none"> <li>○ Ch. 30</li> <li>○ Lecture Notes</li> </ul> </li> <li>• <b>Watch:</b> <ul style="list-style-type: none"> <li>○ Video 4.1: How does your digestive system work?</li> <li>○ Video 4.2: How your digestive system works (more in-depth)</li> <li>○ Video 4.3: Rwanda, Burundi- A story about nutrition</li> </ul> </li> <li>• <b>Exercise:</b> <ul style="list-style-type: none"> <li>○ Go to USDA choosemyplate.gov, explore each food group</li> <li>○ Take the quiz associated with each food group to test your knowledge</li> </ul> </li> <li>• <b>Lab Investigation:</b> <ul style="list-style-type: none"> <li>○ Qualitative Synthesis of Aspirin</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• PackBack Curiosity Question #4 (Friday, 2/7)</li> <li>• Lab due Tuesday</li> <li>• OWL HW #4 (Monday, 2/10)</li> <li>• Lab Report- Aspirin (Tuesday, 2/11)</li> <li>• <b>Exam 1: Units 1-3 <u>THIS</u> week (due by 5pm AK time Friday, 2/7)</b></li> </ul>
<p>5 (Ch 20) [2/10]</p>	<p><b>Carbohydrates</b></p> <ul style="list-style-type: none"> <li>• <b>Reading:</b> <ul style="list-style-type: none"> <li>○ Ch. 20</li> <li>○ Lecture Notes</li> </ul> </li> <li>• <b>Watch:</b> <ul style="list-style-type: none"> <li>○ Video 5.1: How to draw Fischer projections</li> <li>○ Video 5.2: The biochemistry of sugars and carbohydrates</li> <li>○ Video 5.4: The deal with carbohydrates</li> </ul> </li> <li>• <b>Lab Investigation:</b> <ul style="list-style-type: none"> <li>○ Chemistry of Life: pH and Buffers</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Discussion Board Question #5 (Friday, 2/14)</li> <li>○ OWL HW #5 (Monday, 2/17)</li> <li>○ Lab Report-Chemistry of Life (Tuesday, 2/18)</li> </ul>



# UAF CHEM 104X Syllabus

	<b>REMINDER: Exam 3 (units 9-11) due NEXT week (due 4/10 by 5pm AK time)</b>	
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**Bioenergetics: How the body converts food to energy**

• **Reading:**

- Ch. 27
- Lecture PowerPoints and example problems

• **Watch:**

- Video 11.1: What is metabolism?
- Video 11.2: What is cell respiration? (big picture ideas)
- Video 11.3a: How does the citric acid cycle work?
- Video 11.3b (optional): Citric acid cycle song
- Video 11.4: How does the electron transport chain work?

• **Simulations and Exercises:**

*After reading the book and watching the videos:*

- Play the citric acid cycle game (simple)

12  
(Ch 27)  
[4/6]

	<ul style="list-style-type: none"><li>• <b>Watch:</b><ul style="list-style-type: none"><li>○ Video 14.1: Fat metabolism- glycerol catabolism</li><li>○ Video 14.2: Fat metabolism- Carnitine shuttle and beta-oxidation of fatty acids</li><li>○ Video 14.3: Urea cycle</li></ul></li><li>• <b>Simulations and Exercise:</b><ul style="list-style-type: none"><li>○ Play the urea cycle game</li></ul></li><li>• <b>Final Project:</b><ul style="list-style-type: none"><li>○ Post infographic by 4/22</li><li>○ Review and evaluate <b>3</b> peer infographics</li><li>○ Answer questions</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Grade and answer questions for <b>3</b> student projects by 4/27</li><li>• Study for Final Exam</li></ul>
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15  
[4/27]