Course Syllabus: CHEM 128A (Organic Chemistry I)

Contents

Welcome to CHEM 128A, Organic Chemistry 1! This course will introduce you to one of the richest and most beautiful areas of modern chemistry: *chemistry of carbon compounds*. In CHEM 128A we will learn skills that are essential for understanding modern biochemistry, medicine, and the chemical reactions related to life.

Important note: This course uses mastery-based grading system. It is different than the one that you might be used to. The details are explained in sections below so *please read the syllabus carefully.* It is nearly 3,300 words for a reason. Almost all questions about the course that you might ask can be answered by referencing the syllabus. If you are uncertain that you understand all rules and regulations, please contact me.

Changelog

Until the census date, the content of this syllabus may change. The schedule and procedures for this course are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent. Changes and corrections are listed in the changelog below and will be announced on Canvas.

- 2019-06-01: Draft completed. Copy distributed to all students

Course information

- **Course name and number**: CHEM 128A (50366 20-LEC), 3 units
- **Prerequisites**: Grade C or better in CHEM 1B or CHEM 8.
- **Meetings**: Monday–Friday 07:30–09:00 AM in S2-307
- **Instructor**: Hubert Muchalski, Ph.D., Assistant Professor of Chemistry
- **Instructor office**: Science 1 room 352
- **Office Phone**: (559) 278-2711
- **Email**[1]: hmuchalski@mail.fresnostate.edu or hmuchalski@csufresno.edu (they go to the same inbox).

Office hours and instructor availability

I will be available for consultations for 30 min after each class meeting. Consultation appointments can be scheduled through Canvas calendar feature. Walk-in visits are welcome but appointments get first priority.

Course description

CHEM 128A is the first part of a two-semester course in organic chemistry, the chemistry of carbon-containing compounds. Topics in this course will be focused on the principles of bonding, structure, reactivity, and synthesis of organic materials. Also, a significant portion of this course will address

[1] Please note that I typically check email between 11 am and 5 pm, Monday through Friday. Usually, my response time is *within 12 hours of reading the message*. We also have online course tools where you can ask questions to the entire class at any time, making it more likely to get a quick response.

the analytical techniques routinely used by organic chemists in their research. Organic chemistry is central to understanding multiple other disciplines. Lectures and problems will often feature organic compounds and reactions in the context of biology, pharmacy, medicine, materials, and energy science.

Course goals and learning objectives

The goal of this course is that students reach fluency in communicating structure and reactivity of orgnic molecules. This knowledge is essential for appreciating the world and preparing for future professional work. At the successful completion of this course you will be able to do the following:

- communicate the structure and properties of organic molecules using common drawing and naming conventions;
- analyze chemical structures and reactions to make and defend predictions about chemical processes;
- use curved arrow notation to draw mechanisms of chemical reactions;
- propose a synthesis of an organic molecule;
- connect the ideas of organic chemistry with your own personal and professional interests; and
- demonstrate competence in self-regulated learning of new technical material, managing time and tasks, and educational interactions with peers.

Requirements

Course materials and technology

This course uses Immediate Access to course materials. All students have access to a digital version of the textbook and associated materials on the first day of class and have until the 10th day of instruction to OPT-OUT of the low cost digital materials, but will have to purchase the materials elsewhere. Students are automatically charged on the 10th day (5th day for Summer courses) to continue to have access to course materials for the rest of term. More info can be found at http://www.kennelbookstore.com/immediateaccess

- **Canvas:** The central repository for all course materials and information found here: https://fresnostate.instructure.com.
- **Textbook:** "Organic Chemistry" by David Klein 3rd edition published by Wiley.
- **WileyPLUS with ORION:** Online learning platform and homework. WileyPLUS is integrated with Canvas and all links to assignments and materials will be posted on Canvas. [2]
- **Student response system:** Each student will need an *i>clicker2* remote or access to the iClicker Reef mobile app. The officially supported model is *i>clicker2* (available at the Bookstore). [3]
- **Study Guide and Solutions Manual (Optional):**

[2] WileyPLUS version is tied to the edition of the textbook. If you opt out of Immediate Access and decide to buy a paper version of the textbook, make sure that your access code is for the 3rd edition.

[3] You can borrow hardware remote from a friend or buy a used one. Remotes need to be registered online to be linked to your name. We will go through registration during first class meeting.

In-class requirements

Five 90-minute meetings per week (Monday–Friday) where we review and discuss concepts and practice skills. You'll be working with your classmates to make sense of concepts and work on creative applications of those basics through group problem-solving sessions, discussions driven by interactive polling activities, and more. All of the work you do in class is carefully designed to promote learning of the concepts of the course (7.5 hours per week).

Out-of-class requirements

Prior to the class meeting, students are required to work actively to get their first contact with new concepts by reading the textbook, watching videos, and completing pre-class assignments. Students are also expected to engage in online discussions and Q&A (15-20 hours per week).

Types of graded work

There are six types of assignments and tests that you will encounter in this course:

1. **ORION diagnostics.** These are low-stakes online assignments assessing the knowledge you gained through self-guided learning (reading assignments and Skill Builder modules). These assignments are graded the basis of completeness and effort (not correctness).
2. **Mastery assignments.** Online homework (WileyPLUS) designed to build expertise in newly introduced concepts.
3. **Learning Target Assessments (LTAs).** Short quizzes on one of the 11 Learning Targets in the course. Each is graded *Satisfactory* or *Progressing* on the basis of correctness and completeness.
4. **Participation Credits.** Taking part in student response polls in class.
5. **Connections & Synthesis.** Take-home assignments that explore organic chemistry applications involving real life examples from the lab and beyond. *Connections* are graded *Satisfactory*, *Progresing*, or *Incomplete* on correctness, clarity, and completeness.
6. **Final Exam.** This exam measures retention of knowledge and skills you learned throughout the semester. The exam is comprehensive (all the material covered throughout the semester) and is composed of 70 multiple choice questions designed by experts from the American Chemical Society. Final exam will be on **Monday, July 15th 09:00–11:00 AM**.

Pre-class readings and diagnostics

This class is designed according to a model in which pre-class activities provide you with a structured introduction to the new material so that we can review, discuss, and practice during in-class meetings. After you read the chapter and complete guided exercises, you will be prompted to complete ORION assignment. ORION is an adaptive learning tool which tests the limits of your knowledge. It will always try to ask you questions that are appropriate for your current level of proficiency.

Completing the pre-class assignments serves two roles. First, it gives you an idea about the level of mastery you achieved through self-guided learning. Second, it helps me decide what activities to plan and what concepts to focus on in class. Please note that **for pre-class ORION questions correctness is not factored into the grade.** You should feel free to give your best effort on each question without

fear of being counted off for wrong answers. That being said, it pays to learn as much as you can on your own to get the ORION proficiency score on a good start.

Mastery homework

At the end of each module you will practice by completing more online assignments. *WileyPLUS Mastery* assignments are typically 10 questions on a particular topic and require that you attempt each of the questions and get a total percentage correct. You can attempt each question only once. However, if you do not get a percentage correct to show mastery (>75%), you can reset the assignment and try again. Resetting the assignment will generate a new set of questions for you to attempt. Your best attempt at this assignment will be your final recorded score. Resetting the assignment will not change the difficulty level of the questions. 75% or more correct to receive 10 points; 50% or more correct to receive 5 points; less than 50% correct to receive 0 points.

Learning target assessments (LTAs)

The content and the skills you will learn in the course are divided into Learning Targets. There are six (6) *Essential Learning Targets* related to the core skills and knowledge. Showing mastery of ELTs is required to pass the course. The remaining 5 are *Supplemental Learning Targets* that focus on additional important skills from organic chemistry. Mastery is demonstrated by completing short quizzes, each addressing a single Learning Target. The quizzes, called Learning Target Assessments, or LTAs, are graded either *satisfactory* or *progressing*. What constitutes *satisfactory* or *progressing* work will be spelled out explicitly for each Learning Target and made known to you in advance.

Some in-class time will be devoted to taking LTAs. Initial attempt to pass an LTA during in-class session is mandatory for all students. Re-take can be "purchased" with tokens (see details below). There is 20 minute limit on all LTAs.

Participation credits

A participation credit will be awarded for participation in iClicker questions in class but can also be awarded for asking an insightful question in class or during office hours. Research shows that student response systems (clickers) help students learn more and do better in the course. I have successfully used the student response system to gauge student learning and direct the flow of the lecture. Student polling will be used in almost every lecture and students must respond to at least 75% of questions on a particular day to earn PC for participation in the session.

Connections & Synthesis

Students who aspire to receive higher grade in this course and/or consider using me as a reference for their graduate/professional school applications will be asked to earn *satisfactory* grade on additional take-home assignments. *Connections* is a written assignment that require critical analysis and evaluation of information in the context of the knowledge you learned in the course. For the *Synthesis* assignment you will be asked to design a synthesis of a target molecule of my choice.

How is the letter grade determined

I use a mastery-based grading system that is designed to provide you with control over the grading process. Final letter grade in CHEM 128A will be determined by the quantity and quality of evidence you can provide that you have mastered the concepts of the course. **You will have multiple attempts to earn a *satisfactory* grade** on most assignments. The grading system in this CHEM 128A course allows revisions and multiple attempts to demonstrate a satisfactory level of learning. Grades on LTAs are not final until the end of the semester and can be attempted again. Read Revision and reassessment policy for more details.

The grade you earn at the end of the semester is determined by referring to the list below. There will be no statistical or numerical adjustments (a.k.a. grading on a curve). All items within "grade bundle" must be completed to receive the letter grade. Failing grade (F) is given if not all the requirements for a "D" are met.

D grade bundle

- ☐ 5 ELTAs
- ☐ 15 points on the final exam
- ☐ ORION diagnostics for 5 chapters
- ☐ 50% on Mastery

C grade bundle

- ☐ 6 ELTAs
- ☐ 22 points on the final exam
- ☐ ORION diagnostics for 7 chapters
- ☐ 60% on two the following: ORION proficiency, Mastery, iClicker

B grade bundle

- ☐ 6 ELTAs
- ☐ 2 SLTAs
- ☐ 29 points on the final exam
- ☐ ORION diagnostics for 9 chapters
- ☐ 70% on two of the following: ORION proficiency, Mastery, iClicker
- ☐ One of the following: Connections, Synthesis, 36 points on the final exam

A grade bundle

- ☐ 6 ELTAs
- ☐ 4 SLTAs
- ☐ 36 points on the final exam
- ☐ ORION diagnostics for 11 chapters
- ☐ 80% on two of the following: ORION proficiency, Mastery, iClicker
- ☐ Two of the following: Connections, Synthesis, 43 points on the final exam

Revision and reassessment

The grading system in our course insists that you show consistent excellence in all assignments in the course—outstanding work on quizzes, for example, does not "bring up" poor work on online assignments. This can be challenging, but the course also provides a robust system of revision and reassessment for most graded tasks, so that if you aren't happy with a grade on an assignment, you'll have multiple chances to try again or fix any mistakes.

Revision of WileyPLUS assignments

When you submit WileyPLUS assignment, you receive instant feedback on which answers were right and which ones were wrong. You may reattempt any online homework set as many times as you want until the deadline for the set. After the deadline, no revision is allowed and your score is final.

Revision of Learning Target Assessments (LTAs)

LTAs that receive a *Progressing* grade may be reattempted. Each additional attempt will cover the same material but will not be identical to past quizzes. I found that students tend to defer retaking LTAs until it's too late. Therefore, LTA retakes will cost x tokens if they happen within x weeks of the first failed attempt and student can attempt no more than 3 LTA re-takes per week.

LTA re-takes take place immediately after the class session. I need to know in advance which LTAs you plan to re-attempt. Thus, you must fill an online form no later than 2 pm the day before you plant to take the quiz. To fill out the form go to this page: https://forms.gle/NdV77BoKq3aY1iZF8

Tokens

Tokens are a "currency" in the course that you can use to purchase LTA re-takes and exceptions to some course rules. Each student begins the course with 20 tokens which can be exchanged for:

- LTA re-takes according to the policy describe above;
- feedback on a draft of *Connections* or *Synthesis* assignment (2 tokens/consultation);
- 24-hour deadline extension on Mastery assignment (1 token/assignment);
- Participation Credits (2 tokens/credit);
- total reset of ORION proficiency metric (3 tokens); and
- points on the final exam (3 tokens/point).

Course policies

Technology issues when submitting work

WileyPLUS ORION and Mastery assignments are submitted electronically. It is the student's responsibility to make sure these items are submitted on time, through any means necessary, even if technology issues arise. Technology issues that are avoidable or resolved with a simple work-around will not be considered valid grounds for a deadline extension. For example, if you are trying to upload to Canvas and Canvas won't accept the file, you should try again later or send the file as an email attachment until you can upload it successfully.

Academic Dishonesty

Your work on Learning Target Assessments must be done individually, and all collaboration is prohibited.

For most other assignments you are allowed and encouraged to work with others. However, the final product that you submit for feedback must be the result of your own efforts. Therefore you may share ideas and strategies with others, but collaboration on the actual finished product you submit is not allowed. Your work is expected to be the product of your own thinking, written and explained in your own words with no parts of the work copied from external sources such as books or websites, and done clearly enough in your own mind that you could explain the work from start to finish if asked. Specifically, this excludes:

- copying work from another student;
- copying work from a website;
- paraphrasing work done by another student or from print or internet resources—i.e. putting it in your own words—without coming up with the main ideas and strategies yourself; and
- *allowing or enabling* another student to copy or paraphrase work that you did, even if you did the original work yourself.

Violation of this policy is considered "academic dishonesty" and carries with it strong punitive measures mandated by Fresno State, including possible automatic failure of the course or suspension from the university. For details, please see APM 235 by going to http://www.fresnostate.edu/aps/documents/apm/235.pdf.

You may feel tempted to academic dishonesty at some point in the semester. The work can be difficult, and many of you are under a lot of stress. If you are considering academic dishonesty, please STOP, take a breath, and remember that your classmates and I want you to succeed in the course. You are not alone, and you have a strong network in the class for getting help. The revision and resubmission policies mean that it's OK to turn in work that isn't perfect. There is no need to be academically dishonest! Just do your best on the work, and you'll have the chance to revise it later.

LTA make-up policy

If you know in advance that you will miss an LTA (first attempt), and have a valid reason that can be verified by a document (e.g. a doctor's letter, or a letter from an athlete's sports team coach), I will decide on an individual basis. Notify me as soon as you confirm that you will not be able to take an LTA and I will arrange an alternative date/time for you.

Dropping the course after the census date

A *serious and compelling reason* is defined as an unexpected condition that is not present prior to enrollment in the course that unexpectedly arises and interferes with a student's ability to attend class meetings and/or complete course requirements. The reason must be acceptable to and verified by the instructor of record and the department chair. The condition must be stated in writing on the appropriate form. The student must provide documentation that substantiates the condition.

Failing or performing poorly in a class is not an acceptable "serious and compelling reason" within the University policy, nor is dissatisfaction with the subject matter, class or instructor.

Policy on children in class

Currently, the university does not have a formal policy on children in the classroom. The policy described here is thus, a reflection of my own beliefs and commitments to student, staff and faculty parents. I hope that you will feel comfortable disclosing your student-parent status to me. This is the first step in my being able to accommodate any special needs that arise. While I maintain the same high expectations for all student in my classes regardless of parenting status, I am happy to problem solve with you in a way that makes you feel supported as you strive for school-parenting balance.

I understand that minor illnesses and unforeseen disruptions in childcare often put parents in the position of having to chose between missing class to stay home with a child and leaving him or her with someone you or the child does not feel comfortable with. While this is not meant to be a long-term childcare solution, occasionally bringing a child to class in order to cover gaps in care is acceptable. In all cases where babies and children come to class, I ask that you sit close to the door so that if your little one needs special attention and is disrupting learning for other students, you may step outside until their need has been met.

University policies and disclaimers

In addition to course policies, you are expected to be familiar with Academic Regulations described in the University Catalog as well as policies listed below.

- Class Schedule Policies: http://fresnostate.edu/studentaffairs/classschedule/policy/
- Copyright Policy: http://libguides.csufresno.edu/copyright
- Students with Dissabilities: http://fresnostate.edu/studentaffairs/careers/students/interests/disabilities.html
- Academic Integrity: http://fresnostate.edu/studentaffairs/studentconduct/academic-integrity/
- Policy on Cheating and Plagiarism: http://fresnostate.edu/studentaffairs/studentconduct/policies/cheating-plagiarism.html
- Add/Drop Course: http://www.fresnostate.edu/studentaffairs/registrar/registration/