

CHEMISTRY 152: The Chemistry of Food and Cooking

Spring 2014

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Course Schedule

Lecture:	MWF 8:00 – 8:50 am in Heim 220
Lab:	Section N: T 1:00 – 2:50 in Heim 239 Section NT: T 3:00 – 4:50 in Heim 239

Office Hours: By appointment or just drop-by. If my office door is open, I am available. If you would like to set-up an appointment, check with me at class or send me an e-mail. Please be aware that I do not tend to check my work e-mail on evenings or weekends. If you need to reach me on an evening or weekend, please feel free to call me at my home.

Course Description

CHEM 152, The Chemistry of Food and Cooking, is a science distribution course for the non-science major. This course introduces students to chemical principles, with an emphasis on organic chemistry. Topics covered include: the chemical composition of food, the chemistry of nutrition, and the physical and chemical changes that occur during cooking. This course is not open to students who have received credit for CHEM 110.

Course Objectives

We will examine the common chemical components of food, both natural and unnatural, as well as the chemical and physical changes that occur during cooking. As this is a chemistry course, there will be a significant emphasis on chemical principles including: atomic and molecular structure, chemical bonding, solutions, phases of matter, organic molecules and their properties, molecular polarity and solubility.

This course supports the Mission of the College by exploring scientific traditions and developing communication and critical thinking skills. The college mission statement can be found at <http://www.lycoming.edu/aboutLycoming/mission.aspx>.

Distribution Requirement

Because this course can be used to fulfill a distribution requirement, it includes a writing component. At least 10 pages of writing will be completed by each student during the semester. The writing requirement will be met through lab reports and essay questions on exams and quizzes.

Any course used to fulfill the science distribution requirement must have a significant laboratory component. To receive a passing grade in this course, a student must earn a passing grade (60% or higher) in both the classroom and the laboratory portions of the course.

Text and Materials

- “Culinary Reactions: The Everyday Chemistry of Cooking” by Simon Field, Chicago Review Press, 2012.
- “Adventures in Chemistry” by Julie Millard, Houghton Mifflin, 2008.
- CHEM 152 Moodle site.
- Safety glasses or goggles, available at the College bookstore, must be worn at all times in the chemistry lab.
- Non-programmable scientific calculator for use on exams and quizzes.

Moodle

PowerPoint slides, reading and homework assignments, answer keys, and class announcements/important dates will be posted on the class Moodle site. *Please check this site regularly.* To access the site, go to moodle.lycoming.edu, login using your network ID and password, choose CHEM 152 and enter the course password: cook.

Grading Criteria

The final grade in the course will be determined using the criteria below. Final letter grades will be assigned as follows: >90.0% A, 80.0-89.9% B, 70.0-79.9% C, 60.0-69.9% D, <60.0% F. The ranges given include + and - grades (top and bottom 2% of range, respectively). *Please be aware that you must pass both the lecture and laboratory to receive a passing grade for the course.*

Intro. Survey	10 points
Quizzes (7)	70 points
Exams (3)	300 points
<u>Laboratory</u>	<u>95 points</u>
Total	475 points

Final Grade Interpretation (from the Lycoming College Catalog)

A	<i>Excellent:</i> Signifies superior achievement through mastery of content or skills and demonstration of creative and independent thinking.
B	<i>Good:</i> Signifies better-than-average achievement wherein the student reveals insight and understanding.
C	<i>Satisfactory:</i> Signifies satisfactory achievement wherein the student's work has been of average quality and quantity. The student has demonstrated basic competence in the subject area and may enroll in additional coursework.
D	<i>Passing:</i> Signifies unsatisfactory achievement wherein the student met only the minimum requirements for passing the course and should not continue in the subject area without departmental advice.
F	<i>Failing:</i> Signifies that the student has not met the minimum requirements for passing the course. A failing grade in the course may also result from academic dishonesty or from excessive unexcused absences.

Quizzes will be based on the notes, reading and homework assignments. They are intended to help you assess your progress and to alert you to any "trouble spots" before you take an exam. Quizzes will be given at the end of class on Wednesdays. The best seven quiz grades will be used to determine the final grade in the course.

Quiz dates: January 15, 22, 29
February 5, 26
March 12
April 2, 9

Exams consist of short answer and brief essay questions. A few calculation-based problems may be included. **Please note that only non-programmable calculators may be used on quizzes and exams.** The three exams are scheduled for the following dates:

Exam 1:	Friday, February 14
Exam 2:	Friday, March 21
Exam 3:	Friday, April 25 at 1:00 pm

Homework will be assigned, but not collected. Because many of the quiz and exam questions will be derived from the homework, it is to your advantage to complete each assignment and to see me for extra help if you are having difficulty with the homework. Answer keys for homework problems will be posted on the class Moodle site.

Laboratory

Labs are intended to illustrate the concepts we discuss in class. Some of our experiments will be “traditional” chemistry experiments and held in the chemistry lab. Others will involve food preparation and tasting and will be conducted in a classroom or kitchen facility.

The laboratory consists of ten experiments, nine of which count toward the final grade in the course. Thus, the lab grade will be based on nine experiments (10 points each) and a lab evaluation (5 points). The lab evaluation is based upon the following criteria: safety, lab hygiene, attendance/punctuality, and participation.

Lab Schedule: Most weeks will involve laboratory work. However, we will use three of the lab periods as exam review sessions. Attendance at all lab meetings is mandatory. Lab will start week 2 (after the drop-add period).

Week 1	No lab meeting
Weeks 2-5, 7-9, 11-13	Experimental work
Weeks 6, 10, 14	Exam review

Lab Safety: It is my goal to design experiments that are fun, informative, and safe. However, like all things in life, there are always risks. This is especially true in “traditional” chemistry labs where we use a variety of chemical reagents. As a result, there are certain precautions that are always followed in the chemistry lab. These include wearing safety glasses at all times, wearing protective clothing, never eating or drinking in the lab, etc. We take lab safety very seriously here and we will spend part of our first lab period discussing safety issues and rules. You will be expected to follow those rules while working in the lab. Realize that repeated violations will result in a significant reduction of the lab grade.

It is also important that you understand that each “lab space” has specific safety rules. The most stringent rules are in the traditional chemistry lab. Any food or drink that enters the lab is at risk of contamination by laboratory chemicals and therefore cannot be consumed. For experiments where we will need to taste our “experiment,” we will move to a regular classroom or kitchen facility.

Lab safety also includes laboratory hygiene. In the event that the lab or kitchen facilities are left dirty, points may be deducted from the entire section's lab grade. Additional information on laboratory safety will be discussed at the first lab meeting. If you have any questions regarding lab safety, please do not hesitate to ask!

Attendance Policy

Lecture: Regular attendance at lecture is required. I will expect you to arrive on time, remain in class for the entire 50 minutes, and participate in class. Missing part of a class (arriving late, leaving the room during class, leaving early, etc.), sleeping or reading, using electronic devices, or engaging in disruptive activities during class is equivalent to an absence and will be counted as such.

Students with more than four absences (for any reason) will have their final grade reduced by 5 points for each additional absence. Please note that I do not distinguish between excused and unexcused absences.

Quizzes, Exams and Laboratory Meetings:

Attendance is mandatory. In most cases, make-ups are **not** permitted or possible.

Quizzes: Missed quizzes cannot be made-up (this will be the quiz grade that is dropped).

Exams: Make-up exams are not given. However, an exception *may* be granted if I am notified **prior** to the absence and there are significant extenuating circumstances -- usually a case of medical or family emergency that must be documented (note from doctor, notification from the Dean, etc.). Missing an exam without prior approval from me will result in a grade of zero.

Labs: Missed labs cannot be made-up; however you need only complete 9 of 10 labs. In other words, you may miss one lab without any negative impact on your grade. If you anticipate having a conflict with multiple lab meetings (i.e. traveling with an athletic team, etc), please talk to me ASAP.

Academic Resource Center

If you feel that you would benefit from working with a tutor, please consider contacting one of the ARC chemistry tutors. A list of chemistry tutors can be found on the ARC website:

<http://www.lycoming.edu/academicResourceCenter/tutoringSchedule.aspx>.

In addition to tutoring services, the ARC also provides support for students with disabilities. If you have a diagnosed disability and choose to request academic accommodations to meet your needs, please consult with Mr. Dan Hartsock, Coordinator of Services for Students with Disabilities. His office is in the Academic Resource Center on the third floor of the Snowden Library (570-321-4294).

Electronic Devices

You will need a simple calculator for lab and occasionally for class. Graphing (programmable) calculators may not be used on quizzes or exams. **Cell phones, tablets and laptops are not permitted in class or in the lab.** If you have one with you, be sure it remains in your purse or backpack and is turned off. The presence and/or use of one of these devices during a quiz or exam will constitute an act of academic dishonesty.

Academic Integrity

Be aware that in accordance with the College's policy on academic honesty, any work you submit must be your own. Any instances of plagiarism, whether on a quiz, exam or lab report (including copying answers from a classmate), will be penalized to the fullest extent possible and reported to the Provost and Dean of the College.

Inclement Weather / Compressed Schedule

In the event of a delayed opening due to Inclement Weather, the College will operate classes on a compressed schedule starting at 10 AM. The campus community will be notified of a delayed start via email, the College's homepage, and the emergency text messaging system. Even with the compressed schedule option, be sure to check the Individual Course Cancellation page as weather conditions may prevent individual faculty from traveling to campus. <http://www.lycoming.edu/inclementWeather/>

In the event of a compressed schedule, our class will meet as follows:

On a Monday, Wednesday or Friday, class meets 10:00 – 10:45 am.

On a Tuesday, lab section N meets 2:00 pm – 3:20 pm and section NT meets 3:30 pm – 4:50 pm.