

Food Chemistry

FOS4311 Section:

Class Periods: MWF – Period 4: 10:40 am – 11:30 am

Location: Mechanical and Aerospace Building B 0211

Academic Term: Spring 2023

Instructor:

Name: Katherine Witrick

Email Address: Kthompsonwitrick@ufl.edu

Office Phone Number: (352) 294 3908

Office Hours: T/R: 10:00 – 12:00 in my Office or by appointment via Zoom

Office Location: Rm 214 Aquatic Foods Production Building

Office hours will be offered via in person. If you are unable to meet during office in person I am willing to meet with you by zoom. I will send the link and password directly to that individual. If you need to meet with me at other times during the semester you are encouraged to make an appointment (email or call). I generally have an open-door policy, but I may not always be in my office or available to meet with you if you decide to stop by unannounced. Appointments can also be made to ensure that I am available during an appointed time. Appointments will be made with consideration to my schedule.

I will try to answer individual student emails promptly during my stated office hours, and generally within 24 – 48 hours at other times. In order for your email to not get accidentally lost or buried in my inbox denote the subject headline with FOS4311 in your email.

Teaching Assistants:

Please contact them directly through E-mail

- TBA
- TBA

Course Structure

This course is an upper-level Food Science and Human Nutrition/Dietetics course. The purpose of this course is to help students understand, apply, and analyze (make connections) between the chemical reactions occurring within our food. Course materials will be composed of lecture slides, handouts, reading materials, and videos. Any additional reading material will be included on the exams. Students will be expected to participate in class lecturers and in-class assignments.

Course Description

Relationship of composition to the properties of foods and the changes which occur during processing, storage, and utilization.

Course Pre-Requisites

CHM 2200 or CHM 2210 (Organic Chemistry 1), CHM 2211 (Organic Chemistry 2) sequence (with labs) Biochemistry highly recommended but not required.

Course Co-requisites

FOS 4310L (Experimental Foods Lab) or FOS 4311L (Food Chemistry Lab)

Course Objectives

The core competency of this course is for students to differentiate chemical interactions and reactions of food components and their effect on sensory, nutritional, and functional properties of foods, and how processing influences these properties. Specific course goals are that you will be able to:

1. Classify components of food by chemical structure.
2. Students will be able to describe how the chemical components of a food impact the functionality of the overall food product.
3. Understand how the solvent system of the food affects overall food properties.
4. Will be able to predict the major reactions that occur in foods.
5. Students will be able to describe the fundamental structure/function relationships of foods and how they impact the overall food product quality, safety, and shelf life.

Recommended Text

The Introductory Food Chemistry textbook is strongly recommended for students pursuing a career in Food Science or needing additional explanation of chemical concepts.

- *Introductory Food Chemistry*,
Author: John W. Brady
Publication date and edition: *1st Edition*. 2013.
Publisher: Cornell University Press, Ithaca, NY.
ISBN 9780801450754
*Available for purchase from the UF bookstore, may or may not be available from off-campus bookstores, available on Amazon)

Other Useful Texts

- *Fennema's Food Chemistry*
Authors: S. Damodaran, K. Parkin, O. Fennema
Publication date and edition: 2007. 4th Edition
Publisher: CRC Press.
ISBN: 978-0849392726
- *Principles of Food Chemistry*
Author: John deMan
Publication date and edition: 1999. 3rd Edition
Publisher: Aspen Publishers, New York
ISBN: 9781461463894

Course Schedule

| Week | Date | Topics | Notes |
|------|----------------|--|--|
| 1 | 1/9 – 1/13 | Introductions Chapter 2: Water | Preassessment Opens (Due 1/18) |
| 2 | 1/16 – 1/20 | MLK Day: No Class (1/16) Chapter 2: Water | |
| 3 | 1/23 – 1/27 | Chapter 2: Water Chapter 4: Carbohydrates and Simple Sugars | |
| 4 | 1/30 – 2/3 | Chapter 4: Carbohydrates and Simple Sugars | Quiz 1 (opens 2/3) Due 2/10 |

| | | | |
|----|----------------|--|---|
| 5 | 2/6 – 2/10 | Chapter 4: Carbohydrates and Simple Sugars Chapter 4: Carbohydrates (Polysaccharides) Exam 1 (2/10) | Section 1: Food Label Due (2/10) |
| 6 | 2/13 – 2/17 | Chapter 4: Carbohydrates (Polysaccharides) | |
| 7 | 2/20 – 2/24 | Chapter 4: Carbohydrates (Polysaccharides) | |
| 8 | 2/27 – 3/3 | Chapter 5: Proteins | Quiz 2 (opens 3/3) Due 3/10 |
| 9 | 3/6 – 3/10 | Chapter 5: Proteins Exam 2 (3/10) | Section 2: Food Label Due (3/10) |
| | 3/13 – 3/17 | Spring Break Enjoy! | |
| 10 | 3/20 – 3/24 | Chapter 6: Enzymes | Section 2: Food Label Due (3/24) |
| 11 | 3/27 – 3/31 | Chapter 6: Enzymes Chapter 7: Lipids | Quiz 3 (opens 3/31) Due 4/7 |
| 12 | 4/3 – 4/7 | Chapter 7: Lipids Exam 3 (4/7) | |
| 13 | 4/10 – 4/14 | Chapter 9: Food Colors | |
| 14 | 4/17 – 4/21 | Chapter 9: Food Colors Chapter 10: Additives/Preservatives | Section 3: Food Label Due (4/21) Post-course assessment Opens (4/14) Due 4/21) |
| 15 | 4/24 – 4/27 | Chapter 10: Additives/Preservatives | Quiz 4 (opens 4/21) Due (4/28) |
| 16 | | Exam 4 – May 2 (3:00 – 5:00 pm) | |

Exam 1: Water and Simple Sugars and other Carbohydrates

Exam 2: Polysaccharides and Proteins

Exam 3: Enzymes and Lipids

Exam 4: Colors and Additives/Preservatives

Attendance Policy, Class Expectations, and Make-Up Policy

I do not have an attendance policy for the lecturer portion of this class, however in my experience it is best to try and attend every lecturer whenever possible. To encourage regular attendance to class I will have clicker questions that I will periodically ask throughout the class during the semester. No make-up clicker
Excused absences must be consistent with university policies in the Undergraduate Catalog and require appropriate documentation. Additional information can be found in Attendance Policies.

Evaluation of Grades

| <i>Assignment</i> | <i>Total Points</i> | <i>Percentage of Final Grade</i> |
|--------------------------|----------------------------|---|
| Exams (4@100 pts) | 400 | 46.3% |
| Quizzes (4*25 pts) | 100 | 15.3% |

| <i>Assignment</i> | <i>Total Points</i> | <i>Percentage of Final Grade</i> |
|--------------------------------|---------------------|----------------------------------|
| Food Label Term Paper | 100 | 7.7% |
| Daily Quizzes/Clicker Points | 50 | 7.7% |
| Pre and Post course Assessment | 50 | 7.7% |
| Total | 650 | 100% |

Grading Policy

The following is given as an example only.

| <i>Percent</i> | <i>Grade</i> | <i>Grade Points</i> |
|----------------|--------------|---------------------|
| 92.0 - 100.0 | A | 4.00 |
| 90.0 - 91.9 | A- | 3.67 |
| 87.0 - 89.9 | B+ | 3.33 |
| 82.0 - 86.9 | B | 3.00 |
| 80.0 - 81.9 | B- | 2.67 |
| 77.0 - 79.9 | C+ | 2.33 |
| 72.0 - 76.9 | C | 2.00 |
| 70.0 - 71.9 | C- | 1.67 |
| 68.0 - 69.9 | D+ | 1.33 |
| 62.0 - 67.9 | D | 1.00 |
| 60.0 - 61.9 | D- | 0.67 |
| 0 - 59.9 | F | 0.00 |

More information on UF grading policy may be found at:

[UF Graduate Catalog](#)
[Grades and Grading Policies](#)

Course Assignments

Exams

Students will be examined on the course materials in a series of **four** exams each worth 100 points. The format of exam questions will be a combination of multiple choice, true/false, fill in the blank, and short answer. The content of the exams will be based on lecture material (i.e., notes uploaded to Canvas), assigned readings, and any additional handouts or class assignments.

If a student has a conflict with the exam time, it is the student's responsibility to notify the instructor giving the exam, in writing, and schedule an alternative time to take the exam, **one week prior to the exam**. Rescheduling of an exam because of a medical emergency will require written documentation from a medical practitioner of the nature of the medical emergency and instructor will assess validity.

Quizzes

Four quizzes will be assigned a week prior to an exam. The quiz will open up a week before the exam and close at the start of class on the day of the exam. The quiz will consist of material that will be on your exam. The purpose of the quiz is to serve as a study aid for the exam. Quizzes will consist of similar type questions that you will see on your exam.

Reading Assignment

Reading assignments will be posted online in each exam module. You are expected to read them prior to their discussion in class. There will be exam questions based on the papers assigned.

Pre and Post Course Assessment

A pre-test will be assigned the first week course to evaluate everyone's knowledge of the material prior to the start of the course. A post-course assessment will be given at the end of the semester as well to evaluate how much each person has learned. Each student will be given a week to complete the assessment. The assessment will consist of multiple choice, true/false, and matching questions. Students will receive points participations for completing the pre-course assessment, while the post-course assessment will be graded.

In Class Participation

Class participation is extremely important. iClicker response (clickers) questions will be asked throughout the class period and recorded as a part of your grade. Along with iClicker questions, students will be asked to participate in group assignments. I will let everyone know the class period before the in-class group-assignment.

Food Label Term Paper

This is a semester long project. Consist of three parts. You will be required to produce a typewritten report with tables and the chemical composition of 3 food products found in a local supermarket. You are free to choose the products and can work as a group of up to 3 people to submit a joint report. (**Caution: Choose people you can depend on because you will all be receiving the same grade if you work as a group**). Details are under the Assignments tab. **Reports will not be accepted beyond 3 days late, and thus will result in a 0 (zero) grade.**

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the [Disability Resource Center](#). It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing . Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students online .

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." [The Honor Code](#) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules,

disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see the [Notification to Students of FERPA Rights](#).

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: , and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or .

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.

Library Support, Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints Campus

On-Line Students Complaints