

## **Food Chemistry**

FOS4311 Section:

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

**Location:** Florida Gym Rm 270

**Academic Term:** Spring 2024

### **Instructor:**

Name: Katherine Witrick

Email Address: [Kthompsonwitrick@ufl.edu](mailto:Kthompsonwitrick@ufl.edu)

Office Phone Number: (352) 294 3908

Office Hours: T: 10:00 – 12:00 in my Office or by appointment

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 also available to meet via zoom. I will provide the link and password directly to the individual requesting the meeting.

If you need to meet with me outside of my regular office hours, please feel free to make an appointment by emailing or calling me. While I generally have an open-door policy, I may not always be in my office or available for unscheduled drop. Making appointments ensures that I can allocate time to meet with you and accommodate my schedule accordingly. Appointments will be schedule with consideration to my availability during the semester.

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

### **Course Structure**

This course is an upper-level Food Science and Human Nutrition/Dietetics course. The objective of this course is to assist students comprehending, applying, and analyzing the chemical reactions that take place in foods. Course materials will consist of lecture slides, handouts, reading materials, and videos. Any supplementary reading material provided will be included on the exams. Students are expected to actively participate in class lecturers and in-class assignments to enhance their understanding and engagement with course concepts. This interactive approach will facilitate learning and application of key principles in Food chemistry.

### **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 by John W. Brady 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. Damordaran, K. Parkin, O. Fennema  
Publication date and edition: 2007. 4<sup>th</sup> Edition  
Publisher: CRC Press.  
ISBN: 978-0849392726
- *Principles of Food Chemistry*  
Author: John deMan  
Publication date and edition: 1999. 3<sup>rd</sup> Edition  
Publisher: Aspen Publishers, New York  
ISBN: 9781461463894

## Course Schedule

Week	Date	Topics	Notes
1	1/13 – 1/17	Introductions Chapter 2: Water	<b>Preassessment</b> Opens (Due 1/22)
2	1/20 – 1/24	<b>MLK Day: No Class (1/20)</b> Chapter 2: Water	
3	1/27– 1/31	Chapter 2: Water Chapter 4: Carbohydrates and Simple Sugars	
4	2/3 – 2/7	Chapter 4: Carbohydrates and Simple Sugars	<b>Quiz 1</b> (opens 1/29) Due 2/5 @ 11:59 pm

5	2/10 - 2/14	Chapter 4: Carbohydrates and Simple Sugars Chapter 4: Carbohydrates (Polysaccharides) <b>Exam 1 (2/14)</b>	Section 1: <b>Food Label Due</b> (2/10)
6	2/17 - 2/21	Chapter 4: Carbohydrates (Polysaccharides)	
7	2/24 - 2/28	Chapter 4: Carbohydrates (Polysaccharides)	
8	3/3 - 3/7	Chapter 5: Proteins	<b>Quiz 2</b> (opens 3/5) Due 3/12 @ 11:59 pm
9	3/10 - 3/14	Chapter 5: Proteins <b>Exam 2 (3/14)</b>	Section 2: <b>Food Label Due</b> (3/10)
10	3/17 - 3/21	Spring Break Enjoy!	
11	3/24 - 3/28	Chapter 6: Enzymes	
12	3/31 - 4/4	Chapter 6: Enzymes Chapter 7: Lipids	<b>Quiz 3</b> (opens 4/2) Due 4/9 @ 5 pm
13	4/7 - 4/11	Chapter 7: Lipids <b>Exam 3 (4/11)</b>	
14	4/14 - 4/18	Chapter 9: Food Colors	
15	4/21 - 4/23	Chapter 9: Food Colors Chapter 11: Food Toxicology	Section 3: <b>Food Label Due</b> (4/18) <b>Post-course assessment</b> Opens (4/16) Due 4/23) <b>Quiz 4</b> (opens 4/18) Due (4/25)
16		<b>Exam 4 - May 2 (7:30 - 9:30 am)</b>	

*Exam 1: Water and Simple Sugars and other Carbohydrates*

*Exam 2: Polysaccharides and Proteins*

*Exam 3: Enzymes and Lipids*

*Exam 4: Colors and Ingredients*

### ***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***

<b><i>Assignment</i></b>	<b><i>Total Points</i></b>
Exams (4@100 pts)	400
Quizzes (4*25 pts)	100

<b>Assignment</b>	<b>Total Points</b>
Food Label Term Paper	75
Daily Quizzes/Clicker Points	50
Pre and Post course Assessment	50
<b>Total</b>	<b>675</b>

### **Grading Policy**

The following is given as an example only.

<b>Percent</b>	<b>Grade</b>	<b>Points</b>	<b>Grade Points</b>
92.0 - 100.0	A	620 - 675	4.00
90.0 - 91.9	A-	607 - 620	3.67
87.0 - 89.9	B+	587 - 606	3.33
82.0 - 86.9	B	553 - 586	3.00
80.0 - 81.9	B-	540 - 552	2.67
77.0 - 79.9	C+	520 - 539	2.33
72.0 - 76.9	C	486 - 519	2.00
70.0 - 71.9	C-	459 - 485	1.67
68.0 - 69.9	D+	459 - 471	1.33
62.0 - 67.9	D	418 - 458	1.00
60.0 - 61.9	D-	404 - 417	0.67
0 - 59.9	F	0 - 404	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 through a series of **four** exams each worth 100 points. The 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.

In the event 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 an exam due to a medical emergency will require written documentation from a medical practitioner outlining the nature of the medical emergency, and instructor will assess validity of the request.

#### **Quizzes**

Four quizzes will be assigned one week prior to an exam. Each quiz will open on a Wednesday and close the following Wednesday. Quiz answers will be released on Thursday, allowing students to use them as study aids. Questions on the quiz will cover material that will be included on your exam. The purpose of

these quizzes is to serve as study aids for the exam, containing similar types of questions that you will encounter on the actual 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 during the first week of the course to evaluate everyone's knowledge of the material before the course begins. At the end of the semester, a post-course assessment will be given to measure each person's learning progress. Each student will have one week to complete the assessment, which will include multiple-choice, true/false, and matching questions. Students will earn participation points for completing the pre-course assessment, while the post-course assessment will be graded and contribute to their final evaluation.

### **In Class Participation**

Class participation is extremely important. iClicker response (clicker) 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 encounter learning barriers and wish to request academic accommodations should contact the Disability Resource Center (DRC). It is essential for students to provide their accommodation letter to their instructor and initiate a discussion about 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 . Your feedback is important and helps to improve the overall quality of instruction and student experience in the course.

### ***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 several 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](mailto: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](mailto: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**