

FOS 4321c - FOOD ANALYSIS

Credits and locations

4 Credits

Lectures, M, W, F - Period 3 (9:35-10:25 am), McCarty Hall B, room G108

Lab section I (2593), Friday 10:40-1:40 pm, FSHN building, room 310

Instructor:

Dr. Liwei Gu

Room 1, Food & Environmental Toxicology Lab (FETL)

Building 0685, 1642 SW 23rd Drive

on RTS bus route 9, 33, 36, 117, and 122

Phone: 352-294-3730

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Laboratory Manager:

Sharyn Passeretti lablizrd@ufl.edu 352-294-3957, FSHN room 333

Teaching assistants:

Lindsey Christman Lchristman@ufl.edu Food & Environmental Toxicity Lab, room 11

Rachel Gordon Rmgordon@ufl.edu Food & Environmental Toxicity Lab, room 12

Office hours

Wednesday 10:50-11:50 am. I have an open-door policy outside of office hour. You are welcome to call, email, or stop by our offices for questions or additional help. If you want to stop by make sure we are there before going out – so call first.

Course Prerequisites

CHM 2200, CHM 2200L or CHM 2210, CHM 2211, CHM 2211L

Course Description and Objectives

Students will learn chemical and instrumental methods to determine the content of various food components and nutrients that are important for food processing, nutritional value, and nutrition labelling.

- Gain better understanding of analytical chemistry, instrumental analysis, and official methods in food science
- Apply physical and chemical methods to analyze a variety of food matrices.
- Identify analytical problems associated with food analysis, given a sample for evaluation.
- Apply established analytical methods to determine physical and chemical characteristics, given a sample for analysis.
- Quantify, report, and interpret analytical data.
- Gain problems solving skills applicable to the analysis of foods of various matrices.

Required Text

S. Suzanne Nielsen. *Food Analysis, Fourth Edition*. (Springer Publishing Co.). An e-book is accessible through UF library at <http://www.uflib.ufl.edu/>. You can download PDF of each chapter from this e-book.

Course content

Lectures contain the basic principles of food analysis, data handling, and interpretation. Laboratory exercises will be introduced during weekly discussion sections and will detail the principals of each lab exercise. There will be **three** 50-minute lectures and **one** 2.5-hour lab experience per week. Plan on spending at least **6** hours a week with your class! All course content is available at [hppt://elearning.ufl.edu](http://elearning.ufl.edu).

- **Session I - Foundational Knowledge and Chemical/Physical Methods (I)**

- Chapter 1-3 READ on your OWN!!!
- Ch. 13 pH and Titratable Acidity
- Ch. 4 Evaluation of Analytical Data
- Ch. 5 Sampling and Sample Preparation
- Ch. 6 Moisture and Total Solids
- Ch. 7 Ash Analysis
- **Session II - Spectroscopic & Chromatographic Methods**
 - Ch. 21 Basic principle of spectroscopy
 - Ch. 22 UV, VIS, Fluorescence Spectroscopy
 - Ch. 27 Chromatography
 - Ch. 28 High Performance Liquid Chromatography (HPLC)
 - Ch. 29 Gas Chromatography (GC)
- **Session III - Chemical/Physical Methods (II)**
 - Ch. 10 Carbohydrate and Fiber Analysis
 - Ch. 8 Crude Fat Analysis
 - Ch. 14 Fat Characterization
 - Ch. 9 Protein Analysis
 - Ch. 15 Protein Characterization
 - Ch. 26 Mass spectrometry

Grading

1. Exams will be a combination of multiple choice, short answers, essays and problems.
2. Three non-cumulative examinations will be given on the following dates in class - 9/25/2019, 10/30/2019, 12/04/2019
3. Content review in class and a study guide will be provided before each exam.
4. Makeup will only be given with the advance permission of the instructor.

NOTE: Late materials will be deducted 5 points per day. Any dispute on grade should be sent to Dr. Gu within 5 days after a grade is released on e-learning. A late dispute will not be considered. Final grades will be assigned according to cumulative averages. Grades will be assigned according to UF grading policy.

Grading Scale

Contents	Points
Exams (3 @ 150 pts)	450
Assignments	
• Foundational knowledge (I, II, III, IV)	60
• Writing Assignment (10+40+15)	65
• Peer review of writing assignment	25
Laboratory	
Lab participation points (4x10)	40
Lab report points	250
Laboratory notebook (4x10)	40
Quizzes in laboratory or class	70
Total	1000

Grades	GPA	Percentage
A	4.00	93-100%
A-	3.67	86-93%
B+	3.33	81-86%
B	3.00	76-81%
B-	2.67	73-76%
C+	2.33	71-73%
C	2.00	69-71%
C-	1.67	66-69%
D+	1.33	64-66%
D	1.00	62-64%
D-	0.67	60-62%
E	0.00	<60%

Classroom Policies and Attendance

Students must attend all lectures and lab sessions. Justified absence and the UF attendance policy are available at <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>. Non-justified absence for the lab will result in a **ZERO** for the lab participation and lab report. Special circumstances need to be addressed with the instructor and will be assessed on a case by case basis. Cellular phones are disruptive and must be turned off in the classroom and laboratory.

Academic Honesty

In 1995 the UF student body enacted an honor code and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity

On all work submitted for credit by students at the university, the following pledge is either required or implied: "***On my honor, I have neither given nor received unauthorized aid in doing this assignment.***"

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, Student Honor Council, or Student Conduct and Conflict Resolution in the Dean of Students Office.

(Source: 2012-2013 Undergraduate Catalogs)

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor.

This policy will be vigorously upheld at all times in this course.

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.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/
 - Counseling Services
 - Groups and Workshops
 - Outreach and Consultation
 - Self-Help Library
 - Training Programs
 - Community Provider Database
- Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/