

FOOD3002A
FOOD ANALYSIS
Winter 2021

Instructor: Dr. Farah Hosseinian
318 Steacie Building
Phone: 613-520-2600 x 2048
Email: farah.hosseinian@carleton.ca

COURSE DESCRIPTION

In-depth principles and practices of food proximate analysis. Introductory concepts of food adulteration and detection. Throughout the course, students will be familiar to the principles, methods, and techniques of qualitative and quantitative physical, chemical and biochemical analyses of foods. Lecture topics will focus on common methods of proximate analysis and related techniques used in analysis of food and food ingredients. Also, common methods to distinguish adulterated foods from non-adulterated foods will be covered. **Prerequisite(s):** [FOOD 1001](#), [FOOD 2001](#), [FOOD 3001](#).

STUDENT LEARNING OUTCOMES:

1. Demonstrate an understanding of the basic scientific principles associated with each type of food analysis
2. Perform chemical and instrumental analysis of food products
3. Identify the appropriate methods of analysis to be used based on the investigation purpose (nutrition labeling, quality control, product development, food adulteration/food fraud, or scientific research)
4. Understand and evaluate the advantage & disadvantage of different analysis methods that can be applied to a specific food
5. Evaluate appropriate methods to improve food quality and safety
6. Communicate effectively gathered information by accurate and comprehensive data interpretation for each type of food analysis
7. Critical thinking for problem solving for food industry and government

COURSE SCHEDULE

Lectures – Via Big Blue Bottom (BBB)

Class 11:35 am – 12:55 pm

Tutorial: every two weeks

Laboratories –

A1: Wed 8:35 - 11:25am

A2: Tue 2:35 - 5:25pm

Office hours – under tutorial. Extra office hour: by appointment/sending email.

CLASS COMMUNICATION

This course will be supported by the *cuLearn*. It will be used to post announcements, lecture material, and marks. Students should ensure to sign-on to *cuLearn* in the first week of classes and refer to the *cuLearn* page for this course on a weekly basis. Failure to check electronic communication will not be accepted as an excuse for not meeting course requirements.

COURSE EVALUATIONS

<u>Project: Part a) Presentation/Problem solving:</u>	30%
<u>Project: Part b) Assignment: Report on presentation:</u>	20%
<u>Contributions on class discussion:</u>	10%
*Lab: (see the lab section on cuLearn)	30%
<u>Assignment/CU portfolio:</u>	10%

DEATAILS:

Project: Part a) Presentation/Problem solving:

Presentation (practical performance): In pair/group and related to specific food adulteration, identification, detection and analysis. One project TOPIC will be selected in pair (by students) and each student will present part of the topic individually (20 min each student). Grades will be given individually.

Expectations:

First, describe the specific issue/problem (tell the whole story) and then discuss/highlight the method of analysis. It is important to be knowledgeable on the topic and terms in order to perform a worthy knowledge transfer to the audiences. For example, if the sources of adulteration, their chemistry, and mechanisms of actions, efficacy, and safety are included in the presentation, you need to understand them in order to transfer the knowledge to others. You act as an educator!!

Breakdown marks for Student Performance on Presentations (out of 30%).

Performance	Mark
Ability to understand the topic	4
Clearly talking about objectives	3
Contribution to discussion	4
Promote others to be involve in the discussion	4
Speaking audibly and clearly	3
Beginning and ending properly	3
Ability to make conclusion	3
Answering questions	3
Timing	3
TOTAL (30%)	

Project: Part b) Assignment: Report on presentation:

Written document/2-3 pages to explain your presentation, double space/Time New Roman format/font 12)

Reference format: Journal of Food Chemistry. You can use EndNote software (available at CU) for your references.

Breakdown marks for Project: Part b: Students' report on presentation (20%)

Performance	Mark
Contribution to existing knowledge/ Ability to understand the topic	3
Organization and readability	3
Adequacy of literature review	3
Clearly talking about objectives and methodology logically and feasible/practicable	3
Evidence supports data provided/Results and discussion	3
Ability to make conclusion	2
References (in text) and at the end	3
TOTAL	20

Assignment/CU portfolio (10%): discuss/practice to find fundamental connections between student experiences in food analysis course, activities/accomplishments with other courses helping e.g. profession, skills and future career.

Useful resources/Textbook (not mandatory):

- Food Analysis, Third Edition. S. Suzanne Nielsen (ed.) 2003. Aspen Publishers, Gaithersburg, MD., (Available at the Carleton University Bookstore)

Other recommended resources:

- Food analysis: theory and practice, Third Edition. Y. Pomeranz and C.E. Meloan. Chapman and Hall, New York, NY. TX541.P64 1994.
- Chemical Analysis of Foods, Third Edition. S. Suzanne Nielsen (ed.) 2003. Aspen Publishers, Gaithersburg, MD.
- Food Analysis Laboratory Experiments. C.E. Meloan and Y. Pomeranz. AVI Publishing Company, Westport, CT. 1973.

Course Outline:

Lecture #	Title
1	Introduction
2	Data evaluation-Moisture
3 &4	Fat analysis Part 1 Fat analysis Part 2
5	Food Adulteration: Table olives and olive oil
6 & 7	Protein analysis_Part 1 Protein analysis_Part 2
8	Food Adulteration: Meat
9	Sugar analysis
10	Starch gelatinization & Hydrocoloids
11	Food Adulteration: Colour
12 &13	Phytochemicals_Part 1 Phytochemicals_Part 2
14	Green Techniques_SC-CO2
15	Food Adulteration: Coffee and tea
16	Food Adulteration: Dairy, juice and honey
17	Sensory Analysis

PLAGIARISM AND CHEATING

It is an instructional offense to use or pass off as one's own an idea or product which is the work of another without expressly giving credit to that other. It is also an instructional offense to copy the work of a fellow student. If students do plagiarize or cheat, the Dean's Office will be notified and appropriate action will be taken.

ACADEMIC ACCOMODATIONS

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

Pregnancy obligation –

Write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website

http://www.carleton.ca/equity/accommodation/student_guide.htm

Religious obligation –

Write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website:

http://www.carleton.ca/equity/accommodation/student_guide.htm

Students with disabilities requiring academic accommodations -

Students must register with the Paul Menton Centre for Students with Disabilities (PMC) for a formal evaluation of disability-related needs. Documented disabilities could include but are not limited to mobility/physical impairments, specific Learning Disabilities (LD), psychiatric/psychological disabilities, sensory disabilities, Attention Deficit Hyperactivity Disorder (ADHD), and chronic medical conditions. Registered PMC students are required to contact the PMC, 613-520-6608, every term to ensure that I receive your Letter of Accommodation, no later than two weeks before the first in-class test/midterm requiring accommodations. If you only require accommodations for your formally.