

2013-9 NFS386H1F Food Chemistry

Course Description:

This course deals with the chemical composition of food; physical, chemical and biochemical reactions and the impact of these reactions on food quality during postharvest/ postmortem processing, storage and utilization.

Prerequisites: CHM 138H

Recommended preparation: NFS284H

Learning objective:

By the end of this course you will be able to describe:

- the relationship between the chemical composition of food and food quality;
- explain why certain ingredients are used in foods;
- explain the rationale for certain food processes.

Instructor:

Debbie Gurfinkel debbie.gurfinkel@utoronto.ca

Office Hours: Fri 1-5 pm Sept 13-Dec 6 inclusive; if these hours are not suitable e-mail for an appointment at an alternate time.

Office: FS142, 150 College St.

Course Location, Time, Website: Classes are held Tuesday 9 AM – 12:00 noon.

Location: Sanford Fleming Building: SF1105

The course website is available on your Portal page.

Textbooks:

There is no required textbook for this course.

Some basic texts that you might find useful, especially as a reference for your assignments, are available online from the library:

Coulter, T. P. (2009). Food - The Chemistry of its Components (5th Edition). Royal Society of Chemistry. Online version available at:

<http://app.knovel.com/hotlink/toc/id:kpFTCCCE001/food-chemistry-its-components>

Hui Y. H. (ed). (2006). Food biochemistry and food processing 1st ed. Blackwell Publishing Professional.

<http://books.scholarsportal.info.myaccess.library.utoronto.ca/viewdoc.html?id=/ebooks/ebooks2/wiley/2011-12-13/1/9780470277577>

Frederick F (ed). 1999. Wiley Encyclopedia of Food Science & Technology. 2nd ed. Vol 1-4.

http://myaccess.library.utoronto.ca/login?url=http://www.knovel.com/web/portal/browse/display?_EXT_KNOVEL_DISPLAY_bookid=681

Belitz HD, Grosch W, Schieberle P. 2008. Food Chemistry. Springer-Verlag.

<http://www.springerlink.com.myaccess.library.utoronto.ca/content/x2117v/?p=b52e7d7f1c0a40dcb3f4363daf4f0dfc&pi=0>

Vaclavik VA, Christian EW. 2008. Essentials of Food Science. Springer

<http://www.springerlink.com.myaccess.library.utoronto.ca/content/k24270/?p=4cfd4a4421dd485286a80ac4b484e085&pi=0>

Print books available at short term loan in the Gerstein library include:

- Damodaran and others. 2008. Fennema's Food Chemistry 4th ed. Boca Raton CRC Press.
- Wong DWS 1989. Mechanism and theory in food chemistry. New York. Van Nostrand Reinhold.
- Murano, P. S. Understanding Food Science and Technology. Selected chapters. Custom Publication.

Course Outline:

Date	Topic
Sept 10	Course Overview; Major concepts in food science and technology; Sensory Evaluation Food processing
Sept 17	Library Research in food chemistry; discussion of assignments; reading assignment
Sept 24	Water
Oct 1	Carbohydrate Chemistry: Monosaccharides, disaccharides, artificial sweeteners, polyols, polysaccharides
Oct 8	TERM TEST (multiple choice-open book)
Oct 15	Carbohydrate Chemistry concluded
Oct 22	Lipid chemistry: fatty acid chemistry; commercially-important fats and oils; manufacture of regular and calorie-reduced margarines; oxidation and rancidity; emulsions and emulsifiers; salad dressing; fat replacers
Oct 29	Lipids, concluded
Nov 5	Protein chemistry: amino acid chemistry; peptides; flavour enhances; hydrolyzed vegetable protein; browning reactions; milk proteins; casein and casein micelles; whey proteins; fluid milk and pasteurization; yogurt and cheese; egg proteins; sweet proteins
Nov 12	November break-NO CLASS
Nov 19	Protein chemistry, concluded Meat products: post-mortem changes; myoglobin pigments and the curing of meats; comminuted meat products
Nov 26	Plant products: major cereal grains; legumes; vegetable pigments and flavouring compounds; fruits and the ripening process; coffee and tea
Dec 3	Technologies in the vitamin and mineral fortification of food

Assessment	Value (%)	Due Date
Scientific writing quiz: online: available until Sept 27 3:00 pm	1	Sept 27
Assignment Question: online: available until Oct 2 11:59 pm	2	Oct 2
Term Test (Open Book-multiple choice-on all material covered up to end of lecture Oct 1 including Food Chemistry Reading Assignment	23	Oct 8
Annotated bibliography	4	Oct 15
Research Paper	30	Nov 19
Final Exam (Open book-multiple choice-covers all lecture material, ~90% of final exam will be on material from Oct 18 onward).	40	Dec exam period
Total	100	

The term test and exam in this course will be open-book multiple choice. You will be able to bring any print material into the test that you feel will assist you. To prepare for your exam you should concentrate on understanding the lecture material and organizing it in a way that will allow you to find information quickly. While recall is less important in an open-book exam compared to a conventional one, you still have to recall content sufficiently to be able to find it in your notes quickly. If you can't find information quickly, you will run out of time.

Important course policies:

Late submission of assignments:

A hard copy of each assignment is due **at the beginning of class** on the due date.

Assignments will be accepted after class, **on the due date**, but there will be a **10% penalty** (Initial grade 85%-10% penalty = 75% final grade). Submit the assignment directly to Dr G (FG142) on Tuesday or leave your assignment in the main office of the Department of Nutritional Sciences (FG 316). Have it stamped "received" and dated.

The **hard copy** of your assignment is the only version which will be graded; submitting your assignment to Turnitin or by e-mail as "proof" of its timely completion is **NOT** acceptable; timely completion includes the budgeting of travel time to ensure you can submit your hard copy.

NO ASSIGNMENT WILL BE ACCEPTED after the due date except for compelling reasons such as illness or personal distress. Please contact Dr G by e-mail (debbie.gurfinkel@utoronto.ca) to request an extension, prior to the due date. You will be asked to provide a reason for the request. This can be a written explanation from you or a medical certificate <http://www.illnessverification.utoronto.ca/getattachment/index/Verification-of-Illness-or-Injury-form-Jan-22-2013.pdf.aspx> Verbal explanations can also be provided. All discussions are treated as confidential. Students dealing with intense or ongoing personal distress or chronic illness, who may need special and continuing accommodation, may be asked for additional documentation and are advised to discuss their situation with their college registrar.

Please note that poor time management, having several assignments due at the same time, having to study for term tests, etc are NOT compelling reasons for an extension. Students are expected to complete their assignments as best they can, hand them in on time, even if incomplete, and accept that they may not get as high a grade as they would like.

If you feel you have a compelling reason that cannot be easily documented or are uncertain if your reasons are compelling, you should ideally discuss this with Dr G before the assignment due date. If this is not possible then **FIRST** hand-in as much of the assignment as you possibly can on the due date and **THEN** contact Dr G to discuss your situation.

Missed term test.

Except for compelling reasons such as those described in the policy regarding late assignments, all students will be given a grade of ZERO if they miss the term test. There are NO MAKE-UPS. If you miss the term test (worth 23%), for compelling reasons, your final exam will be worth 63% of your final grade (23% +40%). If you miss the term test, please contact Dr G IMMEDIATELY.

Any documentation related to a missed test or late assignment should be submitted to Dr Gurfinkel personally during office hours or lecture or left in a sealed envelope (to preserve your privacy) in the main office of the Fitzgerald building, FG 316, 150 College St (advise Dr G by e-mail that your documents are there).

Reassessment of assignment grades:

If you would like Dr G to recheck the way your assignment has been graded, please submit in WRITING a BRIEF explanation of where you believe an oversight has occurred. You may underline or highlight the relevant portions. The portions highlighted along with the remainder of the assignment will be reviewed and **your grade can go up, down or stay the same**. Dr G's decision is final. Please note that the higher your initial grade, especially > 80%, the less likely an upward adjustment of marks will occur.

You can hand in requests to Dr G personally during class or office hours or leave your paper in main office of the Department of Nutritional Sciences, Rm 316 Fitzgerald Building.

Deadline for annotated bibliography requests: **One week after assignment is returned.**

Deadline for research paper requests: **One week after assignment is returned or the date of the final exam, whichever comes first.**

Check "My grades" to find any changes to your grade. If Dr G has reviewed your paper and has not changed your mark this will also be indicated in the comments section.

Missed final exam:

Policy regarding a missed final exam is determined by the Faculty of Arts and Science. If you have compelling reasons for missing your final exam, contact your college registrar to file a petition. Do this quickly, there are deadlines. You must provide documentation to support your petition. If your petition is accepted you will be permitted to write a deferred exam. For NFS386, these exams usually take place during Reading Week. A deferred exam fee (approximately \$70) must be paid.

Turnitin

"Normally students will be required to submit their assignments to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their assignments to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site."

In order to submit your assignments to Turnitin you will first need to set up an account. If you have not already done so, here are the instructions: https://www.turnitin.com/newuser_type.asp?lang=en_us

You will need the following information to set up your account and submit assignments:

Class ID: **6916169** Password: **chem386**

If you have problems that prevent you from submitting to Turnitin, please contact Dr Gurfinkel to discuss alternatives. All students are expected to either submit to Turnitin, which is voluntary, or provide an alternative. Failure to do so could result in **a grade of ZERO for the assignment**. For those who do not submit to Turnitin, as an alternative you will be expected to meet with Dr Gurfinkel for a short **oral test** during which you will be asked questions about the writing of the assignment and its content. Your assignment grade may be changed based on how well you answer these questions.

Lecture material, audio recordings, and intellectual property

Lecture presentations and course materials are the intellectual property of the instructor. All students enrolled in NFS386 are permitted to use the material for personal study. You may also make audio recordings of the lecture for personal use, but if you bring a recording device to the front of the classroom, you do so at your own risk. These devices do get lost or stolen.

A forum has been set up on the course discussion board and students who are willing to share their audio recordings with their classmates can post audio files there. Students are NOT permitted to post these audio files in any other location, except personal and private online repositories, without the permission of Dr Gurfinkel.

Academic Integrity

Students are expected to conduct themselves with academic integrity. The Code of Behaviour clearly describes activities that are considered academic misconduct:

<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>

Students are urged to regularly review the code as ignorance of the rules is not an acceptable excuse.

Accessibility Needs:

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible: <http://www.accessibility.utoronto.ca/>