

2017-9 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/post-mortem processing, storage and utilization.

Prerequisite: CHM138H/CHM139H/CHM135H/CHM136H or equivalent 1st year university chemistry course

Recommended preparation: NFS284H

Learning objectives:

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.

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Office Hours: Fri 1-5 pm Sept 8-Dec 8, 2017 inclusive, except Sept 22 (office hours cancelled). If you cannot make Friday hours, please e-mail for an appointment at another time.

Course Location, Time, Website: Classes are held on Tuesdays 9 AM – 12:00 noon, beginning Sept 12, 2017

Location: MP203, McLennan Physical Laboratories 255 Huron Street. 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, as references for your assignments, are available online from the library:

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>

Clark, S ; Jung, S ; Lamsal, B. 2014. Food processing: principles and applications. Wiley Blackwell.

<http://books.scholarsportal.info.myaccess.library.utoronto.ca/viewdoc.html?id=/ebooks/ebooks3/wiley/2014-07-31/1/9781118846315>

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:kpFTCE001/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>

Nielsen, S. S. 2010. Food analysis. Springer.

<http://books.scholarsportal.info.myaccess.library.utoronto.ca/viewdoc.html?id=/ebooks/ebooks2/springer/2011-04-28/5/9781441914781>

Ramaswamy, H. S and Marcotte, M. 2006. Food processing: principles and applications. CRC Press.

<http://books.scholarsportal.info.myaccess.library.utoronto.ca/viewdoc.html?id=/ebooks/ebooks2/taylorandfrancis/2013-03-25/2/9780203485248>

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 12	Course Overview Concepts in food science and technology Sensory Evaluation Food Processing
Sept 19	Discussion of Course Assignments
Sept 26	Water
Oct 3	Carbohydrate Chemistry: Monosaccharides, disaccharides, artificial sweeteners, polyols, polysaccharides
Oct 10	TERM TEST (multiple choice-open book)
Oct 17	Carbohydrate Chemistry concluded
Oct 24	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 31	Lipids, concluded
Nov 7	November break –NO CLASS
Nov 14	Protein chemistry: amino acid chemistry; peptides; flavour enhancers; 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 21	Protein chemistry, concluded Meat products: post-mortem changes; myoglobin pigments and the curing of meats; comminuted meat products
Nov 28	Plant products: major cereal grains; legumes; vegetable pigments and flavouring compounds; fruits and the ripening process; coffee and tea
Dec 5	Technologies in the vitamin and mineral fortification of food

Assessment	Value (%)	Due Date
Scientific writing quiz: online : available until 9 AM	1	Fri Sept 29 (9 AM)
Assignment Question: online : available until 9 AM	2	Fri Oct 6 (9 AM)
Term Test (Open Book-multiple choice–on all material covered up to end of Week 4 including Food Chemistry Reading Assignment)	23	Tues Oct 10
Annotated bibliography: online : Blackboard and Turnitin link (2 submissions)	4	Tues Oct 17 (9 AM)
Research Paper: online Blackboard and Turnitin link (2 submissions) and hard copy due at beginning of class	30	Tues Nov 14 (9 AM)
Final Exam (Open book-multiple choice-covers all lecture material, ~90% of final exam will be on lectures after the term test).	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 information, on paper, into the test that you feel will assist you; this can be course materials from Blackboard e.g. PowerPoint slides, your personal notes, publications, textbooks, dictionaries, etc. To prepare for your exam you should concentrate on

understanding the lecture topics and study sufficiently to be able to recall most of the course information, in a way that is no different from a conventional test or exam. The advantage of the open-book exam is that you have the ability to double check information and you won't blow a question just because you can't recall a specific fact. But to exploit this advantage fully, you have to organize the material that you bring into the test room, in a way that will allow you to find information quickly. If you can't find information quickly, you will run out of time. Also, don't get lulled into a false sense of security. You won't have time to check every single question; you still need to know your stuff!

Important course policies:

NO ASSIGNMENT WILL BE ACCEPTED after the due date and time for online submission except for compelling reasons such as illness, personal distress, or family emergency. Please contact Dr G by e-mail (debbie.gurfinkel@utoronto.ca) to request an extension, prior to the due date, if at all possible. 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/index.php>. Verbal explanations can also be provided (Dr. G's phone: 416-978-3621). 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 generally 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. You will be asked to provide an explanation for your absence; see description above, in late assignments section, for ways to do this.

Reassessment of assignment grades:

If you have concerns about the grades on any of your assignments, you may request a re-read. Details on how to do this are described in the assignment handout.

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."

A link for submission of assignments, to Turnitin, will be available on Blackboard.

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.

Dr. Gurfinkel reviews the Turnitin submissions and will e-mail students if there are any concerns about their writing. Often this is no more than a discussion of how to properly paraphrase and/or cite references, but the deduction of marks may also result. Failure to respond to such an e-mail **will** result in the deduction of assignment marks. If a serious case of plagiarism is suspected, the student's assignment will be forwarded to the Office of Academic Integrity for review and possible sanction.

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 only. You may also make audio recordings of the lecture for personal use. Posting of audio or visual lecture material online, outside of the course website on Blackboard at U of T, however, is not permitted without the permission of the instructor.

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/>