

COURSE OUTLINE

FDSC 6133

Introduction to Food Lipid Chemistry

Fall Even Years

Instructor: A. Proctor, Ph.D.
Professor
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Catalog Description: FDSC 6033 Food Lipid Chemistry.
Chemistry and technology of commercial fats and oils in food systems with discussion of lipid changes affecting food quality and human health.

Textbook: Proctor, A. 2004. Introduction to Food Lipids. Professor.
series of handouts with homework problems

References:

1. Food Lipids, C.C. Akoh and D.B. Min. Marcel Dekker
2. Baileys Industrial Fats and Oils Products. Vol.1-5. Ed. Y. Hui. Wiley.
3. Soybeans, Chemistry, Technology and Utilization. Ed. K. Lui.
4. Food Analysis, S.S. Nelson. Aspen Publication.
5. Food Chemistry. O. R. Fennema. Dekker.
6. Lipid Oxidation: E.N. Frankel. The Oily Press.
7. Oil Crops, Situation and Outlook 2003. USDA Economic Research Service.
8. Journal of the American Oil Chemists Society
9. INFORM
10. Lipids
11. Journal of Food Science
12. Food Chemistry
13. Journal of Agricultural and Food Chemistry.

Course Objectives: The course is designed to give students an understanding of basic and applied chemistry of lipids and their effect on food quality, including lipid oxidation. Commercial oil and fat processing, economics, their role as food ingredients and impact on human health will be explored.

Class Procedures: Three 50 minute lectures per week.

Assignments: Students will be assigned readings as handouts that will include homework problems to reinforce discussions. Scientific papers also will be assigned for reading and class discussion.

Projects: None

Evaluation Methods: All assignments and exams will be expected to be of professional quality. No late work will be accepted without prior approval from the instructor. No make up exams will be given except for exceptional circumstances. The grade for the course will be determined as follows.

<u>Category</u>	<u>Weight</u>
Hour Exams	50%
Take-home final	50%

<u>Composite Score</u>	<u>Grade</u>
90-100%	A
80-89%	B
70-79%	C
60-69%	D
<60%	F

Attendance: Attendance is optional, but it will affect your class participation and component of the final grade. Excused absences such as illness, official trips as part of other courses and religious holidays will not count against class participation. Please notify the instructor of an expected absence as soon as possible.

Announcements: E-mail will be used to send important announcements. Therefore, it is important to check your E-mail regularly.

Students with disability: If you need an accommodation due to disability, please discuss this with the instructor in the first two weeks of the semester

Lecture topic and tentative schedule

Week	Topic	Reading
1	Course introduction Lipid characteristics and classification	Handout/ problems
2	Source, composition and economics of commercial fats and oils	Handout/ problems scientific paper
3	Lipid analysis	Handout/ problems scientific paper
4	Lipid crystallization and polymorphism	Handout/ problems scientific paper
5	Exam Food emulsions	Handout/ problems scientific paper
6	Emulsifiers	Handout/ problems scientific paper
7	Vegetable oil processing	Handout/ problems scientific paper
8	Production of common lipid based foods Deep fat frying	Handout/ problems scientific paper
9	Lipid oxidation mechanisms	Handout/ problems scientific paper
10	Lipid oxidation mechanisms Exam	Handout/ problems scientific paper
11	Lipid stability measurement	Handout/ problems scientific paper
12	Lipid oxidation measurement	Handout/ problems scientific paper
13	Control of oxidation	Handout/ problems scientific paper
14	Antioxidants	Handout/ problems scientific paper
15	Oxidation and antioxidants in multiphase systems Oxidation and antioxidants in biological systems	Handout/ problems scientific paper
16	Take home Exam	