Course Syllabus/Outline
Food Chemistry, FS 410
Fall 2015

Section 1: Water Relations in Foods (8-9 lectures)
Sept. 3 Introduction: Overview of Food Chemistry. Major and minor constituents of foods; Intro to water.
Sept. 3 Physical properties of water and ice; water structure
Sept. 8 Water – solute interactions
Sept. 10 Water – Solute Interactions
Sept. 15 Water activity concepts – their relation to physical, chemical, and microbiological stability of foods.
Sept. 29 Molecular mobility concepts – state diagrams, glass transition and its relation to food stability. Conclusion of water section.

Section 2: Proteins (6-7 lectures)
October 1 Properties of amino acids and protein structure
October 6 Protein Structure; Protein folding

OCTOBER 6: First Prelim (Water relations in Foods)
(Evening exam: 5:30-7:00 PM, Venue: Room 1520, Microbial Sciences)
October 8 Protein denaturation
October 13 Chemical changes in proteins during processing
October 15 Functional properties of proteins in foods
October 20 Wheat proteins – dough formation
October 22  Milk proteins

Section 3: Carbohydrates (6 lectures)
Oct. 27  Mono- and di- saccharides (sugars)
         Nomenclature and structure
Oct. 29  Properties, Muta-rotation, Chemical reactivity, Maillard reaction
Nov. 3   Polysaccharides (polymers and gums): Starch and cellulose

November 3: Second Prelim (Tuesday) 5:30 – 7:00 PM (Proteins section)

Nov. 5  Pectin
Nov. 10 Gums and Hydrocolloids
Nov. 12 Gums and hydrocolloids

Section 4: Lipids (5 lectures)
Nov. 17 Introduction, Nomenclature and Structure; Characteristics of lipids from various sources
Nov. 19 Lipid classes; Lipid processing
Nov. 24 General reactions of lipids; Lipid oxidation
Dec. 1   Lipid oxidation
Dec. 3   Physical properties

Section 5: Enzymes (3 lectures)
Dec. 8   Nature of enzymes
Dec. 10  Applications in Food industry
Dec. 11  Control of enzyme action in foods

Final Exam: December 17, 7:45 AM – 9:45 AM
Grading:

The tentative dates for exams:

Exam #1 – Tuesday, October 6 (5:30 – 7 PM) 30%
Exam #2 – Tuesday, November 3 (5:30 – 7 PM) 30%
Exam #3 – December 17 (Final Exam) (7:45 – 9:45 AM) 30%

Three homework/Problem sets : Half-way between the prelims - 10%

Textbook:


Power point lecture slides will be posted and updated periodically at Learn@UW. Typically, more information is covered in the class than what you would see in ppt slides. To fully understand the course material, you should attend all class hours. If for some valid reasons you miss a class or portions of a class, see the instructors to catch up on the missed lectures.

Office hours: Walk-in or make appointments via email.