

Cereal Science and Technology, Spring 2017 SYLLABUS
Dual Level Course - FOS 6936 (1629) / FOS 4936 (05BA)
3 units credit

Lectures: Location Wednesdays at (R106), Period 2-3
and Thursdays at (R210), Period 3

Instructor: Dr. Gloria Cagampang
Office: Rm 467 FSHN
Phone: 352-256-2616
e-mail: cagampang@ufl.com

Office Hours: (7:30 AM to 4:00 PM Wednesdays to Fridays)

Course Description:

The course is designed for Masters, PhD, and graduating candidates in the Department of Food Science and Human Nutrition and it involves 3-credit hours of lectures. The lectures deal on the basic science of the 5 leading cereal grains (rice, corn, wheat, sorghum, and barley with emphasis on their physicochemical and biochemical properties and their relevance on the processing, application and utilization of the cereal grains in foods.

Prerequisites: Undergraduate courses in general and organic chemistry.

Objectives:

1. To provide the general knowledge on the agronomy, production and trade of the above cereal grains in the domestic and global markets.
2. To provide the basics of the critical parameters involved in the utilization and subsequent handling involved in the preservation of their quality.
3. To provide the basic chemistry of cereal grains with focus in the understanding of the relevance of their physicochemical and biochemical properties in their functions as ingredients in foods.
4. To provide knowledge and understanding of the changes and reactions of the cereal grains in the food system influencing the quality and stability of the finished food.
5. To provide the fundamentals of the metrics for assessing the quality of cereal grains that are relevant to the safety of their usage as ingredient in the food system.
6. To provide the updated knowledge on the nutritional and health benefits of the constituents of the grains focusing on the myths and

realities as ingredients in foods.

Format: Lectures will involve discussions on relevant issues and further clarifications on the topics. Term papers on the cereal grains not discussed in the lectures will be encouraged for additional credits.

Exams: Two written exams involving the applications of the knowledge gained in the lectures and discussions. **The schedule of the exams will be determined and posted in the Schedule of Lectures.**

Grading:	Percent of Grade
Written examinations (3) -----	90
Term paper and attendance -----	10

The current grading system of the University of Florida that includes the use of minus grades will be followed.

All Lecture Materials: Posted in the Canvas

Additional reading references

- Chemistry and Technology of Cereal Grains 2015
- Principles of Cereal Science and Technology, Third Edition 2010
- Current articles in the Cereal Chemistry Publications 2016-2017
- World Wheat, Corn, and Rice. June 10, 2015.

Course Content:

1. Part I – Structural Components of Cereal Grains.
2. Physical properties of cereal grains.
3. Evolution of Business Initiatives: supply chain and trade challenges in the domestic and global markets.
4. Processing of cereal grains.
 - a. Harvesting and treatment
 - b. Grading
 - c. Milling
 - d. Product separation
 - e. Storage and handling
5. Genetic modifications of cereal grains: Improvement of Nutritional Values
6. Chemistry and stability of cereal products
7. Chemistry & Stability of fats & oils
8. Heart Healthy Grains : Information on health benefits

All Lecture Materials: Posted in the Canvas

Schedule of Examinations:

Examination #1- Date will be posted

Examination #2- Date will be posted

Examination #3 -Date will be posted

Lecture Schedules: List will be posted in Canvas

Protocol during classes & laboratory:

1. Turn off cell phones
2. Raise hands for discussions, clarifications, & questions : The course is meant to be interactive. One conversation at a time.
3. Enough time will be provided for note taking.