

Grain Technology in Food Science, Spring 2021 SYLLABUS
Dual Level Course - FOS 6936 (1629) for graduates/ FOS 4936
(05BA) for undergraduates)
3 units credit

Lectures: ONLINE (virtual, via Zoom): Lectures Period 8:30-10:25 AM for OSBA and for 1629 on Thursdays and 8:30- 9:30 AM for OSBA and for 1629 on Fridays.

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Office: 7:30 AM to 3:30 PM (Wednesdays to Fridays)

Course Description:

The course is designed for PhD, Master, and graduating candidates in the Department of Food Science and Human Nutrition and it involved 3-credit hours of lectures. The lectures deal on the basic science of the 5 leading cereal grains (rice, corn, wheat, sorghum, millet, barley, and oat with emphasis on their physical, chemical, and biochemical properties and their relevance on the processing, application and utilizations of the cereal grains in foods. Attendance to all the lectures are mandatory and will be part of the final grade for the course. Consistent attendance in the lectures carries major influence in the learning process with satisfactory grades.

Prerequisites: Undergraduate courses in general and biochemistry.

Class attendance and make- up work: Requirements for class attendance and make-up exams, assignments, and other work in this course re consistent with university policies. **Click here to read the university attendance policies.**

Students with disabilities: Students with disabilities who experience learning berries and would like to request academic accommodations should connect with the disability Resource Center. **Click here to get started with the Dissability Resource Center.** It is important for students to share their accommodation letter with the instructor and discuss needs, as early as

possible in the semester. The schedules of the lectures will be strictly adhered to as per attached CALENDAR registered in the **CANVAS** to ensure the completion of the learning as specified in the syllabus. Students will not be required to UF except during the examinations as specified in the schedule.

COVID PLAN

All the lectures will be conducted by Zoom, and students will be provided with the details of the lecture materials through the **CANVAS**. **The schedule of the lectures will be strictly adhered to as per indicated in the CANVAS.**

If you are experiencing COVID-19 symptoms (Click here for guidance from the CDC on symptoms of coronavirus), please use the UF HEALTH screening system and follow the instructions on whether you are able to attend class. Click here for UF HEALTH guidance on what to do if you have been exposed to or are experience COVID-19 SYMPTOMS. Course material will be provided to you with an excuse absence, and you will be given a reasonable amount of time to make up your absence in class. Find more information in the university attendance policies.

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 shelf-life 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 if time allows.

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

Grading:

Percent of Grade

Written examinations (3) ----- 90

Participation and attendance ----- 10

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

Final Grades

Final grades will be assigned as follows:

90.0-100.0% A

80.0 – 89.9 % B

70.0-79.9 %. C

60.0 -79.9 %. D

Grade Points will be assigned per UF grading policies:

([https://catalog.ufl.edu/UGRD/academic regulations/grades-grading-policies/](https://catalog.ufl.edu/UGRD/academic%20regulations/grades-grading-policies/)).

All Lecture Materials: Posted in the Canvas. There is no required textbook for this course 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: All posted in CANVAS:

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 and milling parts separation
- e. Storage and handling
5. Genetic modifications of cereal grains: Improvement of Nutritional Values
6. Chemistry and stability of cereal products
7. Heart Healthy Grains: Information on health benefits

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