

TITLE OF COURSE: FS 304 Cereal Chemistry and Processing

CREDIT HOURS: 3 HOURS

INSTRUCTOR: Dr. Brennan Smith

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OFFICE: AG SCI 111B (UI)

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OFFICE HOURS: To be determined

COURSE TIME: T/TH 11:00–12:15

SKYPE ADDRESS: Brennan.smith364

LOCATION: To be determined

### **COURSE DESCRIPTION:**

This is a junior level course for the WSU/UI School of Food Science. This course has been designed to provide students with a breadth of knowledge in the field of cereal grain science. This course will cover cereal and legume structure, chemistry, and function as it relates to processing and utilization.

**TEXT BOOK:** Delcour J, Hosney C. (2010). *Principles of Cereal Science and Technology*. Third Addition. AACC International, Inc. St. Paul, Minnesota.

Some semesters the required text book is offered free online by Kellogg's and AACCI. Please check with the instructor and determine if this option is available prior to purchasing a hard copy of the required text.

### **PREREQUISITES:**

Chem 345 and Biology 107

### **GRADING:**

All assignments, grading, and scheduling is tentative and subject to change.

Quizzes	100 Points
Exam 1	100 Points
Exam 2	100 Points
Exam 3	100 Points
Term Paper	100 Points
Attendance/participation	50 Points
Final Exam	150 Points
<b>Total</b>	<b>700 points</b>

**GRADING:**

<u>Grades:</u>	<u>Total Points</u>	<u>Final Grade</u>	
		WSU	UI
	665 – 700	A	A
	630 – 664	A–	A
	602 – 629	B+	B
	581 – 601	B	B
	560 – 580	B–	B
	532 – 359	C+	C
	511 – 531	C	C
	490 – 510	C–	C
	462 – 489	D+	D
	420 – 461	D	D
	<420	F	F

**EVALUATION:**

**Exams:** Exams will be in short answer and/or essay format. T/F and multiple choice questions may also be used at the discretion of the instructor, but are not likely to occur. **Please bring a blue or black pen for all in class exams.** Exams will be given during regularly schedule class times. The **final exam** is scheduled on XXXXXXXX, May XX, 20XX from XX:XX – XX:XX pm.

**Term Paper:** Terms papers are expected to be 8- 10 pages in length. Term paper topics will be selected from a provided list of topics. Topics not on list are acceptable only upon instructor approval. Papers are to be submitted as a single double spaced document utilizing 12 pt Times New Roman font, with one inch margins. Specifics on content and formatting will be distributed as another document.

**Quizzes:** Quizzes can be given without notice on any day of lecture. Advance notice may or may not be given.

**You are expected to attend every class:** Attendance is mandatory! Exceptions will only be given for illnesses and emergencies. Other absences for scholarly activities or career progression may be given. **This will only occur when there is no major conflict with this course, and upon advanced approval by the instructor.**

If ample notice is not given, it is at the discretion of the instructor whether or not to allow for absence without consequence. The ability to take makeup exams, quizzes, and assignments is also at the discretion of the instructor.

**STUDENT LEARNING OUTCOMES (SLOs):** All student learning outcomes will be assessed through quizzes and exams. The course term paper may cover one or more student learning outcome depending on the topic selected by the student. Successful completion of the course will enable the student to:

- A. Identify and describe the major structures of cereals and legumes
- B. Draw conclusions on why specific structures of cereals and legumes are important during processing and utilization
- C. Describe how pre-harvest production and environmental factors can contribute to grain processing and end use quality
- D. Use information pertaining to the chemical composition of cereals to identify functional traits, processing characteristics, and end use
- E. Outline and discuss various milling processes and how cereal structure and chemistry affect the process
- F. Outline aspects of malting and brewing and how cereal structure and chemistry affect the process
- G. Outline and discuss the processes of cereal product production
  - a. Yeast-leavened products
  - b. Chemically leavened products
  - c. Pasta and noodles
  - d. Breakfast cereals
  - e. Snack foods

### **Students with Disabilities**

WSU students: Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Access Center (Washington Building 217) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center.

UI students: Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through Disability Support Services located in the Idaho Commons Building, Room 306 (Phone 885---6307; Email [dss@uidaho.edu](mailto:dss@uidaho.edu); website at [www.uidaho.edu/dss](http://www.uidaho.edu/dss)) in order to notify your instructor(s) as soon as possible regarding accommodation(s) needed for the course.

### **Academic Regulations & Student Affairs Policy Regarding Absences**

It is the policy of the Office of Student Affairs to assist students during crisis situations where they are unable to notify their instructors prior to a hurried emergency departure. The Office of Student Affairs will send professors an "Emergency Notification" in those instances where the student will be away for more than two days. The Office of Student Affairs will not issue notifications retroactively or for "one-day emergencies."

**Academic Etiquette:** Please keep cellular phones silent during class and lab sessions. Cell phones are a distraction, especially in laboratory settings.

**Students are also expected to be kind, courteous, and professional towards instructors, teaching assistants, university staff, and other students at all times without exception.**

**WSU Safety Statement:** Classroom and campus safety are of paramount importance at Washington State University, and are the shared responsibility of the entire campus population. WSU urges students to follow the “Alert, Assess, Act” protocol for all types of emergencies and the “Run, Hide, Fight” response for an active shooter incident. Remain ALERT (through direct observation or emergency notification), ASSESS your specific situation, and ACT in the most appropriate way to assure your own safety (and the safety of others if you are able). Please sign up for emergency alerts on your account at MyWSU. For more information on this subject, campus safety, and related topics, please view the FBI’s Run, Hide, Fight video and visit the WSU safety portal.

**University of Idaho Classroom Learning Civility Clause:** In any environment in which people gather to learn, it is essential that all members feel as free and safe as possible in their participation. To this end, it is expected that everyone in this course will be treated with mutual respect and civility, with an understanding that all of us (students, instructors, professors, guests, and teaching assistants) will be respectful and civil to one another in discussion, in action, in teaching, and in learning. Should you feel our classroom interactions do not reflect an environment of civility and respect, you are encouraged to meet with your instructor during office hours to discuss your concern. Additional resources for expression of concern or requesting support include the Dean of Students office and staff (5-6757), the UI Counseling & Testing Center’s confidential services (5-6716), or the UI Office of Human Rights, Access, & Inclusion (5-4285).

**Academic integrity** will be strongly enforced in this course. Any student caught cheating on any assignment will be given an F grade for the course and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions: <http://conduct.wsu.edu/policies/standards-of-conduct/>

**Plagiarism and Academic Integrity Addendum:**

University of Idaho, Student Code of Conduct Article II—Academic Honesty

1. Cheating on classroom or outside assignments, examinations, or tests is a violation of this code.
2. Plagiarism, falsification of academic records, and the acquisition or use of test materials without faculty authorization are considered forms of academic dishonesty and, as such, are violations of this code.
3. Because academic honesty and integrity are core values at a university, the faculty finds that even one incident of academic dishonesty seriously and critically endangers the essential operation of the university and may merit expulsion. [rev. 7-98]

4. The operation of UI requires the accuracy and protection of its records and documents. To use, make, forge, print, reproduce, copy, alter, remove, or destroy any record, document, or identification used or maintained by UI violates this code when done with intent to defraud or misinform.

5. All data acquired through participation in UI research programs is the property of the university and must be provided to the principal investigator. In addition, collaboration with the University Research

Office for the assignment of rights, title, and interest in patentable inventions resulting from the research is also required [see 5400 A through E].

6. Entrance without proper authority into any private office or space of a member of the faculty, staff, or student body is a violation of this code.

7. It is also a violation to hack or make unauthorized use of any computer or information system maintained by the university or a member of the faculty, staff, or student body. [rev.7-05]

8. Instructors and students are responsible for maintaining academic standards and integrity in their classes. Consequences for academic dishonesty may be imposed by the course instructor. Such consequences may include but cannot exceed a grade of "F" in the course. The instructor should attempt to notify the student of the suspected academic dishonesty and give the student an opportunity to respond. The notice and the opportunity may be informal and need not be in writing. Penalties for any disciplinary infraction must be judicially imposed. [See 1640.02 C-5] [rev. 7-98]

9. Instructors may report incidents of academic dishonesty to the dean of students. Upon receiving such a report, the dean of students shall provide the student with written notice that a report has been made and an opportunity to meet with the dean to discuss the report. The dean of students shall maintain the report and any record of the meeting for a period of time deemed appropriate by the dean. The dean of students may file a complaint against the student after the meeting has taken place or the student has elected, either affirmatively or through inaction, not to meet with the dean. [add. 7-98]

For more information on academic integrity and academic dishonesty, please visit:

<http://www.uidaho.edu/DOS/academicintegrity/Student%20Resources>

#### **Statement of Firearm Regulations:**

The University of Idaho bans firearms from its property with only limited exceptions. One exception applies to persons who hold a valid Idaho enhanced concealed carry license, provided those firearms remain concealed at all times. If an enhanced concealed carry license holder's firearm is displayed, other than in necessary self-defense, it is a violation of University policy. Please contact local law enforcement (call 911) to report firearms on University property.

## TENTATIVE LECTURE SCHEDULE

Week	Date	Subject
1		Course introduction, distribution of outline, grading system
2		Introduction to cereal grains
2		Overview of crop production practices
3		Cereal grain structure and composition Chapter 1
3		Starch Chapter 2
4		Proteins I Chapter 3
4		Proteins II Chapter 3 & 6
5		Lipids Chapter 4
5		<b>Exam 1</b>
6		Grain Storage Chapter 7
6		Dry Milling Chapter 8
7		Wet milling-maize Chapter 9
7		Dry milling-oats Chapter 10
8		Rheology of Doughs and Batters Chapter 5
8		Rice processing Chapter 10

9	Malting and brewing Chapter 11
9	Malting and brewing Chapter 11
10	Spring Break
10	Spring Break
11	Malting and brewing Chapter 11
11	Distilled products Chapter 11
12	<b>Exam 2</b>
12	Yeast leavened products Chapter 12
13	Biscuits Chapter 13
13	Crackers Chapter 13
14	Cookies Chapter 13
14	Pastas and noodles Chapter 14
15	Breakfast cereals I Chapter 15
15	<b>Exam 3</b>
16	Breakfast cereals II & Snack foods Chapter 15 & 16
16	Feeds Chapter 17