

CropS 512

Section 2

Advances in Cereal Science & Technology
Crops 512/FSHN 583/FST 504
Fall 2007

This course provides in-depth information on wheat chemistry and technology as well as chemistry, processing and end-uses of other cereal grains and legumes. Emphasis will be given to composition of wheat and functionality of main components as related to processing and product quality, along with reviews of recent advances in cereal sciences and technology.

Instructor: Byung-Kee Baik, 263 Johnson Hall, 335-8230, bbaik@wsu.edu
Credit: 2 credits
Prerequisite: Organic Chemistry, Biochemistry or Food Chemistry

Lecture Outline:

Cereal grains: production and characteristics

Wheat:

- Classification and uses
- Physical and chemical characteristics
- Milling
- Protein: content and quality
- Starch: composition, pasting properties and gelatinization
- Non-starch polysaccharides and lipids
- Enzymes and color
- Dough rheology
- Bread
- Cookies, cake, noodles and pasta

Rice, barley and legumes

- Physical and chemical characteristics
- Processing and food-use quality traits

At the end of each subject, we will have a review/discussion session of a research journal article relevant to the subject area. You will be provided with a research article prior to the review session and asked to write one-page summary. One of you will report his/her summary during each session and lead the subsequent discussion on the subject.

References:

1. Wheat: Chemistry and Technology, 3rd edition, Volumes I & II, Y. Pomeranz, AACC, Inc.
2. Modern Cereal Science and Technology, Y. Pomeranz, VCH Publishers.
3. Technology of Cereals, 4th edition, Kent & Evers, Elsevier Science, Inc.
4. Principles of Cereal Science and Technology, 2nd edition, R.C. Hosney, AACC, Inc.

Evaluation:

Final Exam	40%
Assignments (7-8)	30%
Term Paper	10%
Presentation	10%
Attendance	10%

Term Paper: The purpose of this paper is to explore, in detail, aspects of an issue in the area of cereal chemistry and technology today. The paper should be targeted to a scientifically literate audience and written exclusively based on published refereed journal articles. Books and book chapters may be used for general information only. Do not just review the papers sequentially. The reference material should be blended together to make a coherent paper. The paper should end with a Conclusion that summarizes the main points of the paper and your own opinion/recommendation on the issue.

The paper should be less than 10 pages (excluding tables, figures and references) and typed (12-pt. font, 1" margins, double-spaced). Number each table or figure to fit the sequence in your paper. In the body of the paper, literature citations may be noted by the author/year method. References should be compiled in a single, numbered, alphabetical list at the end of the paper. All references in the list should be used in the paper and all references in the paper should be in the list. The format for the references is that used by Cereal Chemistry.

Evaluation of the paper:

- 1) Identifies and summarizes the issue, rationale and focus: 20% pts.
- 2) Presents the information in logical sections: 20% pts.
- 3) Provides adequate and relevant information/data (including figures and tables) to discuss the issue and make conclusions: 40% pts.
- 4) Contains adequate references for a complete, coherent paper: 10% pts.
- 5) Uses required paper format; correct grammar, sentence and paragraph structure; appropriate citation format and reference format: 10% pts.

Late submission: You will lose 5 points for each week day late.

Students with Disabilities: 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 Disability Resource Center (DRC). All accommodations MUST be approved through the DRC (Admin Annex Bldg, Room 205). Please stop by or call 509-335-3417 to make an appointment with a disability specialist.