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## Food Science and Technology Collection Development Policy

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## **Food Science and Technology Collection Development Policy**

University Libraries, University of Nebraska – Lincoln

Rebecca Bernthal, Liaison Librarian, December 2009

Approved: CDC, December 16, 2009

### **I. GENERAL ACADEMIC PROGRAM INFORMATION**

The Department of Food Science and Technology is located in the Food Industry Complex on East Campus at UNL. The department started out as a part of many departments in the College of Agriculture, the most important being the Department of Dairy Science. Up until 1960, food processing was incorporated in the various College of Agriculture departments of dairy science, agronomy, animal science, poultry science, and agricultural engineering and in the Foods and Nutrition Department of the College of Home Economics. In 1960 the new Food Technology major was approved as an inter-departmental major involving all departments with food processing interests. In 1968 the Department of Food Science and Technology was started. Those members of the Department of Dairy Science who focused on manufacturing were automatically transferred to the new Department of Food Science and Technology to form the basis of the new department. The first undergraduates from the new department were in 1968. Master's and Ph.D. students followed shortly. Today the Department is part of the College of Agricultural Sciences and Natural Resources (CASNR) and the Institute of Agriculture and Natural Resources (IANR).

B.S., M.S. and Ph.D. degrees are offered by the Department of Food Science and Technology. Students graduating with degrees in this program are prepared for either business or science careers. Presently the students are allowed to choose their area of strength by taking 11-12 hours of technical electives that come from designated areas and include additional science classes and/or business classes.

There are currently 54 undergraduates and 53 graduate students enrolled in the department. In 2008, eight BS degrees, four MS degrees and one PhD. were conferred.

No specific accrediting agency exists for the department. However, the National Institute of Food Technologists has guidelines which must be met before it grants scholarships to students in the department.

There are currently 20 tenured or tenure-track faculty, one research assistant professor and two staff members with extension responsibilities in the Department. Research interests of the department include: Food safety, Food microbiology, Food mycology, Food toxicology, Food development, Food quality measurements, Food quality and safety, Food safety systems, Foodborne pathogens, Foodborne pathogenic bacteria, Sugar metabolism and regulation in foodborne bacteria, Mycotoxins, Food allergies, Immunochemical methods, Potential allergenicity of genetically modified crops, In vitro and in vivo activity of natural antioxidants, Natural bioactive agents, Nutraceuticals, Mucosal and gut immunology, Microbial ecology of gastrointestinal tracts, Physical properties of food, Cereal grains, End-use characteristics of grains, New uses for grains, Functional and structural relationships in starch, Corn processing technology, Tortilla and chip process chemistry, Process efficiencies of smaller-scale food process systems, Value-added process and engineering, Food and bioproducts engineering, Biopolymeric films, Molecular genetic analysis, Phylogenetics, Comparative genomics, Enzymology, Protein chemistry, Microarrays, Proteomic applications, Hyperspectral imaging and near-infrared spectroscopy systems.

## **Special Programs and Centers:**

### **Food Safety – University of Nebraska – Lincoln, Program of Excellence:**

#### **Description:**

This program provides high quality educational training to individuals preparing for careers in the food industry, academia, or government, as well as conducting basic and applied research in food science and technology for the ultimate benefit of the food industry and consumers.

#### **Collaborative units:**

Biological Systems Engineering, Food Science and Technology, CASNR, IANR and its Research and Cooperative Extension Divisions.

### **Food Allergy Research and Resource Program**

This program was established in 1995 as a “cooperative venture between the University of Nebraska and seven founding industry charter members. Today, FARRP has more than 50 member companies, more than one dozen staff members and several graduate students.”

FARRP has two primary missions:

**Mission #1:** “Develop and provide the food industry with credible information, expert opinions, tools, and services relating to allergenic foods.”

**Mission #2:** “Develop and provide the agricultural biotechnology industry with credible information, expert opinions, tools, and services relating to novel foods and food ingredients including genetically modified products.”

### **The Food Processing Center**

Started in 1983, and located within the department, the center offers” both technical and business development services to meet the needs of diverse clients and sectors of the food industry. As a partner with the food industry in Nebraska and beyond, the center provides a unique combination of science, engineering and business development services. The center works with small, medium and large firms, companies and entrepreneurs to assist them with increasing their market and economic vitality.”

### **Food Technology for Companion Animals**

This relatively new and unique program combines food science with the nutritional and physiological demands of companion animals. It is the first academic program focused specifically on food technology for companion animals and is a cooperative program between the Department of Food Science and Technology and the Department of Animal Science. Industry support is strong and allows shadowing, mentoring, and intern opportunities both locally and nationally. Graduates are

in high demand to fulfill research, product development, process operations, quality assurance and the product safety needs of the industry.

### **Undergraduate Coursework:**

#### **BS Degree Program:**

The curriculum includes a balance of courses in food science, biological sciences, physical sciences, mathematics, social sciences and humanities. Food science courses include food processing, food engineering, food analysis, food chemistry, food microbiology, nutrition, quality assurance, and commodity processing courses. The program is designed to allow student to develop an area of emphasis that fits their career goals by providing technical elective hours chosen by the student. Students are encouraged to participate in an internship program that provides summer employment in the food industry.

Food Science and Technology majors find career opportunities with food processing firms, government agencies and educational institutions. Types of positions available to food science and technology graduates include product development, quality assurance, food plant management, food research, food marketing and sales, education and extension.

### **Graduate Coursework:**

#### **Graduate Program:**

The Department of Food Science and Technology offers graduate work leading to the masters of science and doctor of philosophy degrees with a major in food science.

Applicants to the graduate program must have a degree in food science, microbiology, biochemistry, engineering, nutrition, biology, chemistry, or other related field.

The Food Science and Technology program at UNL is one of the strongest and most rigorous in the United States and considered to be in the top 15% when ranked against similar programs. The faculty research programs in food allergens, food microbiology, food chemistry, food engineering, nutraceuticals, metabolomics, cereal technology, microbial genomics, and gut ecology are outstanding and internationally recognized. Professors and graduate students receive competitive grants, publish research in the top basic and applied journals, and regularly present results at major national and international conferences.

When they graduate, students obtain research positions at the USDA and FDA and in industry positions at such companies as ConAgra, General Mills, and other major food companies. Others who go the academic route have obtained postdoctoral or faculty positions at such places as Texas A & M, Harvard, the University of Washington, and North Carolina State University.

#### **Areas of Study:**

- Intestinal Microbiology and Health

- Microbial Genomics and Ecology
- Probiotics and Prebiotics
- Analytical Methodology Development
- Food Allergens and Immunology
- Proteomics
- Food Components Structure and Function
- Food Safety and Toxicology
- Cereal Grain Processing and Functionality
- Nutraceuticals and Metabolomics
- New Generation Processing Technologies
- Modeling and Engineering

Topics of courses currently supporting study at the graduate level include: Teaching Applications of Food Science, Food Quality Assurance, Food Microbiology, Cereal Technology, Molds and Mycotoxins in Food, Feed and the Human Environment, Meat Investigations (ASCI 819), Fruit and Vegetable Technology, Food Toxicology, Dairy Products Technology, Sensory Evaluation, Functional Properties of Food (NUTR 841), Experimental Foods (NUTR 845), Food Chemistry, Microbiology of Fermented Foods, Advanced Food Analysis, Food Product Development Concepts, Food Engineering Unit Operations, Nutraceuticals and Functional Foods, A Multidisciplinary Overview of Food Safety and Security, Principles of Hazard Analysis and Critical Control Point System, Food-borne Toxicants, Food Laws, Regulations and Regulatory Process, Rapid Methods in Food Microbiology, Risk Assessment for Food, Agriculture and Veterinary Medicine, Advanced Food Microbiology and Biotechnology, Advanced Food Science, Selected Topics – Food Carbohydrates, Food Flavors, Food Lipids, Food Proteins, Advanced Food Microbiology, Selected Topics – Food Biotechnology, Food Borne Pathogens, Food Mycology, Readings in Food Microbiology, Gastrointestinal Microbiology.

Some departmental courses are cross-listed with other departments. Complementary programs overlap with Animal Science, Life Science, Human Nutrition and Health Sciences, and Agricultural Biochemistry. The department also cooperates with the University of Nebraska Medical Center and the Swanson Center for Nutrition, both of which are in Omaha.

#### **Library Collections:**

### **II. GEOGRAPHICAL COVERAGE**

There are no geographical limitations, however, outside of North America, food science and technology research is strongest in the European and Scandinavian countries.

### **III. CHRONOLOGICAL COVERAGE**

There are no chronological limitations, however current research is most important.

### **IV. IMPRINT DATE**

Emphasis is on current materials. Little interest exists in older material.

## **V. FORMAT/TYPE AND LEVEL OF MATERIALS**

Most materials acquired are monographs, journals, and serials, and reference works. Generally journals are preferred in electronic format over print, when available. Appropriate proceedings and symposia are also acquired, with special emphasis on those from professional organizations.

## **VI. LANGUAGES**

English is the preferred language at all levels of intensity. However, at the research level German, French, Spanish, Russian or Scandinavian materials may be desirable, but are only acquired as requested by the faculty. English translations are always preferred to the original language whenever available.

## **VII. ELECTRONIC DATABASES**

The University Libraries has acquired several electronic databases, formerly only available as print indexes, to support the study of food science and technology. The primary databases and electronic resources currently available are: Medline, Web of Science, Biological Abstracts, CAB Abstracts, Agricola, SciFinder Scholar, and full-text resources such as ASABE Technical Library, Knovel Library, JSTOR, etc. The core database in the field, FSTA, was cancelled in 2008 because of funding issues and the decision by the department to save journal titles instead of the database.

## **VII. SPECIAL FACTORS**

Materials published by the Institute of Food Technologists and the National Institute for the Foodservice Industry are acquired. There are 3-4 important book series that are acquired and includes the long-standing *Food Science and Technology* series, formerly published by Marcel Dekker now by CRC Press/Taylor and Francis Group. Other significant publications include those from the Royal Society of Chemistry Symposium Series, Elsevier, Springer, ASM, etc.

The materials in the University Libraries' collection that support the courses and research for the department are generally housed at the C.Y. Thompson Library (CYT) on the East Campus of the University. However, because of the department's areas of study, the CYT collection is also dependent upon the collections of several other departments to support the full scope and range of the department. There is a close interface with the School of Biological Sciences, the Department of Animal Science and the Department of Nutrition and Health Sciences and the collection development statements for these areas provide support to the Department of Food Science and Technology. While many of the materials used by the department are located at the C.Y. Thompson Library, there is also a significant portion at Love Library and to a lesser extent at the Engineering Library.

The government documents collection at the C.Y. Thompson Library are generally important to all areas of agriculture. U.S.D.A. publications account for the majority of the document literature used by the Department of Food Science and Technology, however, there are, to a lesser degree, important publications coming out of the Interior Department, the Food and Drug Administration, and the Environmental Protection Agency. Particularly important are USDA monographic series such as the Agricultural Research Service (ARS) Miscellaneous Publications, the Agricultural Handbook, and the Technical Bulletin. These series include all aspects of agriculture, including those of interest to the Department of Food Science and

Technology and include subjects in the areas of extension/education, economics/regulation, and basic/applied science.

### **VIII. CLASSIFICATION AND INTENSITY LISTING**

(The following are listed by LC Class, Subject, and then by Intensity Level)

HD 9000-9495; Food products; STUDY  
 QD 301-315; Aliphatic compounds ;BASIC  
 QD 320-327; Carbohydrates ;STUDY  
 QD 330-341; Aromatic compounds ;BASIC  
 QD 431-441; Proteins, peptides, amino acids, etc. Chemical aspects; STUDY  
 QP144 – 165 ; Nutrient interactions. Functional foods, etc. ;RESEARCH  
 QP 550-632 ; Proteins, amino acids, etc. Physiological aspects, toxins and antitoxins ;STUDY  
 QP 701-801; Carbohydrates, Lipids, Vitamins, miscellaneous organic substances; STUDY  
 QR 88-92; Metabolism ;STUDY  
 QR 115-129 ;Food microbiology; RESEARCH  
 QR 151; Micro-organisms of fermentation; STUDY  
 QR171 ;Microorganisms. Gastrointestinal system, Prebiotics, Probiotics, etc. ; RESEARCH  
 QR188; Allergens; RESEARCH  
 QR201 ; Pathogenic Microorganisms. Foodborne diseases, E. coli, Listeria, etc. ; RESEARCH  
 RA601-602; Food and Food Supply. Food Safety; RESEARCH  
 RA644-645 ; Chronic and Noninfectious diseases and public health. Allergies.; RESEARCH  
 RA1242 ;Toxicology. Special poisons. Organic. Aspartame, Mycotoxins, etc.; RESEARCH  
 RA1258 – 1269 ;Food poisons ;RESEARCH  
 RA1270 ;Residues in food ;RESEARCH  
 RC143 ; Bacterial food poisoning ; RESEARCH  
 RC596 ;Food allergies; RESEARCH  
 RM214-258; Diet therapy. Clinical Nutrition; BASIC  
 TP 368-465 ;Food processing and manufacture ;RESEARCH  
 TP 480-684 ;Refrigeration, fermentation industries, oils, fats and waxes ;RESEARCH  
 TS 195-198 ;Packaging ;BASIC  
 TS 1950-1981; Animal products; RESEARCH

TS 2120-2159 ;Cereals and grain, Milling industry ;RESEARCH  
TX547-TX548; Infrared spectroscopy, Chromatography; STUDY  
TX 599-612; Preservation and storage of foods; STUDY