

# CULINOLOGY

SMSU's Bachelor of Science in Culinology<sup>®</sup> is the only degree of its kind in the world. Culinology<sup>®</sup> is the blending of the culinary arts and the science of food. It is defined as "the collaboration between culinary expertise and food science and how this collaboration affects the food we prepare and serve for consumption." SMSU's Culinology<sup>®</sup> program is fully accredited by the Research Chefs Association.

## Our Mission

Our task is to support our students in their pursuit of the **gold standard** in Culinology<sup>®</sup> education. Culinology<sup>®</sup> will be a universally recognized discipline, and its practitioners will shape the food industry. SMSU's mission is to define the future of food through Culinology<sup>®</sup> and the development of its practitioners. We will train students in developing unique and highly sought after skills, capable of creating new food products from a culinary perspective within a scientific setting. Graduates of SMSU's Culinology<sup>®</sup> program will be trained first as a chef, a culinarian, a food focused individual, dedicated to producing the finest possible combination of ingredients to achieve palate-pleasing results. SMSU's Culinology<sup>®</sup> graduates will also be a researcher who uses scientific methods and knowledge to insure their creativity can be enjoyed far beyond the confines of their kitchen or laboratory.

A wide variety of job opportunities are available to SMSU graduates. Graduates may go to work with major food manufacturers, custom manufacturing facilities, restaurant chains, etc., in positions such as: Research and Development Chef, TecnoChef<sup>™</sup>, Product Development Manager, Corporate Chef, Culinary Research and Development Director, Culinary Research Technologist, Savory Lab Manager, Product Formulation Chef, and Manager of Culinology.

A grade point average of 2.50 in all major course work taken at SMSU including courses transferred from other institutions.

**Note: Students must complete a minimum of 120 credits in order to graduate with a Bachelor's degree.**

## Programs Bachelors

- Culinology, BS (<http://catalog.smsu.edu/academic-programs-degrees/culinology/culinology-bs/>)

## Faculty

Joyce Hwang (<https://www.smsu.edu/directory/?d=employee&name=12900350#individualTables>)

Yumi Lim (<https://www.smsu.edu/directory/?d=employee&name=12860988#individualTables>)

Soma Mukherjee (<https://www.smsu.edu/directory/?d=employee&name=16478358#individualTables>)

## Undergraduate Courses

### CULG 100 Introduction to Culinology Credits: 1

This is the beginning course in Culinology designed to familiarize the student with the breadth and scope of Culinology as a new discipline, encompassing both culinary arts and food science. Students will gain an overview of the role of the Culinologist, and how the blending of taste and technology enhances the food product development process. The course will include tours, presentations, and guest speakers from the industry.

**Fall:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002158/>)

### CULG 200 Culinary Arts Fundamentals Credits: 4

This is an in-depth study of the basic core components in the creative study of culinary arts and food production. Students achieve basic competency in theories, science, and applications of working with food. Students are exposed to professional techniques of the culinary artist. Introduction to culinary terminology and ingredients will be presented. Areas of study include: tools, equipment, knife skills, food and plate presentation, food evaluation, basic cooking principles to include moist and dry heat methods, seasonings, flavorings and aromatics, fats, foams, gels, emulsions, dairy products, stocks, thickeners, roux based sauces to include the four mother sauces, hot and cold butter sauces, emulsion sauces, salsas, sambas, vinegrettes, and reductions as well as soups to include cream, clear, and potage soups.

**Pre-Requisite :** HOSP 120

**Spring:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00164891/>)

### CULG 210 Advanced Culinary Arts Credits: 4

Continued in-depth study of intermediate level processes in culinary arts and food production. Students study and apply cooking methods of scratch cookery through small batch assignments. Areas of study include rice and grains, potato products, beans and soy products, fruits, vegetables, salads and sandwiches, shellfish, fin fish, poultry identification and fabrication, poultry cookery, meat identification and fabrication, beef, veal, pork, lamb and offals.

**Pre-Requisite :** CULG 200

**Fall:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00164892/>)

### CULG 250 Introduction to Baking & Pastry Credits: 3

A fundamental course in baking methods and principles, to include yeast breads, quick breads, pastries, pies, cakes, custards, creams, and sauces.

**Fall:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002167/>)

### CULG 286 Special Topics Credits: 1-4

This course is designed to provide an opportunity for students to experience a special or experimental enrichment course.

**Fall:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002160/>)

**CULG 300 International Cuisine Credits: 3**

Students study International Cuisine focusing on indigenous foods, cultural and religious influences and historical events. A technical and scientific approach to flavor profiles is used. The student will build a professional palate through sensory experience of new ingredients and flavor combinations and by utilizing cooking methods practiced by each ethnic group visited.

**Pre-Requisite :** CULG 210

**Fall:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002164/>)

**CULG 310 Introduction to Food Science Credits: 3**

Overview of major food components (carbohydrates, proteins, fats, vitamins, and minerals) and the bases for food preservation, including processing, food legislation, food safety, and current food issues are covered. Structure-function relationship of water, protein, lipid, carbohydrates, minerals and natural food products in food systems will be covered also. Students will be able to relate fundamental chemical, physical, and biological principles to the preparation of food upon completion of this course.

**Pre-Requisite :** CHEM 122

**Fall:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002161/>)

**CULG 360 Food Sensory Analysis Credits: 3**

This course includes the fundamentals of sensory perception through food appearance, texture, aroma, flavor and physiology of sensory receptors. Test designs, methods, laboratory, and consumer panels are used in studying sensory qualities of foods and interpretation of data.

**Pre-Requisite :** MATH 200 OR FIN 230 OR PSYC 200

**Spring:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002171/>)

**CULG 390 Food Products Development I Credits: 3**

All aspects of new food product development from concept to store shelves will be covered, including market screening; focus groups; idea generation; prototype development; ingredient functionality and interactions; statistical designs for product development; processing; packaging; scale-up of operations; regulatory issues; labeling; physical, chemical, microbiological, and sensory evaluations; quality control procedures; and HACCP plans.

**Pre-Requisite :** CULG 310

**Fall:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00164893/>)

**CULG 410 Food Chemistry and Analysis Credits: 3**

This course covers methods for quantitative, physical, and chemical analyses of foods and food products. Analytical techniques covered will include spectroscopy, chromatography, mass spectrometry, immunochemistry, and atomic absorption. The analyses will be related to standards and regulations for food processing. Students will also study the principles of physical and chemical methods and instrumentation for measuring protein, fat, moisture, and ash content. Students will also learn to identify and determine fat and oil quality characteristics.

**Pre-Requisite :** CULG 310

**Spring:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002173/>)

**CULG 430 Unit Operations in Food Processing Credits: 3**

The study of some basic ingredients used in food processing, principles of preserving and processing of foods, and food packaging. The course identifies the specific applications of engineering principles to unit operations in food production, including equipment design and effects of processing on food quality, both chemical and microbiological.

**Pre-Requisite :** CULG 310

**Fall:** Odd Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00164894/>)

**CULG 440 Food Legislation and Regulation Credits: 3**

This course covers food laws, regulation, labeling, additives, and residues. Current trends in market forms, packaging, and utilization of various foods will also be covered.

**Fall:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002175/>)

**CULG 450 Technical & Functional Ingredients in Food Credits: 3**

This course covers the primary constituents that affect the sensory, nutritional, and structural properties of food, including colorants, flavor compounds, vitamins, probiotics, and additives. Students will also study the effects of food processing and preparation using these functional and technical ingredients.

**Pre-Requisite :** CULG 310

**Fall:** Even Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00164895/>)

**CULG 480 Food Quality and Safety Credits: 3**

This course is designed to provide students with comprehensive knowledge of food quality control and safety assurance. It covers all the aspects of quality assurance and safety practice in the food industry, such as and specifications of quality assurance (QA), sensory and instrumental evaluation techniques, current federal regulatory requirements and food safety practice. Students also learn how to develop, implement, and maintain a sanitation plan, which is Hazard Analysis and Critical Control Points (HACCP). This course includes a hands-on lab component.

**Pre-Requisite :** CULG 310

**Spring:** Even Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00184333/>)

**CULG 486 Special Topics Credits: 1-4**

This course is designed to provide an opportunity for students to experience a special or experimental curriculum enrichment course.

**Fall:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002159/>)

**CULG 490 Food Product Development II Credits: 3**

Students have the lead in the development of products for commercial or retail food manufacturers and foodservice operations from conception, market analysis, and sensory evaluation to production and packaging. This is an interactive course that introduces students to the principles of new product development, from identification and testing of new product concepts, through prototype testing, to basic process design using examples from industry. A hands-on, real-world course.

**Pre-Requisite :** CULG 390 and senior status.

**Spring:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00164898/>)

**CULG 494 Independent Study Credits: 1-3**

Independent study and research within the Culinology area. Course restricted to Culinology majors with consent of Culinology advisor and selected instructor only.

**Fall:** Department Discretion **Spring:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002393/>)

**CULG 498 Internship Credits: 1-9**

100 hours per credit hour practical work experience in approved supervised and structured environment. Internships must comprise of a culinary experience as well as a research and development experience. The culinary component may include experiential learning in a quantity food production kitchen or a fine dining restaurant. The research and development component must include experiential learning in R&D facility of test kitchen.

**Fall:** All Years **Spring:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002179/>)

**CULG 499 Internship Credits: 1-9**

100 hours per credit hour practical work experience in approved supervised and structured environment. Internships must comprise of a culinary experience as well as a research and development experience. The culinary component may include experiential learning in a quantity food production kitchen or a fine dining restaurant. The research and development component must include experiential learning in R&D facility of test kitchen.

**Pre-Requisite :** CULG 498 and junior status.

**Fall:** All Years **Spring:** All Years **Summer** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002180/>)