CULINOLOGY®

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SMSU's Bachelor of Science in Culinology® is the *only* degree of its kind in the world. Culinology® 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® 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® education. Culinology® 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® 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® 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® 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™, Product Development Manager, Corporate Chef, Culinary Research and Development Director, Culinary Research Technologist, Savory Lab Manager, Product Formulation Chef, and Manager of Culinology. Culinologists receive holidays and weekends off and make anywhere from $45,000 to $100,000. The starting salary for a SMSU Culinology® graduate is $52,000 in 2008.

Pre-Culinology Requirements:

Students seeking a B.S. in Culinology® must complete the Pre-Culinology® requirements.

Pre-Culinology® requirements for students to be accepted as majors in Culinology® (CULG) are:

1. Complete ENG 101 or otherwise satisfy the ENG 101 requirement.
2. Earn a grade of "C" or better in the following courses:
   a. MATH 115 (Finite Mathematics) or MATH 140 (Calculus, A Short Course) or a higher-level calculus course.
   b. ENG 102 (Rhetoric: The Essay)
   c. ENG 103 (Rhetoric: Critical Writing)
   d. SPCH 110 (Essentials of Speaking and Listening)
   e. ECON 201 (Microeconomics)
   f. CHEM 121 (Basic Chemistry)
   g. BIOL 200 (Cell Biology)
   h. Two Courses in a single Foreign Language (Spanish Recommended)
      Completion of two courses in a single foreign language (Spanish or French) satisfies part of the requirement for Humanities and Fines Arts under the Liberal Arts Curriculum, and the Global Perspective (G) requirement of the Minnesota Transfer Curriculum.
3. If a student earns a grade of "C–" or less in any of the above courses, then the student would be required to retake the course(s), and earn a grade of "C" or better prior to admission to the CULG program.
4. Prior to admission to the CULG program, a student must have earned a cumulative GPA of 2.5 or better within 27 credits of SMSU's Liberal Arts Curriculum (LAC). No courses outside the LAC will be used to determine the GPA for entry into the CULG major program.
5. The Culinology® faculty relies upon active advising and up-to-date record keeping to ensure that qualified students are admitted as full CULG majors. Students who have not yet met the Pre-Culinology® requirements are provided with advice and guidance to pursue entry into the program.
6. The above pre-Culinology® requirements for admission to the CULG program are separate from SMSU's Liberal Arts Curriculum (LAC) requirements. All students, including transfer and honor students, who plan to major in Culinology® must meet or exceed the Pre-Culinology® requirements.
7. Students in the Honors Program at SMSU may satisfy the Pre-Culinology® requirements for ENG 101, ENG 102 and ENG 103 by completing their approved Honors Curriculum. The other requirements, including 2.d-h and the requirements 3-6 above, must be completed as indicated.

Bachelor of Science: Culinology® (59-60 credits)

I. Culinology® Foundation Courses: (10 credits)

CULG 100	Introduction to Culinology®	1
HOSP 120	Food Sanitation and Safety	2
CHEM 122	Introduction to Organic Biochemistry	4
BIOL 377	Nutrition	3

II. Culinology® Core Courses: (49-50 credits)

CULG 200	Culinary Essentials I	4
CULG 210	Culinary Essentials II	4
CULG 250	Introduction to Baking and Pastry	3
CULG 260	Principles of Garde Manger and Buffet	3

CULG 310	Food Science	3
HOSP 315	Food, Beverage, and Labor Cost Control	3
HOSP 325	Menu Design and Service Management	3
CULG 350	Aromatics and Flavors	3
CULG 360	Food Sensory Analysis	3
CULG 390	Food Products and R&D Methodology	3
CULG 410	Food Chemistry and Analysis	3
CULG 430	Fundamentals of Food Processing	3
CULG 450	Advanced Culinary Science	3
CULG 490	Product Development (Capstone Course)	3
CULG 498/9	Internship	3
*Choose **one** course (2-3 credits) from the following:*		2-3
BIOL 371	Food Microbiology	3
CULG 300	International Cuisine	3
CULG 320	Principles of Meat Identification, Fabrication, and Evaluation	2
CULG 440	Food Trends, Legislation, and Regulations	3
CULG 460	Quality Assurance of Food Products	3
		59-60

CULINOLOGY® COURSES (CULG)

CULG 100 Introduction to Culinology® (1 credit)
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.

CULG 200 Culinary Essentials I (4 credits lecture/lab)
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, vinaigrettes, and reductions as well as soups to include cream, clear and potage soups. Prerequisite: CULG 100.

CULG 210 Culinary Essentials II (4 credits lecture/lab)
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. Prerequisite: CULG 200

CULG 250 Introduction to Baking &Pastry (3 credits lecture/lab)
A fundamental course in baking methods and principles, to include yeast breads, quick breads, pastries, pies, cakes, custards, creams, and sauces. Prerequisite: None

CULG 260 Principles of Garde Manger & Buffet (3 credits lecture/lab)
Students are introduced to the cold kitchen by their active involvement, participation, and planning of menu items created in this segment of the kitchen. Students practice techniques for artistic displays of hors d'ouevres, canapés, pates, terrines and charcuterie. Analysis of art used for culinary preparations made from edible material used to enhance receptions, buffets, cocktail parties, and theme buffets. Prerequisite: CULG 210, CULG 250.

CULG 300 International Cuisine (3 credits lecture/lab)
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. Prerequisite: CULG 210.

CULG 310 Food Science (3 credits)
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. Prerequisite: CULG 210, CHEM 122.

CULG 320 Principles of Meat Identification, Fabrication and Evaluation (2 credits lecture/lab)
Students learn the fundamentals of purchasing specifications; receiving, handling, and storing meat; techniques for fabricating cuts for professional kitchens; meat grinding, brining, curing, and smoking; and basic sausage making. Students will also use subjective and objective standards to evaluate beef, lamb, and pork carcasses and wholesale cuts for both quality and yield of edible portion as they relate to value and consumer acceptance. Prerequisite: CULG 210.

CULG 350 Aromatics and Flavors (3 credits lecture/lab)
This course covers the five basic taste sensations: sweet, salt, bitter, sour and umami. Students explore culinary herbs and spices, salts, peppers, oils, vinegars, essences, fragrances, oleoresins, concentrates, freeze dried fruit and vegetable products, and other flavor carriers, used in cooking and culinary research and development. Students study aspects of history, medicinal benefits, growing, marketing, purchasing, distributing, and culinary applications and practices. This course includes a hands-on lab application of techniques learned. Prerequisite: CULG 210, CULG 310, concurrent registration in CULG 360 is required.

CULG 360 Food Sensory Analysis (3 credits lecture/lab)
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. Prerequisite: CULG 210, CULG 310, concurrent registration in CULG 350 is required.

CULG 390 Food Products Research and Development Methodology (3 credits lecture/lab)
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. Prerequisite: CULG 260, CULG 360.

CULG 410 Food Chemistry and Analysis (3 credits lecture/lab)
This course covers methods for quantitative, physical, and chemical analyses of foods and food products. Analytical techniques covered will include spectroscopy, chromatography, mass spectrometry, 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. CULG 310.

CULG 430 Fundamentals of Food Processing (3 credits)
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. Prerequisite: CULG 410.

CULG 440 Food Trends, Legislation, and Regulation. (3 credits)
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. Prerequisite: None.

CULG 450 Advanced Culinary Science (3 credits lecture/lab)
Advanced Culinary Science is an examination of taste, cooking techniques, ingredients, and flavoring techniques designed to integrate students' culinary training, academic studies, and field experience using fundamental cooking techniques, topics of contemporary significance, food science, aesthetics, and sensory perception as frameworks. Building on previous CULG courses, students will research and present on menu development, marketing, and fiscal accountability in food production. Use of pricing and marketing strategies will be utilized in this course. Students will demonstrate professional techniques, theory, skills in planning, purchasing, production, and kitchen management learned from prior courses. Prerequisite: Senior Standing.

CULG 460 Quality Assurance of Food Products (3 credits)
A comprehensive course covering all aspects of quality assurance practices in the food industry. Emphasis is placed on interrelations of food chemistry, microbiology, sanitation, processing, and laws and regulations. Prerequisite: Senior Standing.

CULG 490 Product Development [Capstone] (3 credits lecture/lab)
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. Prerequisite: Senior Standing.

CULG 498/499 Internship (3-9 credits)
100 hours per credit hour practical work experience in an 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 or test kitchen. Prerequisite: Junior or Senior Standing.