

# NUTRITION, FOOD SCIENCE AND CULINARY ARTS

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# **NUTRITION, FOOD SCIENCE AND CULINARY ARTS**

## **STATEMENT OF PURPOSE**

Nutrition, Food Science and Culinary Arts education in California community colleges provides opportunities to acquire and apply knowledge and skills related to nutrition principles, food science, food preparation and management. These programs provide education and training leading to career technical certificates, associate degrees, certification or transfer to upper division institutions.

Nutrition, Food Science and Culinary Arts programs work closely with business and professional organizations to meet current employer expectations to enhance employability of students. Emphasis is placed on career education pathways.

## **Goals**

The goals of the Nutrition, Food Science and Culinary Arts programs are to:

- Provide Nutrition, Food Science and Culinary Arts curriculum to prepare students for employment in the private and public sector.
- Provide sequential articulated core courses to facilitate student transfer to other educational institutions and prepare individuals for advanced study in traditional, non-traditional and high technology fields in order to interface with a global economy.
- Provide educational opportunities for retraining individuals for re-entry into the job market, utilizing their abilities and identifying transferable skills.
- Provide lifelong learning, consumer information and skills, continuing and adult education for career advancement, professional development, and as an option to fulfill a requirement for General Education.
- Promote the integration and cooperation of all 1300 TOP Code programs.
- Ensure equal access to Nutrition, Food Science and Culinary Arts for all students especially those who are underrepresented: academically and economically disadvantaged, limited English proficient, diverse and/or disabled.
- Promote gender balance through recruiting and enrolling nontraditional students and avoiding stereotypes and bias in instruction and instructional materials.
- Develop relevant competencies that include soft skills to meet career goals and lead to job readiness and placement.
- Provide experiences that are consistent with current industry standards.
- Provide an environment that promotes critical thinking, creativity, teamwork, and understanding of social, organizational and technological systems.

- Provide an educational component for other programs such as hospitality, health careers, fitness, wellness, child development, family studies, gerontology, and life management.
- Enhance the partnership between Nutrition, Food Science and Culinary Arts programs with industry to incorporate on-site educational opportunities and resource utilization.
- Enhance the transfer and partnerships between Nutrition, Food Science and Culinary Arts programs, secondary schools and private and public universities.
- Promote Nutrition, Food Science and Culinary Arts courses as options to fulfill a multicultural requirement for the General Education curriculum.
- Provide alternative delivery systems designed to meet the changing needs of individuals and organizations within the community.
- Promote Nutrition and Food Science courses as options to fulfill science requirement for the general education curriculum (CCC, CSU, UC).
- Provide off-campus and outreach instruction including alternative delivery systems designed to meet the changing needs of individuals and organizations within the community.
- Promote student participation in professional and community service groups and organizations.
- Provide appropriate professional development opportunities for faculty, administrators and other career technical education program staff including secondary and university partners to improve the relevance and quality of instruction.

## **CAREER OPPORTUNITIES**

### **Career Paths**

Students studying Nutrition, Food Science and Culinary Arts at California community colleges can proceed up a career ladder to various levels of employment and learning. Although the entry level (Level I) may enable a student to be employed, it is strongly recommended that the student proceed toward an associate degree. The following is a partial listing of potential employment or career opportunities. Opportunities and requirements may vary from one community to another.

Career paths in Nutrition, Food Science and Culinary Arts are identified using the following Occupational Employment Statistic Codes (OES) from the United States Bureau of Labor Statistics, Department of Labor.

The following is the proposed crosswalk between OES Codes and TOP Codes for Nutrition, Food Science and Culinary Arts:

**CROSS-REFERENCING OES CODES TO 1300 TOP CODES FOR NUTRITION, FOOD & CULINARY ARTS**

<b>OES Code</b>	<b>OES Title</b>	<b>OES Definition</b>	<b>TOP Code</b>	<b>TOP Title</b>
32523	DIETETIC TECHNICIANS	Under direct supervision of Dietitians or following established nutritional guidelines, advise on food or nutrition.	1306.20	Dietetics
49034	DEMONSTRATORS AND PROMOTERS	Demonstrate merchandise and answers questions for the purpose of creating public interest in buying the product. May sell demonstrated merchandise.	1306.00	Nutrition Foods and Culinary Arts
61000	FIRST-LINE SUPERVISORS AND MANAGERS/ SUPERVISORS - SERVICE WORKERS	Directly supervise and coordinate activities of workers who provide protective services, food services, health assisting services, cleaning and building services, personal services, and other services. Managers/ Supervisors are generally found in smaller establishments where they perform both supervisory and management functions, such as accounting, marketing, and personnel work and may also engage in the same work as the workers they supervise. Exclude work leaders who spend 20 percent or more of their time at tasks similar to those of the employees under their supervision and report them in the occupations which are most closely related to their specific work duties	1306.20	Dietetics
61099	ALL OTHER SUPERVISORS AND MANAGERS/ SUPERVISORS - SERVICE WORKERS	All other supervisors and managers/supervisors of service workers not classified separately above	1306.20	Dietetics
65000	FOOD AND BEVERAGE PREPARATION AND	Prepare and serve food and beverages. Include Cooks, Cafeteria Workers, Waiters and	1306.30	Culinary Arts

	SERVICE WORKERS	Waitresses, and Kitchen Workers.		
65017	COUNTER ATTENDANTS—FOOD	Serve food to diners at counter or from a steam table. Exclude counter attendants that also wait tables.	1306.30	Culinary Arts
65021	BAKERS—BREAD AND PASTRY	Mix and bake ingredients according to recipes to produce small quantities of breads, pastries and other baked goods for consumption on premises or for sale as specialty baked goods.	1306.30	Culinary Arts
650230	BUTCHERS AND MEAT CUTTERS	Cut, trim and prepare carcasses and consumer-sized portions of meat for sale or for use in food service establishments. Exclude butchers working in slaughtering, meat packing or prepared/meat establishments.	1306.30	Culinary Arts
65026	COOKS—RESTAURANT	Prepare season and cook soups, meats, vegetables, desserts and other food stuffs in restaurants. May order supplies, keep records and accounts, price items on menu or plan menu.	1306.30	Culinary Arts
65028	COOKS—INSTITUTION OR CAFETERIA	Prepare and cook family-style meals for institutions, such as schools, hospitals or cafeterias. Usually prepare meals in large quantities rather than to individual order. May cook for employees in office buildings or large other facilities.	1306.30	Culinary Arts
65032	COOKS—FAST FOOD	Prepare and cook food in a fast food restaurant with a limited menu. Duties of the cooks are limited to preparation of a few basic items and normally involve operating large – volume, single purpose cooking equipment.	1306.30	Culinary Arts
65035	COOKS--SHORT ORDER	Prepare and cook to order a variety of food that requires only a short preparation time. May take orders from customers	1306.30	Culinary Arts

		and serve patrons at counters or tables. Exclude cooks, fast food.		
65038	FOOD PREPARATION WORKERS	Perform a variety of food preparation duties, such as preparing cold foods and maintaining and cleaning kitchen work areas, equipment, and utensils. Perform simple tasks such as preparing shell fish and slicing meat. May brew coffee and tea and prepare sandwiches.	1306.30	Culinary Arts
65041	COMBINED FOOD PREP AND SERVICE	Perform duties which combine food preparation and food service. Workers who spend more than 80% of their time in one job should be reported in that occupation.	1306.30	Culinary Arts
65099	FOOD SERVICE WORKERS	All other food service workers not classified separately above.	1306.30	Culinary Arts
89899	FOOD AND TOBACCO WORKERS	All other food serviced workers not listed separately.	1306.30	Culinary Arts
24502	BIOLOGICAL, AGRICULTURAL, AND FOOD TECHNICIANS AND TECHNOLOGISTS, EXCEPT HEALTH	Assist scientists in laboratory and production activities by performing tasks necessary to experiment, test, and develop new and improved methods in production, preservation, and processing of plant and animal life	1306.60	Food Science
89805	BAKERS, MANUFACTURING	Mix and bake ingredients according to recipes to produce breads, pastries, and other baked goods. Goods are produced in large quantities for sale through establishments such as grocery stores. Generally, high volume production equipment is used.	1306.60	Food Science
89808	FOOD BATCHMAKERS	Set up and operate equipment that mixes, blends, or cooks ingredients used in the manufacturing of food products, according to formulas or recipes. May modify or	1306.60	Food Science

		reformulate recipes to produce products of specific flavor, texture, and color. This occupation requires at least 1 year (and often more) of training or experience. Include Candy Makers, Almond Paste Mixers, Cheese Makers, Flavorings Compounders, and Honey Graders and Blenders		
89899	ALL OTHER PRECISION FOOD AND TOBACCO WORKERS	All other precision food and tobacco workers not classified separately above	1306.60	Food Science
92917	COOKING MACHINE OPERATORS AND TENDERS, FOOD AND TOBACCO	Operate or tend cooking equipment, such as steam cooking vats, deep fry cookers, pressure cookers, kettles, and boilers, to prepare food products, such as meats, sugar, cheese, and grain. Exclude Food Roasting, Baking, and Drying Machine Operators and Tenders	1306.60	Food Science
92921	ROASTING, BAKING, AND DRYING MACHINE OPERATORS AND TENDERS, FOOD AND TOBACCO	Operate or tend roasting, baking, or drying equipment to: Reduce moisture content of food or tobacco products, such as tobacco, cocoa and coffee beans, macaroni, and grain; roast grain, nuts, or coffee beans; bake bread or other bakery products; or process food preparatory to canning. These machines include hearth ovens, kiln driers, roasters, char kilns, steam ovens, and vacuum drying equipment	1306.60	Food Science
92928	COOLING AND FREEZING EQUIPMENT OPERATORS AND TENDERS	Operate or tend equipment, such as cooling and freezing units, refrigerators, batch freezers, and freezing tunnels, to cool or freeze products, such as ice cream, meat, blood plasma, and chemicals, preparatory to storage, shipment, or further	13.6.60	Food Science

		processing		
92932	DAIRY PROCESSING EQUIPMENT OPERATORS, INCLUDING SETTERS	Setup, operate, tend continuous flow of vat-type equipment to process milk, cream, other dairy products, following specified methods and formulas.	1306.60	Food Science
92944	CUTTING AND SLICING MACHINE OPERATORS AND TENDERS	Operate or tend machines to cut or slice food.	1306.60	Food Science
92958	CLEANING, WASHING, AND PICKLING EQUIPMENT OPERATORS	Operate or tend machines to wash or clean items, such as, dried fruit, pulp, animal stock, to remove impurities preparatory to further processing.	1306.60	Food Science
92965	CRUSHING, GRINDING, MIXING, & BLENDING MACHINE OPERATORS AND TENDERS	Crushing, grinding, and polishing machine operators and tenders; operate or tend machines to crush or grind dried fruit, grain, or food. Mixing and blending machine operators and tender: operate or tend machines to mix or blend any of a wide variety of materials, such as, spices, dough batter, tobacco, fruit juices, food products, or color pigments.	1306.60	Food Science
93935	CANNERY WORKERS	Perform any of a variety of routine tasks in canning, freezing, preserving or packing food products. Duties may include sorting, grading, washing, peeling, trimming, or slicing agricultural produce.	1306.60	Food Science
93938	MEAT, POULTRY, & FISH CUTTERS AND TRIMMERS, HAND	Use hand tools to perform a wide variety of food cutting and trimming tasks that require skills less than that of precision level. Include meat boners, carcass splitters, poultry eviscerators, fish, cleaners and butchers, skimmers, and stickers.	1306.60	Food Science

**Source:** United States Bureau of Labor Statistics, 2006-2016

**Entry Level:** Entry level skills provide students with a general knowledge in Nutrition, Food Science or Culinary Arts enabling them to work in the industry, meeting specific needs. In some communities an agreement has been made between an employer and the community college that requires satisfactory completion of one or more designated courses as a prerequisite for employment.

**Entry - Immediate Employment.** One or more Nutrition, Food Science and Culinary Arts courses designed to meet specific employment needs.

**Opportunities:**

- Baker Assistant
- Cafeteria Worker
- Catering Assistant
- Cook's Helper
- Cook: Short Order, Fry, Line
- Counter Worker
- Dietary Aide
- Dietary Worker
- Food Manufacturing Worker
- Food Preparation Worker
- Food Server
- Foodservice Worker
- Housekeeping
- Pantry Worker
- Tray Line Checker

**Occupational Certificate -** The certificate level provides students with necessary skills and knowledge leading to employment in a Nutrition, Food Science or Culinary Arts related job. The number of units will vary according to individual college program requirements.

**Opportunities:**

- Appliance and Equipment Demonstrator
- Assistant Sensory Technician
- Assistant Laboratory Technician
- Broiler Cook
- Caterer (Entrepreneur)
- Child Nutrition Head Cook
- Commercial Foodservice Worker
- Cook Helper
- Counter and Pantry Supervisor
- Dietary Aide
- Food Consultant
- Food Products Tester

Foodservice Supervisor  
Health Care Worker  
Hotel or Restaurant Cook  
Line Cook  
Pantry Worker  
Private Cook  
Quality Assurance Technicians  
Recipe Development Technician  
Sauté Cook  
Short Order Cook  
Test Kitchen Assistant Kitchen Supervisor  
Weight Management Counselor  
Wellness Instructor

**Associate Degree** - Completion of a community college associate degree in Nutrition, Food Science or Culinary Arts requiring a minimum of 60 semester credit hours, and provides the requisite foundation for transfer to a four year college or university.

**Opportunities:**

Baker  
Cafeteria or Restaurant Manager\*  
Caterer  
Chef Child Nutrition Services  
Child Nutrition Services Manager\*  
Dietetic Technician in hospitals, clinics and institutions  
for the care of infants, children and the aged  
Flight Kitchen Manager  
Food Production Manager  
Food/Sales Technician  
Foodservice  
Foodservice Manager\*  
Food Technician  
Head Cook  
Industrial Cafeteria Manager  
Kitchen Supervisor  
Laboratory Assistant  
Manufacturing Supervisor  
Menu Planner  
Product Development Technician  
Quality Assurance Technician  
Recipe Developer  
Research Chef Assistant  
Research Technician  
Sales Representative

Sensory Technician  
Sous Chef  
Supervisor Food Merchandising  
Supervisor Food Product  
Taste Panel Coordinator

\*Experience usually required in addition to degree.

**BA/BS or Advanced Degree** - Advanced courses and other professional level work leading to the baccalaureate, other degree or technical degrees at four-year colleges or universities or training institutes; provides students with qualifications for professional employment.

**Opportunities:**

Advertising Specialist  
Child Nutrition Services  
Community Nutrition  
Consultant  
Consumer Education Research  
Culinary Arts  
Culinologist  
Dietetics, Clinical (therapeutic)  
Dietetics, Foodservice Systems (management and administration)  
Education  
    Adult Education  
    Commercial Companies - food, products and equipment  
    Community colleges and four-year colleges and universities  
    Extension  
    Health and Welfare Agencies  
    K through 12, ROC/Ps  
    Medical Centers - hospitals and clinics  
    Undergraduate, graduate programs  
Executive Chef  
Food Broker  
Food and Equipment Manufacturer  
Food Journalism, magazines, newspapers, Internet, radio, television, video production  
Food Photography  
Food Scientist/technologist  
Food Stylist  
Importer/Exporter  
Lactation Education

Product Development  
Public Relations Representative  
Quality Assurance Manager  
Recipe testing and development  
Research  
    Business and Industry  
    Colleges and Universities  
    Federal Agencies - agriculture, education, health  
        and welfare  
    Hospitals  
    Sales Promotion  
    Sales Representative  
Test Kitchen Director  
Wine Steward

Business/Industry Sectors

Assisted living facilities  
Airlines, cruise ships, railroads  
Colleges and Universities  
Correctional institutions  
Department stores  
Federal agencies in the U.S. and abroad  
    e.g., VISTA, WIC, Peace Corps, WHO, FDA and  
    USDA  
Food manufacturing firms  
Food product “commodity” marketing boards  
Grocery chains  
Hospitals - federal, state, local, convalescent  
Hotels, motels and resorts  
Restaurants, cafeterias and coffee shops  
Retirement homes  
Skilled nursing facilities  
State, county and city education and health  
    departments  
Theme parks

Note: Refer to the *Dictionary of Occupational Titles (DOT)*, **O\*NET OnLine** at [online.onetcenter.org](http://online.onetcenter.org) or your campus career information center for additional job titles and information.

**Future Outlook**

Future trends and occupational projections indicate that individuals with education and training in Nutrition, Food Science and Culinary Arts will have a wide range of career opportunities. Current and future trends reflect basic drivers such as *population*

*demographics, consumer tastes and expectations, competition, globalization of trade, economic trends, and technological advances.* Innovation, flexibility, and the ability to respond quickly to changing consumer tastes, nutritional awareness, and environmental sustainability appear to be the keys to survival in the increasingly competitive marketplace.

Currently, employment in the area of nutrition and dietetics is expected to grow 13.8 % between 2006 and 2016 and is considered a high growth area by the California Employment Development Department. Health, nutrition, and fitness have become a way of life. People want to feel good and look good. Eating right for a healthier lifestyle and implementing good nutrition practices are top priorities. These changes mean increased opportunities in the field of dietetics. Increasing rates of childhood and adult obesity related health problems coupled with an aging population will continue to stimulate growth in this employment area.

The food production and preparation industry is also growing rapidly with 23.5 % growth in employment expected between 2006 and 2016. This industry not only provides entry-level jobs, it also offers a variety of pathways into higher paying positions. Food preparation jobs cut across several different industry sectors. The restaurant industry, one of the largest in the state of California hosts over 1,456,000 of the state's workforce. However, employees who perform food preparation duties also work in grocery stores, hospitals and assisted living facilities, hotels, food manufacturing and processing companies, commercial and retail bakeries, catering firms, school districts and theme parks.

Workforce training is essential to maintaining and improving the overall health of the food production and preparation industry. Currently, California secondary, post-secondary and private educational institutions cannot meet industry's demand for skilled workers. However, the growth and expansion of training programs reflect an increasing recognition on the part of educators that food preparation is a field of opportunities.

Food processing occupations—food prep workers, bakers, chefs, food machine operators, and numerous others are found in a variety of different industries. These industries include hotels, restaurants, hospitals, schools, grocery stores, prisons, amusement parks, bakeries, and catering, among others.

One of the key drivers of change affecting the food industry over the past several years has been changing demographics. Not only has the overall population of California grown in the last 30 years, it has become dramatically more diverse. This diversity manifests itself in changing consumer tastes and demands.

Employment trends reflect and explain the movement toward convenience or service-oriented food products, such as “convenient meal solutions,” pre-cut vegetables, ready-to-eat salads, and the like. Because households now usually have two income-earners, less time is available for food preparation, a situation that is exacerbated by increasingly variable work schedules.

Health-consciousness has stimulated the development of new products. Food manufacturers have realized that while consumers are willing to pay more for healthy products, they are not willing to sacrifice taste. There is a recent demand for trained foodservice employees in the retail food industry who are skilled in this area.

## **Industry Trends**

Grocery Stores: Increasingly, grocery stores are expanding their deli and bakery services to include a wide array of hot and cold dishes, snacks and deli platters, and baked goods to accommodate almost any budget or taste. These “home meal replacements” represent a growing trend among individuals and families who have time constraints, lack cooking skills, or just prefer to eat out.

Hospitals and Assisted Living Facilities: The most significant influence on food preparation practices is the patients’ dietary restrictions. Certain categories of food employees are required to have specialized knowledge about nutrition and diet that call for low sodium, restricted sugar content, and/or specific methods of food preparation.

Hotels: In an attempt to keep guests from dining off-site, hotels are expanding their menus and offering a broader range of dining environments.

Manufacturers and Bakeries: Like everyone else in the food industry, manufacturers and bakeries must compete for customers and market share. Their competitive edge lies in their ability to develop and “brand” new products, whether under their own label or someone else’s.

Restaurants: Full-service, sit-down restaurants have to keep pace with their customers’ changing tastes if they want to stay in business. As a result, detailed knowledge about different kinds of foods and beverages is becoming more important as customers develop more sophisticated palates. This requires key employees to keep up with the latest food trends, as well as develop new ones. Restaurants must be prepared to continually change their menus and the ways in which food is prepared.

School Districts: Participation in the child nutrition meal program continues to grow due to the economic conditions which are qualifying more free and reduced priced meals through the USDA. Food service employees are moving into this sector.

Theme Parks: In the past, theme parks focused more on entertainment than on food service. However, to keep park visitors on the premises for longer periods of time, they are now dedicating more resources to providing a wider array of food offerings and dining experiences.

## Future Trends

Occupation	% Employment Change 2006-2016	Rank* (if available)
<b>Dietitians and Nutritionists</b>	+13.8	H
<b>Food Preparation and Service Occupations</b>	+25.2	VH
- <b>Chefs, cooks, and other kitchen workers</b>	+23.3	VH
<b>Cooks, except short order</b>	+13.	H
<b>Bakers, bread and pastry</b>	+12.1	H
<b>Cooks, institution or cafeteria</b>	+14.0	VL
<b>Cooks, restaurant</b>	+18.	H
<b>Cooks, short order and fast food</b>	+20	VH
<b>Food preparation workers</b>	+23.5	VH
<b>Food Workers, Precision</b>	-2.3%	
- <b>Bakers, manufacturing</b>	+8.5	L
- <b>Butchers and meat cutters</b>	13.8	VL
- <b>All other precision food workers</b>	+8.5	L
- <b>Inspectors, testers, and graders, precision</b>	-3.2	VL

H – high growth, L – low growth, VL – very low growth

**Source:** Bureau of Labor Statistics, Office of Occupational Studies and Employment Projections 2006-2016 <http://www.bls.gov/emp/>  
California Employment Development Department, Labor Market Information (2004-2014) <http://www.labormarketinfo.edd.ca.gov/?pageid=1011>

Nutrition, Food Science and Culinary Arts is an expanding area of employment with a wide variety of quality careers. Programs in this area maintain close contact with local business to assure quality graduates who become excellent employees in a wide variety of challenging careers.

The Labor Market Information (LMI) data on current employment opportunities by county should be utilized as a resource for projecting current and emerging jobs and placement potential. This data is available at each California community college and on the Internet.

- Projections for Occupations  
<http://www.labormarketinfo.edd.ca.gov/?pageid=1011>
- Projections for Wages  
<http://www.labormarketinfo.edd.ca.gov/?pageid=1009>
- For Educators and Trainers, the occupations for which you should provide training <http://www.labormarketinfo.edd.ca.gov/?pageid=112>

## **CURRICULUM: PROGRAMS, CERTIFICATES AND COURSES**

The Nutrition, Food Science and Culinary Arts curriculum is designed to provide economic and career development programs in Food, Culinary Arts, Foodservice, Nutrition, Wellness and Health. Selected courses within the curriculum meet requirements for entry level employment, certification, associate degrees and provide part of the undergraduate requirements for students who wish to transfer to a four-year college or university for an advanced degree. Courses also provide students with lifelong learning knowledge and consumer skills. Departmental designation and unit value may vary among institutions.

### **Programs and Certificates**

Nutrition, Food Science and Culinary Arts include the following programs and certificates: Culinary Arts, Chef and Institutional Cook, Culinology, Catering, Restaurant and Foodservice Management, Child Nutrition Services, Baking, Apprenticeships, Dietetic Service Supervisor, Dietetic Technician, Pre- Dietetics, Nutrition Education, Health and Wellness, Food and Equipment Demonstration and Food Science.

### **Course Classifications**

TOP Classification: The TOP (Taxonomy of Programs) Code classifications for Nutrition, Foods and Hospitality are:

#### **1306.00 – Nutrition, Foods, and Culinary Arts**

Principles and techniques of food preparation, food management, food production services and related technologies, and the fundamentals of nutrition, nutrition education, and nutrition care affecting human growth and health maintenance.

#### **1306.20 – Dietetic Services and Management**

Programs providing training in institutional food services and the management and supervision of such services, as Dietary Managers, Dietary Service Supervisors, and similar positions. Includes food services in schools, hospitals, nursing facilities, and other noncommercial settings.

#### **1306.30 - Culinary Arts**

Selection, storage, preparation, and service of food in quantity, including the culinary techniques used by chefs, institutional cooks, bakers, and catering services.

#### **1306.60 Dietetic Technology**

Programs leading to national certification as a dietetic technician by the American Dietetic Association.

Please note: *The Family and Consumer Sciences Program Plan* Team for Nutrition, Food Science and Culinary Arts recommends a separate TOP code 1306.70 for Food Science: Set up, operate and/or tend cooking equipment to prepare food products in quantity according to formulas and recipes.

Career Technical: Courses included in the Nutrition, Food Science, and Culinary Arts program are considered to be career technical.

Transfer: Transfer courses have a course content that is either currently articulated as an equivalent course at a four-year or transfer institution or perceived to be a potential equivalent course.

Lifelong Learning, Continuing and Adult Education: Courses within the Nutrition, Food Science and Culinary Arts program provide knowledge and skills which enhance the quality of life and develop better consumerism in students. Continuing education hours are currently required by a number of professions for registration/certification requirements. These courses provide professionals with continual updating of techniques, skills and knowledge to stay abreast of a rapidly changing workplace.

Community colleges also have the opportunity to offer non-credit adult education courses within this subject area. The purpose, content and class hours should be determined by the local community needs.

Electives: Electives are recommended courses from which students might select to complement their study for a degree or certificate or to develop job-specific skills.

Work Experience/Internship/Field Studies, Apprenticeships: Students benefit from having work site experiences within their subject area and related to their educational goal. Students are encouraged to participate in supervised/monitored field experience and travel study courses to gain a deeper understanding of the relationships between classroom and practical application.

Supervised Practice: Dietetic programs approved or accredited by the American Dietetic Association or California State Department of Health Services are required to have a specific number of hours of supervised clinical laboratory field experience.

General Education: California community colleges' philosophy supports the belief that in granting an associate degree, the college certifies that the recipient has acquired a level of competency in a broad general knowledge of the physical world and its inhabitants, the achievements of humankind and a clear and logical manner of thinking and analytical and communication skills. Each college specifies its own general education requirements with the intent to encourage each graduate to attain this knowledge in a manner consistent with the graduate's interests and goals. Transfer students may be encouraged to have the general education courses certified by the community college.

The core Nutrition course currently satisfies a General Education requirement for the associate degree at a number of California community colleges and for certification and transfer to four-year institutions. On some campuses the course satisfies the science requirement while at others it has been accepted under lifelong understanding and self-development. Food Science may also meet a college's general education science requirement.

Cultural and Ethnic Foods within Nutrition, Food Science and Culinary Arts may satisfy the cultural diversity requirement in General Education packages.

**Interdisciplinary:** Within the Nutrition, Food Science and Culinary Arts programs, interdisciplinary courses will be those academic articulated credit courses designed to complement and support a major education/industry discipline. Due to the scope of the subject matter, courses in Science, Psychology, Communications, Ethnic Studies, Health, Math, Physical Education, Business, Business Law and Computer Science and Applications will become a part of certificates, associate degrees, or degrees in higher education. Within the Family and Consumer Sciences discipline, courses in Life Management, Child Development and Human Development should also be completed.

Courses which can be linked to other disciplines or lend themselves to team teaching situations are: Nutrition (Science, Health, Nursing, Human Services, Hospitality, Early Childhood Education), Gerontological Nutrition and Food Practices (Sociology), Cultural Food (Sociology, Cultural Anthropology, Ethnic Studies), Culinary Arts (Business, Hospitality, Ethnic Studies) and Nutrition Wellness and Fitness (Physical Education and Health). Content delivery will be enhanced through innovative partnerships including grant writing, resource sharing and participation in advisory committees. Computer applications and technology, communications and math skills need to be incorporated into each of these. Family and Consumer Sciences programs and colleges have developed strong interdisciplinary ties.

### **Curriculum Integration and Implementation**

To utilize this *Family and Consumer Sciences Program Plan*, faculty needs to take the *Curriculum: Programs, Certificates and Courses* and the *Course Description, Core Components and Student Learning Outcomes* sections of each chapter and personalize them to their college and community. In the development of the course content, the topical outline, measurable objectives, evaluation methods and assignments for the course, and certain national educational issues must be addressed. Some of these issues discussed below relate to federal legislation, others closely affect the delivery of education. Family and Consumer Sciences courses and programs encompassing these issues will be positioned to stay in the forefront of educational reform. See the *Family and Consumer Sciences Program Plan Introduction* for more details.

**Core Indicators:** The Core Indicators are the accountability requirements that measure the performance of career technical programs and were significantly changed by The Carl Perkins Career and Technical Education Improvement Act (Perkins IV). Under the new Act local districts and agencies must either accept the State's established performance target or negotiate a local performance target with the State. Core indicators were modified or added:

- Core Indicator 1 measures Technical Skill Attainment
- Core Indicator 2 measures Certificate or Degree Attainment
- Core Indicator 3 measures Student Retention or Transfer

- Core Indicator 4 measures Student Placement
- Core Indicator 5 measures Non-traditional Participation and Completion

Core Indicators data and detailed information can be downloaded from the Chancellor's Office website at: [http://misweb.cccco.edu/voc\\_ed/vtea/vtea.htm](http://misweb.cccco.edu/voc_ed/vtea/vtea.htm) and the Joint Special Populations Advisory Committee website at: <http://www.jspac.org>

Career and Technical Education (CTE) deans and researchers on individual campuses can help faculty to access and analyze the Core Indicators data for each Family and Consumer Science program at the 2, 4, and 6 digit TOP codes. Campuses can compare their performance data to statewide 1300 TOP code programs. FCS programs in 1300 TOP code should use the Core Indicators data for purposes of program improvement and to ensure student success. The Core Indicators can also be used as one set of data for program review and setting funding priorities at the campus level. It is important for all Nutrition, Food Science and Culinary Arts program coordinators/directors to monitor the Core Indicators data for their programs and ensure that the information being reported is accurate and reliable.

Soft Skills: Besides technical and academic skills, employers demand personal self-developed skills that transfer from one workplace setting to another. The number one quality that employers want is communication skills, both written and verbal, particularly in interpersonal settings such as presentations, face-to-face interviews, telephone conversations and electronic communication. Other priorities include critical thinking and judgment, a strong work ethic, initiative, and problem solving skills. Employers report that the way to have an edge in the competitive job market is to be dependable, resourceful, use ethical practices and to demonstrate a positive attitude. Finally, interpersonal skills such as teamwork and negotiation skills, and emotional intelligence play important roles in job retention and promotion.

Research suggests that most career success is attributable to soft skills. Curriculum must be planned to include information and assignments that develop these skills and evaluation systems that will measure the students' success/mastery of them. The Life Management course includes assignments aimed at developing these skills and research proves that students positively change their behavior upon taking the course. Therefore, by including this course in every program, a college can facilitate the attainment of these competencies in students.

All Aspects of the Industry: Students must have a broad view of the industry in which they will work. Perkins IV states that curriculum should reflect "all aspects of the industry" including planning, management, finances, technical and production skills, underlying principles of technology, labor and community issues, health and safety and environmental issues related to that industry.

Sufficient Size and Scope: Perkins IV also requires campuses to support students with programs and services of "sufficient size and scope," to enhance the likeliness of

student success. Examples include having a program-specific counselor, literature in a campus career center, and program-specific tutors. Campuses need to support programs with research into job placement and retention.

Integrated Academics: CTE guidelines clearly identify the need to have an educational curriculum that integrates academic and vocational experiences. Many Tech Prep projects within California have developed courses and programs that implement this process. No singular method has been prescribed as being the model for integrated academics, allowing for the flexibility of the college and educational program to develop their own model. Examples of how integration can be achieved include: paired teaching of academic and vocational courses, team teaching a singular course which combines the acquisition of vocational and academic competencies, certifying a vocational course as to its content and competencies meeting the academic criteria, learning communities and honors programs.

As courses and assignments are developed, Nutrition, Food Science and Culinary Arts faculty should work closely with the academic faculty to be creative in addressing the learning of the traditional "general education" competencies within the vocational programs.

Work-Based Learning: The School to Work Opportunities Act of 1994 (California uses the term School to Career) encourages all states to develop systems that help students transition from school to the workplace. Educational systems must ensure that students are prepared with the skills and knowledge that allow them to enter a career. To do this, the following components need to be at the basis of an educational frame:

- Integration of work-based learning and school-based learning.
- Coherent sequence of courses that prepares a student for a first job, typically including one or two years of post secondary education, a high school diploma, a skill certificate or post secondary certificate or diploma.
- Programs incorporating work-based learning, school-based learning and connecting activities.

Educational programs can provide work-based learning through such methods as cooperative work experience, internships, fieldwork placement, job shadowing, community service, volunteering and mentoring. Faculty also has the opportunity to experience work-based learning through grants which allow their return to a work site for a limited period of time.

Distance Education: One important educational trend is distance learning that allows students to learn at time schedules and locations that meet their own needs. The most common delivery method is where portions or all of a course are presented online via the Internet utilizing school learning platforms, podcasts or through telecourses. The use of blogs or wiki pages can also be beneficial.

Articulation and System Alignment: This *Family and Consumer Sciences Program Plan* supports the importance of creating the "seamless" curriculum that allows students to progress through California's educational system. An overriding goal of articulation has been

to eliminate duplication of learning from course to course, level to level and among and between educational segments. As Tech Prep programs, ROCPS and Career Pathway agreements expand, it is critical that Nutrition, Food Science and Culinary Arts courses clearly state student learning outcomes. Only through faculty's continued effort to work collaboratively with faculty from other educational institutions and systems can articulation be developed, expanded and made to benefit the student in their progress toward an educational goal.

Regionalization: With resources becoming scarce and some of the Nutrition, Food Science and Culinary Arts programs having limited enrollment, regionalization or having identical programs within neighboring educational institutions allows for students to move from college to college without duplication of education. Articulation and collaboration among participating institutions is paramount to its success. Regionalization also allows for the pooling of "resources" both in staffing and physical equipment.

Equal Access and Learning Success: Nutrition, Food Science and Culinary Arts programs must focus on recruitment of students and ensure that equal access is provided to all. This includes, but is not limited to, students who are underrepresented such as academically and economically disadvantaged, limited English proficient, culturally diverse, students with disabilities, and those who select gender imbalanced programs. Faculty must ensure that bias in instruction and instructional materials has been avoided and that all students have the opportunity to succeed.

Faculty needs to work cooperatively with college student support programs/services. In-service training is critical to allow faculty to learn strategies which complement individual student success in learning. Collaborative assignments, multimedia presentations, self-paced learning and module learning are just a few teaching modalities that are important in today's classroom. Recruitment and marketing materials should also address these issues.

## **COURSE DESCRIPTION AND CORE COMPONENTS AND STUDENT LEARNING OUTCOMES**

Course descriptions and core components delineate the content of the courses identified in the area of Nutrition, Food Science and Culinary Arts. Implementation may reflect individual instructors' and institutional needs. Course titles and descriptions are suggestions and will vary among campuses. Student Learning Outcomes suggest specific skill sets as they relate to the course content and student qualifications upon course completion.

### **Advanced Nutrition Care**

Applies the principles of nutrition care to individuals through the use of case studies and practicum. Includes menu planning principles for people of various stages in the life cycle, diverse cultures and varying diet modifications.

## Core Components

Nutrition interventions through the life cycle  
Initial patient screening  
Monitoring enteral nutrition  
Selection and monitoring of adaptive feeding equipment  
Monitoring of caloric and fluid intake  
Review patient charts and discuss with the Dietitian any abnormal values  
Monitoring patient charts for food and drug interactions  
Application of medical nutrition therapy  
Menu adaptation for individual client's needs/preferences  
Recipe adaptation for special needs  
Counseling techniques  
Cultural sensitivity

### Student Learning Outcomes:

- Identify dietary needs through the various stages of life
- Plan various types and styles of menus based on client's lifestyle and needs
- Evaluate menu, assess client progress and apply changes as needed production area

## Baking and Pastry

Study in the fundamentals of baking, including ingredient composition and function, preparation and evaluation of yeast, laminated doughs, yeast doughs, quick breads, biscuits and muffins, cookies, shortened cakes, pies, custards, and recipe conversion software.  
Prerequisite: Sanitation and Safety or concurrent enrollment is suggested.

## Core Components

Proper techniques of sanitation and safety  
Baking terms  
Station organization and timing  
Principles of baking production to obtain quality baked goods  
Baking ingredients, quality, selection and measurement  
Properties and functions of ingredients  
Calculating formulas, recipe conversions  
Laminated dough production  
Icing and piping techniques  
Scaling Products, liquid and dry ingredient measurements

Standards for quality baked products including yeast rolls, beads, roll-in yeast dough, quick breads, pies, shortened cakes, cookies, custards, puddings and sauces.

Errors in production analysis

Recycling systems and resource conservation

Product evaluation

Production of high quality products

production techniques

presentation techniques

bake shop equipment

sanitation

Marketing of product

Mixing methods

### **Student Learning Outcomes:**

- Practice baking formulas, and principles
- Employ proper usage of bakeshop equipment
- Assemble and organize food production area
- Evaluate results of baked product

## **Catering**

Covers catering and special events planning and food production including management, menu planning, estimating and controlling costs, equipment selection and use, logistics, and presentation techniques, utilization of current technology and software. Customer service and recommended business practices will be stressed as well as quality standards. Prerequisite: Sanitation and Safety or concurrent enrollment is suggested.

### **Core Components**

Quantity food production techniques

Styles of meal service

Buffet set-up

Presentation techniques

Quality standards and evaluation

Time and organization

Sanitation and safety

Customer service

Equipment selection and use

Menu planning

On-premise catering

Off-premise catering

Estimating and controlling costs

Purchasing, receiving and storage

**Student Learning Outcomes:**

- Identify the various types of catering events
- Schedule components of catering event
- Categorize duties associated with catering
- Assess results of the planned event

**Children's Nutrition**

Nutrition issues relating to the basic nutritional needs of children from the prenatal period through adolescence and integration with the overall developmental goals for children. Emphasis on meal planning for various age groups according to the USDA guidelines for child nutrition program regulations and the cultural and economic diversity in child care and educational facilities.

**Core Components**

Nutrients needed for growth and development  
Food sources of major nutrients  
USDA Food Guide  
Nutritional analysis software  
Menu planning and meal patterns for appropriate age groups  
Nutrition principles from prenatal through adolescence  
Feeding and eating issues such as picky eaters and over eaters  
Nutritional management of overweight and underweight children  
Nutrition education for parents, caregivers and children  
Choking prevention and correction  
Food allergies and intolerances  
Cultural food patterns of the child and sensitivity to family patterns  
Local, state, federal laws and food regulations for child care facilities  
Food safety and sanitation  
Standards for child care foodservice  
Public policy  
Dietary guidelines for nutrition programs  
Developmental perspectives  
Food experiences for children

**Student Learning Outcomes:**

- Identify and differentiate state and federal guidelines for children's meals
- Apply guidelines to the planned menu
- Analyze completed menu
- Measure menu success

## **Contemporary Issues in Nutrition and Foods**

Identifies contemporary health issues. Emphasis is on modification of dietary selections and practices based on current knowledge of nutrition.

### **Core Components**

Nutritional issues of cardiovascular disease, cancer, obesity, diabetes, malnutrition, eating disorders  
Food preparation techniques to reduce fat, cholesterol, sodium, sugar  
Modification of current diet selections  
Methods of increasing fiber  
Environmental issues such as pesticides, water quality, and organic foods  
Sanitation and safety issues  
Emerging technologies such as biotechnology and irradiation  
Vegetarian diets  
Nutrition misinformation, fads and fallacies  
Computer evaluation of diet and body composition  
Body composition analysis  
Understanding food labeling  
Evaluation of sources of nutrition information such as the Internet, professional and popular literature

### **Student Learning Outcomes:**

- Recognize various diet related diseases and disorders
- Demonstrate a healthy menu option
- Modify diets to reduce risk factors
- Measure success of modified diets

## **Culinary Arts, Beginning**

Introduction to the history, tradition and culture of the culinary field. Equipment and food identification, basic culinary techniques including knife skills, cooking techniques, evaluation of completed product, and organizational skills will be explored. Culinary theory and techniques, creates a culinary foundation for product identification and basic cooking procedures based on nutrition and classic preparation methods. Prerequisite: Sanitation and Safety or concurrent enrollment is suggested.

### **Core Components**

Weights and measures  
Describe and use of a standardized recipe

Recipe conversion  
Functions of ingredients  
Sanitation and Safety  
Work simplification and organization  
Standards of quality food production and maximum nutrient retention  
Knife skills demonstrating safe practices  
Use of staple ingredients, herbs, dairy products  
Basic preparation of fresh vegetables, and fruits  
Basic preparation of clear and thick soups  
Recycling systems and resource conservation  
Preparation of various stocks  
Preparation of classical sauces  
Sautéing, roasting, stewing, grilling, braising, poaching, and steaming  
Proper use of equipment, utensils and tools used in food preparation  
Criteria and standards of quality for the preparation of and presentation of food  
Terminology used in food preparation  
Energy and resource conservation  
Plan and organize laboratory assignments

**Student Learning Outcomes:**

- Define beginning culinary principles and practices
- Employ kitchen sanitation protocol
- Demonstrate beginning culinary skills and techniques
- Assemble and arrange equipment, materials, and workspace
- Compare completed product to stated recipe guidelines

**Culinary Arts, Intermediate**

Culinary theory and techniques working with proteins, starches, and vegetables expanding on the principles learned in Beginning Culinary Arts. Meat identification, USDA guidelines, plate presentation and product evaluation. Investigation of diverse culinary trends and techniques. Pre-requisite: Beginning Culinary Arts suggested

**Core Components**

Sanitation and safety  
Starch identification and cookery and evaluation  
Protein identification, fabrication, cookery and evaluation including  
Beef and veal

Lamb  
Pork  
Seafood  
Poultry  
Alternative Protein  
Safe Machine usage  
Recycling systems and resource conservation  
Classic Cooking techniques

**Student Learning Outcomes:**

- Review beginning culinary skills and techniques
- Product identification
- Apply appropriate intermediate culinary skills and techniques
- Construct plating of completed products
- Distinguish proper cooking techniques, evaluate presentation and flavor of product

**Cultural and Ethnic Foods**

Regional, ethnic, cultural, religious, historical and social influences on food patterns and cuisines.

**Core Components**

Selection and use of specialized equipment and utensils  
Regional, ethnic, cultural, religious, historical and social influences  
Micro cultures in America including immigrants from Europe, Americas, Africa, Asia and Near and Middle East and Regional micro cultures in the U.S.  
Traditional foods of selected cultures food habits and food ways  
Geographic factors in food availability  
Global food issues  
Origins and development of cultural foods  
Application to the food industry  
Geographic basis  
Ethnic mealtime atmospheres  
Nutritional aspects of cultural foods  
Selection, preparation and serving of cultural foods  
Commercial and professional applications

**Student Learning Outcomes:**

- Familiarity with cuisines of the world
- Distinguish similarities and differences of cuisine and cultures
- Illustrate characteristics of specific cuisines as related to the food industry

- Compare and contrast food availability and consumption patterns in the regions of the world

## **Dietetic Education**

Application of the principles of nutrition education to community groups, including the roles of dietetic professionals.

### **Core Components**

Nutrition education for community groups  
 Resource development  
 Ethnic, cultural and religious influences on food  
 Professional standards of practice  
 History of dietetics  
 Professional code of ethics  
 Professional organizations  
 Certification

### **Student Learning Outcomes:**

- Identify available resources for nutrition education
- Practice professional standards and ethics
- Design an appropriate nutritional education plan for target audiences
- Assess viability of plan

## **Dining Room Service**

Overview of front of house food and beverage service, table maintenance, alcoholic beverage laws and regulations, POS system operation, and dining room layout. Prerequisite: Sanitation

### **Core Components**

Sequence of service  
 Classic styles of service  
 Dining room hierarchy  
 Table setting  
 Distillation and fermentation  
 Wine varietals and regions  
 Front and back of house coordination  
 Wine Service  
 Stemware  
 Dram shop laws and liability  
 Point of Sale systems and usage

Sales techniques  
Guest relations

**Student Learning Outcomes:**

- Identify dining room policies and procedures
- Employ computer aided systems for the front of the house
- Demonstrate effective guest relations skills

**Food and Beverage Purchasing and Control**

Purchasing techniques used for acquiring food, beverages and supplies used in foodservice operations.

**Core Components**

Legal and ethical practices  
Flow of food in an establishment  
Analyze market fluctuations and product costs  
Quality specifications  
Purchasing methods  
Inspecting, receiving and storage practices  
Computer aided ordering and inventory control  
Product rotation  
Safety and sanitation  
Payment practices  
Security systems  
Integration with other professionals

**Student Learning Outcomes:**

- Define basic practices of food and beverage purchasing
- Recognize and apply food specifications related to purchasing
- Establish inventory control systems
- Choose appropriate system for foodservice establishment
- Evaluate purchasing system

**Food Production Management**

Organization and management of foodservice operations including occupational levels and responsibilities, quantity food preparation with emphasis on food production management, evaluation and the effective management of time and equipment.

**Core Components**

Legal and ethical practices

Responsibilities of food production manager  
Management process: planning, organizing, communicating,  
decision-making, delegating  
Utilization of appropriate computer software  
Production scheduling  
Forecasting  
Handling emergencies  
Ordering  
Coordinating of foodservice systems  
Menu writing and costing  
Portion control  
Operational layout of equipment and facilities  
Principles of sanitation

**Student Learning Outcomes:**

- Identify responsible practices of food production management
- Demonstrate management processes related to food production
- Design appropriate menus for foodservice operations
- Organize kitchen production schedules
- Evaluate and revise food production management systems

**Food Science Technologies**

Exploration of food processing and technology and how it affects the color, flavor, texture, aroma and quality of foods.

**Core Components**

Government regulation of processing and labeling  
Sensory evaluation  
Scientific research methods  
Food allergens  
Function of water in foods  
PH and acidity  
Food processing technologies (thermal/freezing)  
Nutritional analysis and labeling  
Caloric counting  
Packaging  
Environmentally friendly packaging  
Dispersion systems  
Enzyme reactions  
Food additives and preservatives  
Composition, properties and functions of foods

**Student Learning Outcomes:**

- Understand processes and regulations pertaining to food manufacturing
- Distinguish the function of ingredients in food production
- Differentiate appropriate packaging for food
- Appraise food quality using food science principles

**Foodservice Supervision**

Assist employees and employers in understanding human behavior in social institutions, business and industry, including leadership, responsibility, communication, status, decision-making, motivation, personnel problems.

**Core Components**

Review principles of sanitation and safety

Leadership qualities and theories

Motivation

Decision making, problem solving

Job descriptions and specifications

Productivity

Delegation

Effective discipline techniques

Communications: giving instructions and constructive criticism

Orientation and training

Employee evaluation

Diversity in the workplace

Assertiveness

Responsibility

Work assignment: scheduling and job rotation

**Student Learning Outcomes:**

- Define management styles
- Recognize supervisor's role in the workplace
- Compare and contrast positive discipline and motivational techniques
- Appraise workplace techniques

**Garde Manger**

Introduction to cold food production, presentation and evaluation. Preservation and utilization of cold food products. Buffet set-up and centerpiece presentation. Pre-requisites: Sanitation and Safety, Beginning Culinary Arts, Intermediate Culinary Arts, suggested

## **Core Components**

Garde Manger equipment identification  
International Hors d'oeuvre  
Chaud Froid, gelee, aspic  
Preservation methods for meats, vegetables, and fruits  
Forcemeats  
Charcuterie  
Buffet and table centerpiece  
Cold food platter presentation and evaluation

### **Student Learning Outcomes:**

- Identify garde manger equipment
- Apply classic garde manger skills and techniques
- Demonstrate decorative food display and design
- Evaluate completed food presentation and table layout

## **Introduction to Nutrition, Food Science and Culinary Arts Careers**

Exploration of the Nutrition, Food Science and Culinary Arts industry including trends, future projection and employment opportunities. Explores all aspects of this multi-faceted industry.

## **Core Components**

Career exploration and opportunities - local, regional, national and global  
Self-assessment employability characteristics  
Job readiness skills  
Resume writing  
Skill standards  
Job requirements  
Certification and licensing  
Continuing education requirements  
Labor market research  
Social and economic forces influencing the industry/profession  
Organizational structure typical in the industry  
Roles of professionals in the industry

### **Student Learning Outcomes:**

- Recognize industry career pathways
- Demonstrate skills necessary for job readiness
- Analyze job market needs

## **Meal Preparation and Management**

Principles of meal planning including the scientific and aesthetic principles of food selection preparation, and evaluation. Includes equipment usage, food preparation methods, meal planning, food delivery as well as effective management of time, energy and money.

### **Core Components**

Basic food preparation  
Food sanitation and safety  
Equipment safety, use and care  
Resource management (money, human and energy resources)  
Time management  
Nutritional modifications of recipes  
New products  
Cultural awareness  
Computer usage in menu planning

### **Student Learning Outcomes:**

- Define basic policies and procedures of menu planning
- Explain and utilize basic kitchen management policies
- Formulate computer aided application for the kitchen

## **Medical Nutrition Therapy**

The principles of nutrition as they relate to special and abnormal physical conditions. Includes the effect of proper nutrition upon the human body, the medical or surgical problems that can arise and the dietary modifications necessary as a result. Routine hospital diets are studied and planned.

### **Core Components**

Medical terminology and abbreviations  
Drug/Nutrient interactions  
Pathology as basis of disease  
Abnormal mental and physical conditions  
Planning therapeutic diets  
Rationale for diet modifications  
Review and updating of problem oriented medical records  
Patient interviews  
Nutrition screening and assessment  
Patient care planning  
Nutrient data bases/computer applications  
Cultural food patterns  
Role of health care team members

**Student Learning Outcomes:**

- Recognize medical terminology and dietary diseases
- Interpret hospital and patient diets
- Analyze computer generated nutritional data
- Evaluate and revise data

**Menu Planning**

Identify the principles outlining menu planning and development as related to specific food service operations. Emphasis is on design, pricing for profit, and nutritional concerns.

**Core Components**

Menu development

appearance

format

promotion

Truth-in-menu guidelines

Seasonality

Determining selling price

Nutritional considerations of food choices

Plan a variety of menus i.e. a la carte, cycle, holiday, banquet

Computer applications

Menu as a management technique

Non-commercial foodservice operations

Commercial foodservice operations

**Student Learning Outcomes:**

- List basic menu planning principles
- Identify principles of menu layout and design
- Create menu item descriptions following established truth-in-menu guidelines
- Apply principles of nutrition to menu development
- Determine menu prices utilizing proper cost controls

**Nutrition**

Scientific concepts of nutrition relating to the functioning of nutrients in the basic life processes. Emphasis on individual needs, food sources of nutrients, current nutritional issues, and diet analysis.

## Core Components

Functions of nutrients and related food groups  
Dietary guidelines and current recommendations  
Major nutrient classifications  
Digestion, absorption, cell metabolism and energy  
Energy balance, basal metabolism, physical activity  
Health, fitness and disease prevention  
Nutrition and wellness  
Food exchange  
Dietary planning for weight management and eating disorders  
Critical evaluation of various diverse diets  
Special dietary considerations  
Food allergies and substitutions  
Contemporary nutritional issues  
Pregnancy and lactation  
Changing dietary needs throughout the lifespan  
Scientific method to analyze and evaluate nutrition information  
Nutrition information: computerized analysis and evaluation  
Hereditary influences on health requiring dietary changes  
Food selection  
Nutrient preservation  
Nutrition misinformation  
Computer dietary analysis

### Student Learning Outcomes:

- Define micro and macro food nutrients and their effects on the body
- Identify dietary related diseases
- Demonstrate nutritionally balanced diets
- Evaluate and assess computer generate data

## Nutrition and Weight Management

Principles of nutrition as they relate to weight management. Evaluation of weight control methods and investigation of basic nutritional needs, current research, fad diets and possible intervention including exercise and behavior modification techniques. Understanding of eating disorders, including compulsive overeating, anorexia nervosa, bulimia and female athlete triad are included.

## Core Components

Diet evaluation based on nutritional adequacy and long term effects  
Health problems of underweight, overweight and obesity  
Evaluation of current fad diets

Exercise and weight management and effective intervention techniques  
Behavior modification and other possible interventions  
Body composition analysis  
Eating disorders - diagnostic criteria, psychological, sociological and nutritional considerations and treatment  
Computer applications

**Student Learning Outcomes:**

- Identify issues of weight related maladies
- Demonstrate systems of effective nutrition and weight management
- Evaluate computer generated data

**Nutrition Delivery Systems**

Introduction to nutrition delivery systems and institutional menu modification for non-commercial foodservice facilities. State and federal guidelines for foodservice are included.

**Core Components**

Facilities function, costs, licensing, certification  
Facility organization components  
Legal standards and regulations  
Members and roles of health care teams  
Exploration and evaluation of various food service systems  
Budget/cost analysis  
Computer applications  
Patient care documentation  
Facility policies and procedures

**Student Learning Outcomes:**

- Recognize state and federal guidelines for feeding programs
- Develop computer aided menus and ordering systems
- Propose policies and procedures for a non-commercial foodservice establishment
- Assess systems of feeding programs

**Nutrition Education for Teachers**

Provides nutrition information and educational strategies for pre-school and K-12 educators, health educators, home care and child care providers and fitness instructors. Includes information on current nutrition controversies, application for educators, development of a resource package and identification of nutrition support agencies.

## **Core Components**

Overview of basic nutrition  
Current nutrition issues and evaluation of information  
Lifespan nutritional needs and individual application  
Role of nutrition in public health  
Identification of nutrition education resources  
Application of nutrition education strategies in the classroom  
or the community  
Development of resource materials  
Cultural diversity  
Computer applications

### **Student Learning Outcomes:**

- Define basic nutritional needs for target audience
- Interpret public policy and nutritional issues
- Apply computer aided nutritional data
- Evaluate nutritional systems

## **Nutrition for Foodservice Professionals**

Practical approach to the study of nutrition for foodservice professionals including elements of normal nutrition and common modified diets. Emphasis placed on recipe adaptation and menu planning for more healthful menu offerings.

## **Core Components**

Nutrients – their functions in the body and food sources  
Cooking techniques for nutrient retention  
Diet trends  
Guidelines for diet improvements  
Healthful menu design  
Recipe modification to meet dietary guidelines  
Sensitivity to client diversity  
Computer applications  
Nutrition guidelines  
Standardized portion control  
Food labeling  
Caloric counting  
Nutrition throughout the life cycle

### **Student Learning Outcomes:**

- Define micro and macro nutrients and their effects on the body
- Recognize state and federal nutritional guidelines
- Analyze computer aided nutritional data

- Propose long term nutritional plan
- Appraise effectiveness of various nutritional plans

## **Nutrition for Healthy Aging**

Basic nutritional needs of older adults as related to biological changes that occur with aging, factors that influence food intake and nutritional status, and diet adaptation for chronic diseases commonly found in older people.

### **Core Components**

Nutrition  
 Sociological implications of aging  
 Review of basic nutrition  
 Diet modifications and special diets  
 Physiological changes related to aging  
 Psychological changes that affect diet  
 Limitations that affect food selection and preparation  
 Potential nutrient deficiencies and solutions  
 Hydration  
 Food allergies and intolerances  
 Drug interactions with over the counter medications, nutrients  
 Effects of exercise on overall health  
 Appropriate foods to meet individual needs  
 Menu planning  
 Nutrition “quackery”  
 Government nutrition programs available  
 Cultural foods

### **Student Learning Outcomes:**

- Review basic nutritional principles
- Identify unique role of nutrition for the aging
- Formulate dietary plans
- Examine food and drug interactions
- Compare and contrast accepted nutrition guidelines vs. misleading nutritional claims
- Evaluate nutritional plans

## **Nutrition Laboratory**

Laboratory techniques that relate nutritive value to the function of food in the human body, includes effects of digestive juices on proteins, carbohydrates and lipids, skin fold thickness, computer use for dietary changes, dietary analyses for sodium, fiber, cholesterol and polyunsaturated/saturated ratios.

## **Core Components**

Scientific method of investigation  
Analysis of personal food intake  
Computer diet analysis and other computer applications  
Analysis of laboratory tests  
Development of individual nutrition experiments  
Anthropometric assessment

### **Student Learning Outcomes:**

- Define basic nutrition
- Demonstrate nutrition laboratory protocol
- Analyze computer generated nutritional data
- Evaluate and appraise data

## **Pantry**

Methods of pantry and breakfast preparation, presentation, evaluation including proper use of kitchen equipment and basic cooking methods. Prerequisite: Sanitation and Safety or concurrent enrollment and Beginning Culinary Arts is suggested.

## **Core Components**

Safe and sanitary equipment use including knives, electric meat slicer, food processor, quantity mixer and refrigeration  
Preparation of salad greens, fruits and vegetables  
Preparation and storage of basic salad dressings, emulsions and cold sauces  
Preparation of cut fruits and vegetables  
Basic egg cookery  
Preparation of breakfast batters and warm cereals  
Preparation of cold and hot sandwiches  
Sanitation and safety  
Quality food production, presentation and evaluation  
Terminology  
Recipe development and work station organization

### **Student Learning Outcomes:**

- Recognize kitchen equipment and terminology
- Demonstrate proper preparation and presentation of pantry items
- Evaluate proper preparation, presentation and flavor of product

## **Personal Nutrition**

Fundamental aspects of nutrition for the individual or the family. Basic concepts of normal nutrition, good health, quality of food supply, consumer aspects of nutrition, diets and weight control, health food controversies and environmental food problems.

### **Core Components**

Dietary guidelines and current recommendations  
Essential nutrients, their functions and food sources  
Food labeling  
Evaluating diet quality by various methods  
Nutrient needs at various stages of the life cycle  
Cultural food patterns  
Food safety and sanitation issues  
Contemporary nutrition concerns  
Weight management and eating disorders  
Computer support of diet analysis  
Evaluating nutritional information

### **Student Learning Outcomes:**

- Define micro and macro nutrients and their effects on the body
- Apply proper dietary guidelines to personal needs
- Evaluate computer supported dietary analysis

## **Principles of Food with Lab**

Introduction to food science principles and food preparation techniques. Emphasis on ingredient functions and interaction; technique, production and sensory evaluation standards, food safety, sanitation, nutrient values and food presentations.

### **Core Components**

Food science principles  
Food preparation terminology and techniques  
Ingredient functions and interaction  
Product standards and evaluation  
Selection and use of food equipment and utensils  
Food storage and preservation  
Sanitation and safety  
Nutrient retention techniques  
Esthetics  
Labeling and consumer information  
Alternative cultural ingredients

## Cost analysis

### **Student Learning Outcomes:**

- Define basic food science principles, terminology and techniques
- Demonstrate proper use of equipment and ingredient functions
- Evaluate finished products

## **Quantity Food Preparation**

Preparation of all categories of food in quantity, emphasis is on recipe standardization, determination of need and procurement of supplies, organization of workstations, effective use of equipment, presentation, sanitation and safety. Pre-requisite: Sanitation and Safety, Beginning Culinary Arts, Intermediate Culinary Arts suggested

### **Core Components**

Quantity food preparation skills  
Sanitation and safety, HACCP  
Standards of quality and product evaluation  
Work simplification  
Ingredient selection  
Cost analysis and control  
Workplace communications and responsibilities  
Time management  
Teamwork  
Presentation skills  
Foodservice equipment safety, use and care  
Menu planning  
Computer applications

### **Student Learning Outcomes:**

- Command of basic culinary terminology and techniques
- Employ recipe and workplace organization
- Demonstrate quantity food production techniques
- Evaluate plan efficiency and product outcome

## **Sanitation and Safety**

Basic concepts of personal and institutional sanitation and application to food preparation, storage, service; prevention of food contamination; dish washing and housekeeping materials and procedures; garbage and refuse disposal; pest control; OSHA regulations; safety procedures and programs; fire prevention and control; concepts of safety and sanitation related to the selection, layout and use of equipment.

## **Core Components**

Personal hygiene  
Pathogen identification  
Chemical, physical and biological contaminants  
Recycling systems and resource conservation  
TCS (Time and temperature control for safety)  
Food-borne illness: types, causes and prevention  
Cleaning and sanitizing agents  
Regulations, public health laws and inspection procedures  
Accident prevention  
First aid  
Fire extinguisher identification and usage  
Vector control  
Safe food handling techniques  
Characteristic growth habits and control of bacteria, molds, viruses and yeast  
Time and temperature control of food supplies  
Safety principles of receiving and storage  
Sanitary facility and equipment design  
Symptoms of food-borne illness  
Proper use and cleaning of equipment  
HACCP (Hazard Analysis Critical Control Point)  
Sanitation certification  
Food bio-terrorism  
Material Safety Data Sheets (MSDS)

### **Student Learning Outcomes**

- Recognize local, state and federal guidelines
- Demonstrate proper food handling techniques
- Formulate HACCP plan
- Evaluate flow of food through the facility

## **Sports Nutrition**

Designed for the physically active person interested in fitness sports, and health and the role of nutrition to increase energy and enhance performance. Nutrient needs before, during and after exercise evaluated for effect on optimal health. Methods of determining body composition.

### **Core Components**

Wellness  
Analysis of body composition

Nutrient needs for the physically active person  
Carbohydrate loading to maximize glycogen stores  
Nutrition misinformation  
Substance abuse  
Supplements and ergogenic aids  
Heat and hydration  
Maximizing performance  
Exercise physiology  
Fitness throughout the life cycle  
Cardiovascular fitness  
Computer applications  
Stress management  
Weight management  
Eating disorders

**Student Learning Outcomes:**

- Understand principles of basic nutrition
- Interpret balanced diet for target audience
- Analyze nutrition computer aided plan for sports nutrition

**Supervised Practice**

Supervised practice is skill/competency development in a community agency or health care facility. Includes rotation through the various administrative and clinical areas. Successful completion of established skills and competencies are required to pass this course. This course meets the accreditation standards of the American Dietetic Association for Clinical Practice (CAADE) or California State Department of Health Services.

Attendance at a weekly seminar covering issues affecting the profession. Depending on placement, experiences may include:

**Core Components**

Current nutrition issues  
Planning and implementing nutrition education in the community  
Writing brochures and articles on nutrition  
Legislation, policy and procedure issues, federal and state  
Professional ethics  
Issues in professional practice  
Marketing nutrition information  
Current issues in medical nutrition therapy  
Current issues in nutrition quackery/fraud

**Student Learning Outcomes:**

- Understand basic nutrition
- Working knowledge of state and federal regulations
- Apply proper competency based nutrition practices in the workplace as outlined by the CAADE and CSDHS

**Work Experience**

Supervised on-the-job voluntary or paid learning experience involving expanded responsibilities for students employed in a job related to their major (apprenticeship, internship, externship).

**Core Components**

On-site experiences with objectives to be established related to their area of study

Performance evaluation by the supervisor

Self-evaluation

Job search

Resume writing

Preparing for the interview

Mentoring/shadowing

Cross cultural experiences

**Student Learning Outcomes:**

- Identify job readiness skills
- Compose goals and appropriate plan
- Assess stated plan and goals

**PROGRAM DEVELOPMENT AND REVIEW****Professional Standards for College Faculty**

Dedicated, enthusiastic and innovative full-time faculty is the major resource of Nutrition, Food Science and Culinary Arts education. They must provide the education and guidance for students and direction of programs to meet the challenge of this fast-paced, changing profession. The needs of California's diverse population must be considered in preparation and selection of instructors for these courses and programs.

Nutrition, Food Science and Culinary Arts faculty must meet hiring requirements (AB 1725) for community colleges as established by the State of California. The document, *Minimum Qualifications for Faculty and Administrators in California Community Colleges*, identifies hiring criteria. In addition, it is strongly recommended that faculty has a minimum of two years of current full-time work experience directly related to the courses that they teach. It is also recommended faculty be a member of a professional organization directly

related to the area in which they teach. Evaluation of faculty should be done on a regular basis, and faculty should be encouraged to participate in staff development and continuing education activities.

Close working relationships among faculty, counselors, placement, other support staff, administration and the business community enhance the services to Nutrition, Food Science and Culinary Arts students on campus.

Faculty is encouraged to participate in staff development and continuing education activities of professional organizations in order to remain current in their fields. These include:

- Attending local, state and national conventions, workshops and in-service training in Family and Consumer Sciences or individual disciplines.
- Participating in continuing education courses or programs to maintain current knowledge or skill, or to learn new or related techniques or skills. Some organizations, e.g. the American Dietetic Association, American Culinary Federation require completion of a minimum number of Continuing Education (C.E.) hours per year to retain registration or certification.
- Retraining or job shadowing within the industry.

Faculty/industry exchanges are encouraged to help link instruction to industry standards and practices. The use of part-time instructors from industry is encouraged in order to keep the curriculum current based on standards developed in AB 1725.

## **Program Standards**

Many of the programs listed in the Nutrition, Foods and Culinary Arts section relate to organizations that establish curriculum, competencies and accreditation requirements. When designing/developing new programs, these organizations/agencies should be contacted to ensure curriculum reflects the current requirements. Some of these organizations are:

- **American Culinary Federation Educational Institute (ACFEI)** – CPC, Certified Pastry Chef, CC, Certified Cook, and others [www.acfchefs.org](http://www.acfchefs.org)
- **Dietary Managers Association (DMA)** – CDM Certified Dietary Manager [www.dmaonline.org](http://www.dmaonline.org)
- **California Restaurant Association Educational Foundation (CRAEF)** [www.craef.org](http://www.craef.org)
- **Educational Foundation of the National Restaurant Association (EF)** – FMP, Food Service Management Professional, ServSafe, Food Safety and Sanitation Certificate [www.restaurant.org](http://www.restaurant.org)

- **Council on Hotel, Restaurant and Institutional Educators (CHRIE)** maintains a list of qualified programs. New competencies in this area were developed in 1995 [www.chrie.org](http://www.chrie.org)
- **Women Chefs and Restaurants (WCR)** [www.womenchefs.org](http://www.womenchefs.org)
- **Institute of Food Technologists (IFT)** standards of education for the graduates of four-year programs in Food Science. New programs in Food Science should articulate with existing four-year programs [www.ift.org](http://www.ift.org)
- **Green Restaurant Association (GRA)** [dinegreen.com](http://dinegreen.com)
- **Commission on the Accreditation and Approval of Dietetic Education (CADE)** American Dietetic Association- sets standards and accredits all dietetic education. Accreditation became mandatory for Dietetic Technician Programs in 1988 [www.eatright.org/cade](http://www.eatright.org/cade)
- **Share our Strength (SOS)** [www.strength.org](http://www.strength.org)
- **Error! Hyperlink reference not valid. The School Nutrition Association (SNA)** [www.schoolnutrition.org](http://www.schoolnutrition.org)
- **Research Chefs Association (RCA)** provides information and guidance in development and support of occupations in Culinology [www.researchchef.org](http://www.researchchef.org)

## Program Review

Colleges and faculty have the obligation to keep programs current and relevant. Many campuses have individual Program Review formats and processes that allow local colleges to assess program strengths and to target areas for improvement. Results can be shared with staff, advisory committee members, governing boards and students to ensure program content validation.

One way to assess the effectiveness of a course or program is the use of Student Learning Outcomes. Faculty can create SLOs for each course of a Program of Study, as well as for the program as a whole. Then assessment tools and course assignments should be created to measure the effectiveness of the sum total of the course. Research departments can provide invaluable assistance with evaluation, and can work with faculty to make improvements.

## Professional Organizations

Professional and trade organizations provide a valuable resource for program content and currency, student experiences and forming partnerships. A *Directory of Professional and Trade Organizations* is included as a separate section of this *Family and Consumer Sciences Program Plan*.

Faculty membership and participation in related Nutrition, Food Science and Culinary Arts professional/trade organizations is encouraged. These include:

<b>AAFCS</b>	<a href="#"><u>American Association of Family &amp; Consumer Sciences</u></a>
<b>AAFCS-CA</b>	American Association of Family & Consumer Sciences - <a href="#"><u>California Affiliate</u></a>
<b>ACF</b>	<a href="#"><u>American Culinary Federation</u></a>
<b>ADA</b>	<a href="#"><u>American Dietetic Association</u></a>
<b>CNC</b>	<a href="#"><u>California Nutrition Council</u></a>
<b>CRA</b>	<a href="#"><u>California Restaurant Association</u></a>
<b>CSNA</b>	<a href="#"><u>California School Nutrition Association</u></a>
<b>DMA</b>	<a href="#"><u>Dietary Managers Association</u></a>
<b>FIBR</b>	Food Industry Business Roundtable
<b>FNSA</b>	<a href="#"><u>Food and Nutrition Science Alliance</u></a>
<b>IFSEA</b>	<a href="#"><u>International Food Service Executives Association</u></a>
<b>NRA</b>	<a href="#"><u>National Restaurant Association</u></a>
<b>NRAEF</b>	<a href="#"><u>National Restaurant Association Educational Foundation</u></a>
<b>RCA</b>	<a href="#"><u>Research Chefs Association</u></a>
<b>SNE</b>	<a href="#"><u>Society for Nutrition Education</u></a>

### **Advisory Committees**

The purpose of Nutrition, Food Science, and Culinary Arts advisory committees is to review, recommend and support curriculum which reflects the skills and competencies required for today's global workforce. In addition, a committee can be used as a valuable resource for student placement and recruitment, scholarships, equipment and as a resource for adjunct faculty. Committees should reflect the diversity of their campus, community and the Nutrition, Food Science and Culinary Arts field.

Advisory committees are very important to Nutrition, Food Science and Culinary Arts programs. Advisory committees involve community members; businesses and professionals in developing programs that are based on the real needs of the community and which prepare students for meaningful and productive careers.

Nutrition, Food Science and Culinary Arts advisory committees should draw members from a broad spectrum of professionals to include but not be limited to: professors of Nutrition, Food Science and Culinary Arts from four and two-year institutions, representatives from secondary schools, state and local placement services, industry, professional organizations, California Department of Health Services, administrators of health care organizations and community leaders.

It is recommended that advisory committees range in size from 12 to 18 members. A large committee, although cumbersome to work with simultaneously, provides enough members for small committee work and overcomes the difficulty of scheduling meetings when some cannot attend.

## **Equipment and Facilities**

Courses in the field of Nutrition, Food Science and Culinary Arts are taught in lecture and discussion, group activities, laboratory and work experience modes. Therefore, it is imperative that programs have adequate classroom and laboratory facilities with equipment comparable to that used within industry. Facilities, support services and equipment include:

- Lecture classrooms
- Laboratory classrooms equipped with commercial food preparation equipment
- Laboratory classrooms equipped with commercial large quantity food production equipment
- Operational college cafeteria
- Computer lab for student use
- Nutrition lab
- Smart Classrooms (e.g. LCDs, interactive whiteboards, WiFi, podcasting)
- Library with print, video and digital media support
- Learning resource centers
- Consumer and institutional food markets/ suppliers
- Food equipment supply establishments
- Foodservice establishments
- MSDS stations
- Equipment instruction/user manuals, equipment specifications
- Computers, peripherals and software
- Other current technological equipment

### **Suggested**

- Recycling plan
- Water and resource management plan

## **Marketing and Recruitment**

Marketing and recruitment of Nutrition, Food Science and Culinary Arts can accomplish the following:

- Describe and illustrate the benefits of Nutrition, Food Science and Culinary Arts to both a diverse traditional and non-traditional student population.
- Promote the contribution of the Nutrition, Food Science and Culinary Arts program to members of the college community and other educational institutions including instructional, counseling and support staff.
- Increase linkages with community agencies, businesses and organizations in order to expand educational opportunities and the employment potential for Nutrition, Food Science and Culinary Arts majors.

Techniques for marketing and recruitment of Nutrition, Food Science and Culinary Arts include the following:

- Offering "free sample" presentations to classes and organizations
- Developing and distribution of "Career Briefs"
- Utilizing student success stories
- Supporting students by forming and advising student clubs/organizations
- Producing fliers and newsletters as linkages with community agencies and their clientele
- Initiating outreach with college faculty, counselors, staff, high schools, community agencies and organizations
- Using distance learning and other media
- Creating a web page
- Utilizing Nutrition, Food Science and Culinary Arts advisory committees as well as advisory committees of other disciplines
- Participating in local and regional forums
- Writing columns for local printed media
- Collecting data to support and validate programs

**Student Clubs:** A student club within Nutrition, Food Science and Culinary Arts can provide enhanced opportunities for students to network with one another, strengthen cohort ties, develop leadership and organizational skills, and mentor one another in program requirements. The bonds that develop may carry over into the workplace. Marketing opportunities expand dramatically with student club involvement. In fact, a student club often becomes the strongest advocate for the program itself.

Student club activities can also augment curricula offerings by sponsoring guest speakers on campus, coordinating tours of community programs, and staffing information booths at local resource and job fairs. Former student club members will often be an information pipeline with regard to prospective job openings within agencies and businesses.

### **Placement and Follow-Up**

The college's responsibility is to provide programs and courses, making sure that those courses help students develop job skills necessary in the profession. Transfer courses should be articulated with four-year institutions. Approval by accrediting organizations such as ADA and ACF is critical so that graduates are eligible for registration or certification.

Nutrition, Food Science and Culinary Arts faculty should work closely with student support services and should publicize their programs at every opportunity, so community employers are aware of potential employees. Faculty should also be aware of articulation agreements between their program and other colleges, striving to meet the goals identified in this *Family and Consumer Sciences Program Plan*.

Accountability is important in order to assure that the program is accomplishing its purpose. Job placement data and articulation agreements are two ways of measuring success

results. Student questionnaires and/or surveys also provide accountability and can be administered to students. Data covering job placement and relevancy of program should be collected. The Nutrition, Food Science and Culinary Arts instructional staff should cooperate in collecting Core Indicator data for the Statewide Follow-up System. Reports summarizing student and employer follow-up responses are available at each California community college. Employer surveys can assess the relevance of curriculum to job performance skills.

Maintaining contact with former students is difficult but necessary for accountability. Many colleges have alumni groups that are a useful resource for tracking former students and for promoting programs.

