



# Nutrition Across the Lifespan

<b>Primary Career Cluster:</b>	Human Services
<b>Course Contact:</b>	<a href="mailto:CTE.Standards@tn.gov">CTE.Standards@tn.gov</a>
<b>Course Code(s):</b>	C19H15
<b>Prerequisite(s):</b>	<i>Introduction to Human Studies</i> (C19H19)
<b>Credit:</b>	1
<b>Grade Level:</b>	10
<b>Focus Elective - Graduation Requirements:</b>	This course satisfies one of three credits required for an elective focus when taken in conjunction with other Human Services courses.
<b>POS Concentrator:</b>	This course satisfies one out of two required courses to meet the Perkins V concentrator definition, when taken in sequence in the approved program of study.
<b>Programs of Study and Sequence:</b>	This is the second course in the <i>Dietetics and Nutrition</i> program of study.
<b>Aligned Student Organization(s):</b>	Family, Career and Community Leaders of America (FCCLA): <a href="http://www.tennesseefccla.org">http://www.tennesseefccla.org</a>
<b>Coordinating Work-Based Learning:</b>	Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit <a href="https://www.tn.gov/education/career-and-technical-education/work-based-learning.html">https://www.tn.gov/education/career-and-technical-education/work-based-learning.html</a> .
<b>Promoted Tennessee Student Industry Credentials:</b>	Credentials are aligned with postsecondary and employment opportunities and with the competencies and skills that students acquire through their selected program of study. For a listing of promoted student industry credentials, visit <a href="https://www.tn.gov/education/career-and-technical-education/student-industry-certification.html">https://www.tn.gov/education/career-and-technical-education/student-industry-certification.html</a>
<b>Teacher Endorsement(s):</b>	050, 051, 154, 450
<b>Required Teacher Certifications/Training:</b>	None
<b>Teacher Resources:</b>	<a href="https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-human-services.html">https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-human-services.html</a> Best for All Central: <a href="https://bestforall.tnedu.gov">https://bestforall.tnedu.gov</a>

## Course-at-a-Glance

CTE courses provide students with an opportunity to develop specific academic, technical, and 21<sup>st</sup> century skills necessary to be successful in career and in life. In pursuit of ensuring every student in Tennessee achieves this level of success, we begin with rigorous course standards which feed into intentionally designed programs of study.

Students engage in industry relevant content through general education integration and experiences such as career & technical student organizations (CTSO) and work-based learning (WBL). Through these experiences, students are immersed with industry standard content and technology, solve industry-based problems, meaningfully interact with industry professionals, and use/produce industry specific, informational texts.

### Using a Career and Technical Student Organization (CTSO) in Your Classroom

CTSOs are a great resource to put classroom learning into real-life experiences for your students through classroom, regional, state, and national competitions, and leadership opportunities. Below are CTSO connections for this course, note this is not an exhaustive list.

- Participate in CTSO Fall Leadership Conference to engage with peers by demonstrating logical thought processes and developing industry specific skills that involve teamwork and project management
- Participate in contests such as: Career Investigation; Interpersonal Communication; Professional Presentation; and Job Interview
- Participate in leadership activities such as Promote and Publicize FCCLA, Parliamentary Procedure, Entrepreneurship, and Chapter Service Project Display and Portfolio.

For more ideas and information, visit Tennessee FCCLA at <https://www.tennesseefccla.org>

### Using Work-based Learning (WBL) in Your Classroom

Sustained and coordinated activities that relate to the course content are the key to successful work-based learning. Possible activities for this course include the following. This is not an exhaustive list.

- **Standards 1.1-4.5** | Invite a dietitian to discuss meals and nutrients.
- **Standards 5.1-5.3** | Participate in a panel discussion with people who follow various lifestyles and diets.
- **Standards 6.1** | Connect virtually with a representative from the agriculture industry and create a presentation about genetically modified foods.
- **Standards 7.1** | Invite a representative from the food industry to discuss handling, transportation, storage, processing, and packaging of food from point of origin to point of sale.

## Course Description

*Nutrition Across the Lifespan* is for students interested in learning more about becoming a dietitian, nutritionist, counselor, or pursuing a variety of scientific, health, or culinary arts professions. Upon completion of this course, proficient students will understand human anatomy and physiological systems, nutrition requirements, as well as social, cultural, and other impacts on food preparation and integrity. Artifacts will be created for inclusion in a portfolio, which will continue to build throughout the program of study.

## Course Standards

### 1. Safety & Sanitation

- 1.1 Common Lab Safety Procedures: Demonstrate **safety and sanitation procedures** related to handling, preparing, storing, and serving food. Identify and review **general common laboratory safety procedures** including but not limited to prevention and control procedures and **personal hygiene expectations**. Incorporate safety procedures and complete a teacher made safety test with 100 percent accuracy.
- Demonstrate proper and safe handling of knives, tools and equipment.
  - Apply the fundamentals of time, temperature and cooking methods to cooking, cooling, reheating and holding of a variety of foods.
  - Demonstrate cooking methods that increase nutritional value, and lower calorie and fat content.

### 2. Nutrition and Health Overview

- 2.1 Dietary Guidelines for Americans: Summarize the **Dietary Guidelines for Americans** and its relationship to optimum physical, mental, and social well-being at all stages of development across the life span as outlined by the USDA and HHS. Illustrating findings on the **nutritional needs of individuals and families** in relation to age, gender, activity level, and health status.

### 3. Anatomy and Physiology of Nutrition

- 3.1 Anatomy and Physiology of the Gastrointestinal System: Create a model or graphic illustration that identifies the major **anatomic structures and accessory organs of the gastrointestinal (GI) system**. Explain the **function of each structure**, including the accessory organs, in the process of digestion, absorption, transport of nutrients in the body including the conversion of glucose to ATP. Also describe common gastrointestinal complications and digestive diseases, including how the body deals with deficiencies and excess nutrients and the impact on overall health
- 3.2 Macronutrients, Micronutrients, and Water: Identify, analyze, and visually represent the **macronutrients, micronutrients, and water** required in the **human diet**. Include the common food sources of those nutrients, their chemical properties, and function in the

body, as well as the influence upon biological systems in reference to maintenance and growth.

- a. Macronutrients include carbohydrates, lipids, proteins
- b. Micronutrients include minerals, vitamins
- c. Water

#### 4. Nutritional Requirements Across the Lifespan

4.1 USDA Guidance: Accurately read, interpret, and communicate understanding of **guidance from the U.S. Food and Drug Administration (FDA)**, such as nutrition labels and daily value recommendations using accurate symbols, key terms, and other domain-specific words and phrases.

- a. Accurately read and interpret nutrition labels using correct symbols and terminology.
- b. Analyze nutrition labels in correlation to specific dietary needs.

4.2 Life Span Nutritional Guidelines: Research and prepare informational artifacts for consumers that present the **specific nutritional guidelines for each stage of the life span** using scientifically accurate terms and symbols. For each life span phase, include the following:

- a. How nutritional needs change throughout the lifespan.
- b. Factors that impact food choices at various stages of the lifespan.
- c. Common nutritional excesses and deficiencies at various stages of the lifespan.
- d. Importance of fitness and exercise during each stage of the lifespan.
- e. Plan meals for each stage of the lifespan.

4.3 Meal Planning: Analyze various meal plans that meet the **2020-2025 Dietary Guidelines for Americans** recommended by the U.S. Department of Agriculture. Create a meal plan that addresses the nutritional needs of a specific individual based on their age, gender, activity level, and other factors and justify choices using evidence. Select, prepare, and serve food(s) from the **meal plan** following recipes precisely, including defining and utilizing specific **culinary and measurement terms** as needed. Practice proper **servicing and etiquette principles** during appropriate situations.

4.4 Food Journal Analysis: Keep a **food journal**. Analyze the **nutrient content** of food consumed using a **nutrient analysis program** based on age, gender, activity level, and health status. Summarize the findings and include conclusions drawn on recommendations of how the diet could be modified to more closely align with the current edition of the **Dietary Guidelines for Americans**.

4.5 Alternative Diet and Lifestyle Approaches: Compare and contrast **alternative diet and lifestyle approaches to the Dietary Guidelines for Americans** for individuals of the same age and gender. Explain the reasons for the dietary differences summarizing information to describe the **physiological differences of the lifestyles**, including, but not limited to:

- a. Differences in physical activity (e.g., athletic training)
- b. Differences in religious or ethical values (e.g., vegetarian, vegan, kosher)
- c. Differences based on disease or physiological need (e.g., gluten free and low sodium diets)

- d. Common diet related diseases such as diabetes and/or cardiovascular disease.

## 5. Food Preferences and Choices

- 5.1 Food Choices and Preferences: Research and summarize the **factors that contribute to food choices and preferences**, including cultural, geographical, economic, psychological, and social influences. Describe the most likely results of preferences and external factors on nutritional intake.
  - a. Example of geographical external factor on nutritional needs: Individual living in an area without adequate sunlight exposure may need to eat a diet rich in Vitamin D to make up for vitamin deficiency.
  - b. Example of geographical preference on food choice: Individual living in a colder climate might prefer methods of cooking that keep heat in the living area, while an individual living in a warmer climate might prefer preparation methods that reduce heat.
- 5.2 Food Choices Related to the Senses and Preparation Techniques: Form a hypothesis and design and conduct an experiment to identify the **role of the senses and/or food preparation techniques in food choices**. Summarize and defend results.
- 5.3 Nutritional Claims of Various Diets: Research **nutritional claims of various diets** and use appropriate/reliable sources of nutritional information to determine the validity of those claims. Use nutritional databases, food label information, and other sources to analyze the **nutrient composition** of one day of foods on each diet investigated. Compare and contrast two plans for an individual with specific characteristics, noting similarities and differences in two diets.

## 6. Nutritional Issues and Controversies

- 6.1 Topics in Nutrition: Synthesize evidence from multiple sources to analyze **topics in nutrition**, including but not limited to:
  - a. Genetically modified foods
  - b. Artificial sweeteners versus natural sugar
  - c. Organic and local food movements
  - d. Benefits and risk of different forms of dieting
  - e. Use of probioticsEvaluate the validity and credibility of source materials and deduce the principle arguments for each, carefully weighing the author's evidence against potential biases.
- 6.2 Obesity in America: Describe the correlation of **energy balance, lifestyle, diet, age, gender, and metabolism** to the obesity epidemic in America. Compare and contrast how different diets, habits, heredity, and physical characteristics contribute to obesity. Analyze the **government's role in the food supply** and research various **initiatives to fight obesity** and improve nutrition across the nation including government assistance programs.

## 7. Food Preparation and Integrity

- 7.1 Food Supply: Investigate the **food supply chain from point of origin to the point of sale** – analyzing handling, transportation, storage, processing, and packaging – to identify where **food safety and nutritional value** could be compromised. Determine where food is most susceptible to contamination, food-borne illness, spoilage, and nutrient loss.
- 7.2 Selection and Preparation of Food: Demonstrate **food selection and preparation methods** that maximize the nutritional value of foods while minimizing dietary health risks. Plan and conduct nutrition laboratory experiments to determine the **physical and chemical changes of food structure through chemical reactions** then compare and contrast the results. Demonstrate relationships among concepts including, but not limited to:
- a. Heat
  - b. Acidity level
  - c. Fermentation
  - d. Maillard reactions
  - e. Chemically processed foods
  - f. Preparation techniques and product yield

## 8. Socioecological Nutrition

- 8.1 Government Nutrition Programs: Analyze the **roles and responsibilities of the USDA, FNS, DHS, FDA** in relation to food and nutrition. Research various government programs that aim to **improve the nutrition of low-income families**.
- 8.2 Healthy Living Strategies: Describe **strategies** that can be implemented at a workplace or in the community to **promote the consumption of healthy foods and beverages**.

**Portfolio:** Artifacts from 10 different standards will reside in the student's portfolio.

## Standards Alignment Notes

**\*References to other standards include:**

- FACS: National Standards for Family and Consumer Sciences Education, Second Edition: National Association of State Administrators of Family and Consumer Sciences, [FACS](#).
- P21: Partnership for 21st Century Skills [Framework for 21st Century Learning](#)
  - Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.