



# 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 (C19H19)</i>
<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 a Work-based Learning (WB) 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 1-4** | Invite a dietitian to discuss meals and nutrients.
- **Standards 5-9** | Participate in a panel discussion with people who have a variety of lifestyles and diets.
- **Standards 10-12** | Invite a clinical dietitian to discuss specific dietary therapies.
- **Standards 13-14** | Connect virtually with a representative from the agriculture industry and create a presentation about genetically modified foods.
- **Standards 15-16** | 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.

For more ideas and information, visit <https://www.tn.gov/education/career-and-technical-education/work-based-learning.html>.

## 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.

## Program of Study Application

This course is an applied knowledge course in the *Dietetics & Nutrition* program of study. For more information on the benefits and requirements of implementing this program in full, please visit the Human Services website at <https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-human-services.html>.

## Course Standards

### Safety & Sanitation

- 1) Compile and critique safety and sanitation procedures related to handling, preparing, storing, and serving food from industry-approved technical manuals and government published fact sheets. 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 safety test with 100 percent accuracy.

### Nutrition and Health Overview

- 2) Synthesize research published by government agencies or academic journals on the contribution of nutrition and exercise to achieving optimum physical, mental, and social well-being at all stages of development across the life span. Create an informative essay illustrating findings on the nutritional needs of individuals and families in relation to age, gender, activity level, and health status.

### Anatomy and Physiology of Nutrition

- 3) Create a model or graphic illustration that identifies the major anatomic structures of the gastrointestinal (GI) system. Explain the function of each structure in the process of digestion, absorption, transport, and use of nutrients in the body. Research and develop a logical explanation of how the body deals with deficiencies and excess nutrients, citing specific textual evidence on the impact on an individual's health.
- 4) Identify, analyze, and visually represent the macro- and micro-nutrients 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. Macro nutrients include: carbohydrates, lipids, and proteins
  - b. Micro nutrients include: minerals, vitamins, and water

## **Nutritional Requirements Across the Lifespan**

- 5) Accurately read, interpret, and communicate understanding of guidance from the U.S. Food and Drug Administration (FDA), and other regulators, such as nutrition labels and daily value recommendations using accurate symbols, key terms, and other domain-specific words and phrases.
- 6) 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. Life span phases should include:
  - a. Birth to 1 year
  - b. Toddlerhood
  - c. Preschool
  - d. School age
  - e. Puberty and adolescence
  - f. Pregnant and lactating females
  - g. Early adulthood
  - h. Middle adulthood
  - i. Late adulthood
- 7) Analyze a variety of meal plans that meet nutritional requirements (caloric and RDA) as recommended by the U.S. Food and Drug Administration (FDA). 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 serving and etiquette principles during appropriate situations.
- 8) Keep a food journal and compare an individual's diet to nutritional recommendations for their respective age, gender, activity level, and health status. Write a summary of the findings and include conclusions drawn on recommendations of how the diet could be modified to make up for deficiencies and excesses.
- 9) Compare and contrast alternative diet and lifestyle approaches to recommended dietary requirements for individuals of the same age and gender. Explain the reasons for the dietary differences in an informational artifact summarizing information to describe the physiological differences of the lifestyles, including, but not limited to:
  - a. Differences in physical activity (i.e. athletic training)
  - b. Differences in religious or ethical values (i.e. vegetarian, vegan, kosher)
  - c. Differences based on disease or physiological need (i.e. gluten free, elimination or rotation diets)

## **Food Preferences and Choices**

- 10) Research and summarize in an explanatory text the factors that contribute to food choices and preferences including cultural, geographical, economic, psychological, and societal influences. Describe the most likely results of preferences and external factors on nutritional intake.

- a. Example of geographical external factor on nutritional intake: 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.
- 11) 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 experiment results into an argument making a claim about the impact of variables on food choice. Compare results to findings in news media and note when findings support or contradict previous explanations or accounts.
- 12) 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. Create a graphic illustration comparing actual nutrition provided by each diet to the recommended nutrition requirements for an individual with specific characteristics, noting similarities and differences in two diets.

### **Nutritional Issues and Controversies**

- 13) Synthesize evidence from multiple sources to analyze topics in nutrition, including but not limited to:
- a. The use of 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 probiotics
- Evaluate the validity and credibility of source materials and deduce the principle arguments for each, carefully weighing the author's evidence against potential biases.
- 14) 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. Research various initiatives that have sought to fight obesity and improve nutrition across the nation. Summarize the intended result of an initiative in an explanatory essay, informational artifact, or presentation.

### **Food Preparation and Integrity**

- 15) Investigate the food supply 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. Compare this to the food handling, transportation, storage, processing, and preparation from point of sale to the table by creating a graphic illustration indicating where food is most susceptible to contamination, food-borne illness, spoilage, and nutrient loss.

- 16) 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. Communicate results of experiences, including comparing and contrasting results to findings in a report. Demonstrate relationships among concepts including, but not limited to:
- a. Heat
  - b. Acidity level
  - c. Fermentation
  - d. Millard reactions
  - e. Chemically processed foods
  - f. Preparation techniques and product yield

**The following artifacts will reside in the student's portfolio:**

- Illustration of Nutrition Needs
- Graphic or Model & Explanation of GI Tract
- Macro & Micro Nutrient artifact
- Informational Artifact for Consumers
- Analysis of Meal Plans
- Food Journal
- Food Preferences artifact
- Summarized Results from Food Prep Techniques Experiment
- Illustration of Nutrition Claims
- Nutritional Issues Comparison
- Food Integrity illustration
- Food Lab Reports

### **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.