Introduction to Nutrition for Health and Medical Sciences

8390 18 weeks

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Acknowledgments

The components of this instructional framework were developed by the following business panel team members:

Sharon Adams, Registered Nurse, Fort Lee, Virginia
Thelma Atkins-Riley, Nurse Aide Educational Program Coordinator, Southside Virginia Community College, Alberta
Dr. Marcus Comer, Director, Small Farm Outreach Program, College of Agriculture, Virginia State University, Chester
Dr. Lillian de Jonge, Assistant Professor, Department of Nutrition and Food Studies, George Mason University, Fairfax
Dr. Karen Faison, Professor of Nursing, College of Natural and Health Services, Virginia State University, Chester
Course Description

Suggested Grade Level: 10 or 11 or 12

Introduction to Nutrition for Health and Medical Sciences is designed to provide an opportunity for students to gain a basic understanding of nutrition. The course will enable students to identify common food sources of nutrients and the purposes of these nutrients in childhood, adolescence, and adulthood. Students will learn to apply principles of nutrition, including current dietary guidelines to his/her lifestyle and future careers.

Task Essentials Table

- Tasks/competencies designated by plus icons (⊕) in the left-hand column(s) are essential
- Tasks/competencies designated by empty-circle icons (○) are optional
• Tasks/competencies designated by minus icons (⊖) are omitted
• Tasks marked with an asterisk (*) are sensitive.

<table>
<thead>
<tr>
<th>8390</th>
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Legend: ☑️Essential ☐Non-essential ☖Omitted

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**Curriculum Framework**

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**Understanding the Role of Nutrition**

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**Task Number 39**
Describe the historical aspects of nutrition.

Definition

Description should include

- food security
- food insecurity
- emergence and effects of agriculture
- formation of communities variety, moderation, and balance of a diet, which are all necessary for good health
- uses of the 2015-2020 Dietary Guidelines for Americans
- how climate change will affect agriculture and global nutrition.

Process/Skill Questions

- How did people view nutrition in the past?
- What effect did agriculture have on nutrition? On past nutritional diets?
- How did our ancestors view health?
- How did our ancestors adapt to feast and famine?
- What societal influences have affected the evolution of food?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Nutrition

Task Number 40

Define *macronutrients* and *micronutrients*.

Definition

Definition should include

- macronutrients
  - carbohydrates
  - fats
  - proteins
- micronutrients
  - minerals
vitamins
• food sources of nutrients.

Process/Skill Questions

• What percent of your diet should come from fats? Carbohydrates? Proteins?
• What are three minerals? What are their functions in the body?
• What are three vitamins? What are their functions in the body?

Task Number 41

Describe the linkages between agriculture and nutrition.

Definition

Description should include

• pathways through which agricultural policies influence nutrition
• influence of income
• influence of education
• influence of environment
• influence of food manufacturing.

Process/Skill Questions

• How does voting affect nutrition?
• What determines food prices?
• How does price affect nutrition?
• What impact has agricultural technology had on nutrition?
• How does government regulation impact food manufacturing?

Task Number 42

Define genetically modified objects (GMOs).

Definition

Definition should include

• genetic engineering
• DNA enzymes
• pros and cons of government labeling
• protein.
Process/Skill Questions

- What is the purpose of GMOs?
- What impact does GMOs have on nutrition?
- What are the concerns of anti-GMO proponents?
- What are the concerns of pro-GMO proponents?
- What are the major focuses of GMOs in nutrition?

HOSA Competitive Events (High School)

Teamwork Events

- HOSA Bowl

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Task Number 43

Identify the roles of the six basic nutrients.

Definition

Identification should include the following:

- Carbohydrates
- Fats
- Proteins
- Vitamins
- Minerals
- Water

Process/Skill Questions

- What is the role of macronutrients and micronutrients in crop production? How does it affect diet?
- What percentage of your diet should come from fats? Carbohydrates? Proteins?
- Which nutrients are used for energy?
- Which nutrient is used for tissue building?
- What are the two classes of vitamins?
- What are the differences between visible and invisible fats?
- What nutrients are necessary for proper growth and development and to regulate body processes?
- What are the benefits of drinking water?
- What are the types of carbohydrates? Fats? Proteins? What are some food sources for each?
• Why is calcium important for bone growth?
• What is the role of vitamin D?

HOSA Competitive Events (High School)

Health Science Events

○ Medical Spelling
○ Medical Terminology
○ Knowledge Test: Nutrition

Teamwork Events

○ HOSA Bowl

Task Number 44

Describe the digestion and metabolism of food.

Definition

Description should include

• the anatomy and physiology of the digestive system
• the breakdown of carbohydrates, fats, and proteins.

Process/Skill Questions

• Where does carbohydrate digestion start?
• Where does fat digestion start?
• What is a calorie?
• What is the function of the ancillary organs in digestion?
• Where are most of your nutrients absorbed? How are they used?
• What are the three processes of nutrition?

HOSA Competitive Events (High School)

Health Science Events

○ Medical Spelling
○ Medical Terminology
○ Knowledge Test: Nutrition
Task Number 45

Identify types of diets.

Definition

Identification of various types of diet should include:

- omnivorous
- carnivorous
- vegetarian diets (i.e., vegan, lacto ovo)
- macrobiotic therapeutic diets (i.e., low sodium, low fat, high fiber, renal diet, diabetic diet, puree, mechanical soft, tube feeding, clear diet, full liquid diet, food allergy, food intolerance)
- trend diets (i.e., Atkins, Zone, Weight Watchers, South Beach, Raw Food, Mediterranean, Beverly Hills, cabbage soup, Subway, junk food, Paleo, primal, grapefruit,
- medical diets (i.e., American Heart Association, American Diabetic Association, American Cancer Society, Center for Disease Control).

Process/Skill Questions

- What types of foods are consumed in a macrobiotic diet?
- What are the dietary guidelines for various cultural, religious, and ethnic practices?
- What ethnic groups eat a Kosher diet?
- What food items should be eliminated on a gluten-free diet?
- What are the risks of a trend diet?
- Why is a low-sodium, low-fat diet recommended?
- What are some of the nutritional recommendations from various associations?
- What is the importance of dietary fiber?

HOSA Competitive Events (High School)

Teamwork Events

- Health Education
- HOSA Bowl
Task Number 46

Describe the basic food groups relating to the recent dietary guidelines.

Definition

Description should include

- information found at [http://www.choosemyplate.gov/](http://www.choosemyplate.gov/).
- composition of the food plate
- nutrient information for each of the food groups
- number of servings from each food group
- portion sizes using common household measurements
- nutritional information on food labels.

Process/Skill Questions

- What are the basic food groups?
- Which food groups are high in protein?
- How do you interpret the food label to make food choices?
- What are the daily servings of each food group?
- What types of food are in the fruit group? Vegetable group? Grain group? Dairy group? Protein group?
- What should your plate look like according to MyPlate?

HOSA Competitive Events (High School)

**Health Science Events**

- Medical Spelling
- Medical Terminology
- Knowledge Test: Nutrition

**Teamwork Events**

- Health Education
- HOSA Bowl
Understanding Nutrition Relating to Various Stages Across the Life Span

Task Number 47

Explain appropriate diets across the lifespan.

Definition

Explanation should include

- age-appropriate diets and portion sizes
- nutritional needs
- hydration needs
- body composition
- menus that reflect dietary guidelines.

Process/Skill Questions

- Why do normal diets vary for persons according to their ages and activity levels?
- Under what circumstances should one try to modify his/her diet?
- What is the daily requirement for water?
- What is the most important meal of the day? Why?
- What is the definition of body composition and/or BMI?
- How do you calculate body composition and/or BMI?
- Why do caloric requirements change throughout the developmental stages?
- What is the relationship between physical activity and caloric intake?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Knowledge Test: Nutrition

Teamwork Events

- Health Education
- HOSA Bowl
Task Number 48

Explain common dietary modifications in childhood, adolescence, and adulthood.

Definition

Explanation should include

- caloric requirements
- activity level
- dietary needs according to developmental stage.

Process/Skill Questions

- Why is calcium important for bone growth?
- Why do caloric requirements change throughout the developmental stages?
- What is the relationship between physical activity and caloric intake?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Nutrition

Teamwork Events

- Community Awareness
- Health Education
- HOSA Bowl
- Public Service Announcement

Task Number 49

Assess the socioeconomic environment in food access.

Definition

Assessment should include
• environmental setting (e.g., global, urban, rural)
• financial impact (e.g., Women, Infants, and Children [WIC] program, Supplemental Nutrition Assistance Program [SNAP], food banks)
• socioeconomic effect
• education level
• food deserts
• school nutrition programs.

Process/Skill Questions

• Why is it necessary to assess the food environment?
• What is the definition of global? Urban? Rural?
• What is UNICEF? OXFAM?
• What is WIC?
• What are the purposes and benefits of WIC, SNAP, and food banks?
• What are the resources in your local community?
• How do financial hardships/challenges affect nutritional intake?
• What effect does the environment have on nutritional intake?

HOSA Competitive Events (High School)

**Health Science Events**

- Knowledge Test: Nutrition

**Teamwork Events**

- Community Awareness
- HOSA Bowl

**Task Number 50**

**Evaluate the effects of mealtime in society.**

**Definition**

Evaluation may include the following components:

• Time of day
• Environment
• Nutrition consistency
• Proper digestion
• Consistent energy level
• Social influences

Process/Skill Questions

• What are your mealtimes, compared with other classmates?
• How is nutrition affected by a regular mealt ime? Explain.
• Why is the environment important when determining mealtimes?

HOSA Competitive Events (High School)

Health Science Events

 o Medical Spelling
 o Medical Terminology
 o Knowledge Test: Nutrition
 o Knowledge Test: Transcultural Health Care

Task Number 51

Identify issues that can affect personal nutrition.

Definition

Identification may include

• peer pressure
• risky lifestyles (i.e., excessive use of alcohol, drug use)
• media pressure
• stress
• overall health
• eating disorders
• genetics
• surgery/illness
• childhood obesity
• weather-related effects
• chronic disease.

Process/Skill Questions

• How does the media influence nutritional intake?
• How do your peers have an effect on your nutrition? Explain.
• How does genetics affect your nutritional intake?
• How does excessive use of drugs and/or alcohol affect your nutritional intake?
• What are some eating disorders that would affect your nutritional intake?
• What are the consequences of childhood obesity?
• Why is it important to be aware of the calories in liquids?
• How could the location of where the food was grown affect your diet?
• What are some weather occurrences that could affect access to food?

HOSA Competitive Events (High School)

Health Science Events

  o Medical Spelling
  o Medical Terminology
  o Knowledge Test: Nutrition

Teamwork Events

  o Community Awareness
  o Health Education
  o Public Service Announcement

Emergency Preparedness Events

  o Public Health

Task Number 52

Describe dietary guidelines recommended for wellness.

Definition

Description should include recommendations from the

  • American Heart Association
  • American Diabetes Association
  • American Cancer Society.

Process/Skill Questions

  • What are some dietary recommendations of the American Heart Association?
  • Why is a low-sodium, low-fat diet recommended?
  • What are some nutritional recommendations of the American Cancer Society?
  • What is the importance of dietary fiber?
  • What is the DASH diet?
Task Number 53

Identify common medical conditions affecting nutrition across the life span.

Definition

Identification may include

- heart disease
- diabetes
- cancer
- eating disorders
- food allergies and intolerances.

Process/Skill Questions

- What is the meaning of malnutrition?
- Why is obesity a major health problem?
- What are some diseases resulting from obesity?
- Why is type 2 diabetes occurring more in younger persons?
- What is the difference between type 1 and type 2 diabetes?
- What are some common food allergies and their symptoms?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Nutrition

Teamwork Events

- HOSA Bowl
- Public Service Announcement

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
Teamwork Events

- HOSA Bowl

Task Number 54

Research scientifically-based nutrition information to identify valid and invalid information.

Definition

Research may include

- explanation of valid vs. invalid information from electronic sources
- list of possible topics (e.g., fad diets, supplements)
- search for evidence-based information
- use of sources cited in the correct format.

Process/Skill Questions

- What constitutes valid information from electronic sources?
- What is a topic that may lend itself to invalid information?
- What are reliable nutritional information sources?
- What are the benefits and hazards of supplements?

Developing an Understanding of Applied Nutrition

Task Number 55

Demonstrate sanitary food handling and storage practices.

Definition

Demonstration should include
• appropriate procedures for handling, storing, and thawing fruits, vegetables, meats, and dairy products
• precautions used to prevent cross-contamination (e.g., food-borne illnesses)
• checking expiration dates and recalls on food items
• refrigeration
• handling of fresh/frozen/canned and stored foods.

Process/Skill Questions

• What is the purpose of the FDA?
• What is the purpose of the EPA?
• What is the purpose of the USDA?
• What are some examples of food-borne illnesses?
• Where do you find information about recalls on food items?
• How are expiration dates important? Explain.

HOSA Competitive Events (High School)

Health Science Events

  o Medical Spelling
  o Medical Terminology
  o Knowledge Test: Nutrition

Teamwork Events

  o Health Education
  o HOSA Bowl
  o Public Service Announcement

Emergency Preparedness Events

  o Public Health

Task Number 56

Create a one-day menu according to dietary guidelines.

Definition

Creation of a menu should include

• foods representing all of the food groups
• proper portion sizes
• moderate levels of sodium
• recommended daily allowances
• list of ingredients of menu items
• foods that are low in fat content
• consideration of age level and health status.

Process/Skill Questions

• What protein foods would be included in breakfast? Lunch? Dinner?
• What foods would be high in calcium?
• What is the recommended amount of daily sodium intake?
• Why is it important to check the ingredients?
• What are some common food allergies?

HOSA Competitive Events (High School)

    Health Science Events
        o Knowledge Test: Nutrition

    Health Professions Events
        o Clinical Specialty

    Teamwork Events
        o Health Education

Task Number 57

Describe the influence of the media on dietary habits.

Definition

Description may include the influence of

• commercials
• television programs
• Internet
• billboards
• magazines/newspapers
• music
on one's self image and dietary habits.

Process/Skill Questions

- How do commercials affect the obesity epidemic?
- How does product placement in a television program or movie affect nutrition?
- How do television or movie stars affect nutrition?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- Community Awareness
- Health Education
- HOSA Bowl

Task Number 58

Identify current trends in nutrition.

Definition

Identification may include

- portion sizes/servings
- plate size
- diets
- whole grains vs. refined grains
- organic foods or products
- fast foods
- processed foods.

Process/Skill Questions
• What are some current trends that you see in nutrition?
• What is the definition of processed foods? Organic foods? Whole grains?
• How often do you eat fast food?
• What are some advantages and disadvantages of eating fast food?
• What are hormone-free products? Pesticide-free? Antibiotic-free?
• What are the costs associated with processed foods?

HOSA Competitive Events (High School)

Health Science Events

  o Medical Spelling
  o Medical Terminology
  o Knowledge Test: Nutrition

Teamwork Events

  o Community Awareness
  o Health Education
  o HOSA Bowl

Task Number 59

Explore the types of nutrition professionals.

Definition

Exploration may include jobs or careers in

  • public health service
  • medical facilities
  • credentialed/non-credentialed professions (e.g., registered dietitian [RD], personal trainer, nutritionist).

Process/Skill Questions

  • What education level is needed for a career as an RD?
  • Where would an RD work?
  • When does a personal trainer need to be licensed? Explain.
  • What are some public health service professions in nutrition?
  • What are the continuing education requirements?

Common Career Technical Core
HL4
Evaluate the roles and responsibilities of individual members as part of the healthcare team and explain their role in promoting the delivery of quality health care.

HOSA Competitive Events (High School)

Health Professions Events

  - Clinical Specialty

Leadership Events

  - Job-Seeking Skills
  - Medical Photography

Teamwork Events

  - Health Career Display
  - HOSA Bowl

Task Number 60

Maintain a food journal.

Definition

Maintenance should include recording

- all foods and liquids consumed
  - portion size
  - number of servings
- level of activity
- level emotion
- origin of food (i.e., locally grown)
- use of common household measurements (i.e., teaspoon, tablespoon, ounce, pound).

It should also include analyzing daily food and liquid intake and comparing it to the dietary guidelines.

Process/Skill Questions

- Why is keeping a food journal important?
- Why is it important to be aware of the calories in liquids?
- What is the importance of your activity level in your daily nutrition?
- How could different emotions and their intensity influence what you eat or drink?
- How could location of where the food was grown affect your diet?

**HOSA Competitive Events (High School)**

**Health Science Events**

- Medical Spelling
- Medical Terminology
- Knowledge Test: Nutrition

**Leadership Events**

- Healthy Lifestyle

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**SOL Correlation by Task**

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**Teacher Resources**

**Lesson Plans and Activities**


Body Mass Index calculator: [www.bmi-calculator.net/](http://www.bmi-calculator.net/)


Choose My Plate Education Resources: [www.choosemyplate.gov/teachers](http://www.choosemyplate.gov/teachers)
Constant Craving (The New York Times Learning Network):

Diet Detective (website): www.dietdetective.com


Exercise, Fitness, and Nutrition (Kids.gov, resources and lesson plans):

Fast Food Choices ... You Are What You Eat (lesson plan): http://can-do.com/uci/lessons98/Nutrition.html

Fast Food Crime Buster (activity):
http://webpages.shepherd.edu/MSPAID01/final%20webquest.htm

Food Timeline (history, recipes, lessons): www.foodtimeline.org

How to Understand and Use the Nutrition Facts Label (U.S. Food and Drug Administration):
www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm274593.htm

National Nutrition Month: Best Web Resources for Teachers (Edutopia):
www.edutopia.org/blog/nutrition-mont-resources-matt-davis

Nutrition and Food Science Lesson Plans (Discovery):

Nutrition and Health Educators Printable Educational Resources (Nourish Interactive):
www.nourishinteractive.com/nutrition-education-printables/category/48-teacher-resources-teaching-kids-healthy-habits-nutrition-manuals

Nutrition Education Websites for Teachers (November 2012, The Los Angeles Fund for Public Education):

Nutrition Information for Parents, Caregivers, and Teachers (USDA):

Nutrition Lesson Plans (Teachnology): www.teachnology.com/teachers/lesson_plans/health/nutrition/

Portion Control and Size Guide (printable, WebMd):
www.webmd.com/diet/printable/portion-control-size-guide
Rate Your Plate (lesson plan): www.beaconlearningcenter.com/lessons/lesson.asp?ID=11915


Teaching the Food System (Johns Hopkins Bloomberg School of Public Health): www.jhsph.edu/research/centers-and-institutes/teaching-the-food-system/resources/

U.S. Department of Agriculture Food and Nutrition Information Center Education Resources: https://fnic.nal.usda.gov/lifecycle-nutrition/child-nutrition/education-resources

Videos

"6 Essential Nutrients" (YouTube): www.youtube.com/watch?v=dHtMU3Tr-PM

"Are GMOs Good or Bad?" (YouTube): www.youtube.com/watch?v=HSten18rI9A

"Atherosclerosis" (YouTube): https://www.youtube.com/watch?v=OHE1lg4k64M&feature=youtu.be


"Benefits of a High-Fiber Diet" (YouTube): www.youtube.com/watch?v=qP0HHLxN8Us&feature=youtu.be

"Dirty Little Secrets: Kitchen Food Safety" (YouTube): https://www.youtube.com/watch?v=tRLQ-p0PEzU&feature=youtu.be

"Fast Food, Fat Profits: Obesity in America" (YouTube): www.youtube.com/watch?v=slwgXXVXM3I&feature=youtu.be

"Food Poisoning: Be Food Safe!" (YouTube): www.youtube.com/watch?v=qO6FyfoAtYA&feature=youtu.be


Entrepreneurship Infusion Units

Entrepreneurship Infusion Units may be used to help students achieve additional, focused competencies and enhance the validated tasks/competencies related to identifying and starting a
new business venture. Because the unit is a complement to certain designated courses and is not mandatory, all tasks/competencies are marked “optional.”
Appendix: Course Sequences and Career Cluster Information

Concentration sequences: A combination of this course and those below, equivalent to two 36-week courses, is a concentration sequence. Students wishing to complete a specialization may take additional courses based on their career pathways. A program completer is a student who has met the requirements for a CTE concentration sequence and all other requirements for high school graduation or an approved alternative education program.

- Food Science and Dietetics (8239/36 weeks)
- Introduction to Health and Medical Sciences (8301/18 weeks)

<table>
<thead>
<tr>
<th>Career Cluster: Health Science</th>
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<tbody>
<tr>
<td>Pathway</td>
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</tbody>
</table>
| **Therapeutic Services** | Athletic Trainer  
Certified Nurse Aide  
Dental Assistant  
Exercise Physiologist  
Home Health Aide  
Licensed Practical Nurse  
Medical Assistant  
Occupational Therapist  
Occupational Therapist Aide  
Pharmacy Technician  
Physical Therapist  
Physical Therapist Assistant  
Recreation Therapist  
Registered Nurse |

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<tr>
<th>Career Cluster: Human Services</th>
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<tbody>
<tr>
<td>Pathway</td>
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</table>
| Counseling and Mental Health Services | Dietitian, Nutritionist  
Educational/School Counselor  
Nutritional Counselor  
Substance Abuse and Behavioral Disorder Counselor |
| Early Childhood Development and Services | Child Care Worker  
Director of Early Childhood Education Center  
Elementary School Teacher |
### Career Cluster: Human Services

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<thead>
<tr>
<th>Pathway</th>
<th>Occupations</th>
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<tbody>
<tr>
<td></td>
<td>Nanny</td>
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<td>Parent and Family Educator</td>
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<td>Preschool Teacher</td>
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<td>Teacher Assistant</td>
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<td>Family and Community</td>
<td>Adult Day Care Coordinator</td>
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<td>Services</td>
<td>Educational/School Counselor</td>
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<td>Medical, Public Health Social Worker</td>
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<td>Personal and Home Care Aide</td>
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<tr>
<td>Personal Care Services</td>
<td>Personal and Home Care Aide</td>
</tr>
<tr>
<td></td>
<td>Personal Trainer</td>
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