This course supports the assessment for ASV1. The course covers 5 competencies and represents 3 competency units.

**Introduction**

**Overview**
Nurses are on the front line when it comes to assessing a patient's nutritional status, eating habits, and beliefs about food and diet. What people eat can help them recover from an illness, cope with a chronic illness, or simply improve the quality of their lives. Nurses have the best opportunity to address misinformation, dietary fads, and poor eating habits while considering the cultural and emotional connection humans have to food and food consumption.

Those who study nutrition come prepared with a background in anatomy and physiology and knowledge of the digestive system, digestive hormones, cell metabolism, and the conversion of nutrients to energy. Studying the basic principles of nutrition is an extension of studies in biology, chemistry, anatomy, and physiology. Humans need energy to survive, and food is energy. In addition, nursing students bring an appreciation of cultural, sociological, and traditional experiences that influence perceptions about diet and food.

This course will introduce important concepts related to nutrition--macronutrients, micronutrients, minerals, vitamins, and minerals, basic nutrition assessment tools, and how certain diseases can affect digestion and nutrition. Questions will be answered like: Who decides the standard guidelines for nutrients, weight, and activity? What is the role of professional dieticians, and when should they be referred to patients? How should alcohol consumption be presented to a patient? What are the nutritional needs of critically ill patients, and what are the options when a patient cannot eat?

Watch the following video for an introduction to this course:

**Competencies**
This course provides guidance to help you demonstrate the following 5 competencies:

- **Competency 211.1.1: Fundamentals of Nutrition**
  The graduate recognizes healthy eating patterns as defined by the Dietary Guidelines for Americans and the MyPlate Food guide; explains the importance of sound nutrition in promoting and maintaining good health; and recognizes cultural sensitivities pertaining to variation in diet.

- **Competency 211.1.2: Digestion and Metabolism**
  The graduate identifies barriers to digestion specific to different ethnic groups; describes the process of catabolic and anabolic metabolism as it pertains to the energy-yielding nutrients; nutrient absorption; and recognizes factors that affect overall rate of metabolism.

- **Competency 211.1.3: Macronutrients**
  The graduate recognizes energy-yielding macronutrients and their role in body
functions; assesses the daily need, energy value, and healthy distribution for macronutrients in the diet and sources of each; and recognizes health hazards in overconsumption of macronutrients.

- **Competency 211.1.4: Micronutrients**
  The graduate identifies micronutrients essential to human health and recognizes manifestations of deficiency and/or toxicity; selects assessment tools for evaluating micronutrient content; and evaluates need for dietary supplements.

- **Competency 211.1.5: Nutrition Assessment**
  The graduate applies principles of basic nutrition to nutrition assessment of patients; describes the appropriate use of anthropometric tools to assess nutritional status; explains factors that influence individual dietary habits; discusses the importance of nutritional education; and recognizes cultural sensitivities that may influence nutritional assessment.

**Nursing Dispositions Statement**
Please review the [Statement of Nursing](#).

**Course Instructor Assistance**
As you prepare to successfully demonstrate competency in this subject, remember that course instructors stand ready to help you reach your educational goals. As subject matter experts, mentors enjoy and take pride in helping students become reflective learners, problem solvers, and critical thinkers. Course instructors are excited to hear from you and eager to work with you.

Successful students report that working with a course instructor is the key to their success. Course instructors are able to share tips on approaches, tools, and skills that can help you apply the content you’re studying. They also provide guidance in assessment preparation strategies and troubleshoot areas of deficiency. Even if things don’t work out on your first try, course instructors act as a support system to guide you through the revision process. You should expect to work with course instructors for the duration of your coursework, so you are welcome to contact them as soon as you begin. Course instructors are fully committed to your success!

**Preparing for Success**

The information in this section is provided to detail the resources available for you to use as you complete this course.

**Learning Resources**

The learning resources listed in this section are required to complete the activities in this course. For many resources, WGU has provided automatic access through the course. However, you may need to manually enroll in or independently acquire other resources. Read the full instructions provided to ensure that you have access to all of your resources in a timely manner.

**Manually Enrolled Resources**

Take a moment to enroll in the learning resources listed in this section. To enroll, navigate to the “Learning Resources” tab, click the “Sections” button, and then click the “Enroll Now” button for each resource. Once your mentor approves your enrollment in the resource, you will receive
an e-mail with further access instructions. Contact your mentor if you have questions.

MyNutritionLab
On the Learning Resources tab of your Degree Plan MyNutritionLab is listed as a resource in which you should enroll. This is done by clicking on the "Show Sections" link on the Learning Resources Tab and then selecting "Enroll Now" on the next screen.

Following your mentor's approval, you will receive a confirmation e-mail containing the registration information and necessary codes to set up an account and log into the learning resource. Ask your mentor if you need additional help. MyNutritionLab comes loaded with the following e-book at no charge to you:


*Note: If you prefer to use hard copies of the texts, you may purchase them through a retailer of your choice. If you choose to do so, please use the ISBN listed to ensure that you receive the correct edition.*

*Note: Due to recent upgrades, some browser updates may be required in order to utilize MyNursingLab. If you have browser issues when attempting to log in, see the "Browser Tune-Up" section of the MyNursingLab System Requirements page.*

Additional Preparations

**Message Boards, Learning Communities, Study Notes, FAQs**
The message boards are an important part of the WGU experience.

In the lower right-hand corner of the course of study screen there is a message board area. Throughout your studies, you will want to follow the questions, observations, and responses of the other students and the expert advice of the course instructor. If you have questions of your own, do not hesitate to use this resource to get those answered as you develop your competence.

Use the "Additional Learning Tools" document to review these tools.

**Nursing Standards**
You will be able to access Nursing Professional Standards as they apply to your program through the WGU Library. Please access these documents at the following website:

- Nursing Standards E-Reserves

**Fundamentals of Nutrition**
The importance of understanding nutrition cannot be underestimated when evaluating a patient's health status. A well-balanced diet will provide essential nutrients for growth and health and will aid in the healing process. The consumption of food is engrained in our social
encounters, our culture, and our immediate family. The increase of obesity, type II diabetes, and eating disorders in modern society exemplify the critical need to integrate nutrition into every aspect of healthcare. How do you think nurses can use their skills to help patients prevent poor health, promote good health, and improve health in general? Can you give examples from your own life in which nutrition played a significant role in health or illness? Before you start, think about how and why nutrition is such a crucial factor in health and illness. The activities associated with this subject will introduce the importance of nutrition in health promotion and maintenance.

**Dietary Guidelines**

Since many chronic diseases are connected to nutrition, it is important to understand recommended dietary guidelines. This will allow nurses to make healthy choices for themselves and their patients. What are dietary guidelines? Do they vary or conflict with each other? Use your own experiences to come up with some guidelines of your own before continuing.

This topic addresses the following competency:

- **Competency 211.1.1: Fundamentals of Nutrition**
  The graduate recognizes healthy eating patterns as defined by the Dietary Guidelines for Americans and the My Pyramid Food guide; explains the importance of sound nutrition in promoting and maintaining good health; and recognizes cultural sensitivities pertaining to variation in diet.

**Is Wine Good for You?**

Do an Internet search to find out if wine is good for you. Do a second search with keywords *breast cancer* and *wine*. Can you think of other foods and drinks that have opposing claims of being good for you or being bad for you? Do you believe that such claims contribute to consumer confusion?

**Determining Dietary Guidelines**

Answer the following questions in your notebook or in the notes section of the course of study:

- Who determines federal nutrition policy?
- How frequently are guidelines written?
- When will the next set of guidelines come out?
- What group is not covered in the guidelines?

**Purpose of Dietary Guidelines**

Your learning resource, *MyNutritionLab (ASV1-Nutrition V3)*, has many tools to help you learn and apply the principles of nutrition. You will mostly use the “Chapter Contents” and the “Study Tools” from the menu on the left.

In *MyNutritionLab (ASV1-Nutrition V3)*, go to Chapter Contents, Chapter 1, to locate the following chapter of the e-text:

- chapter 1 (“Nutrition: Making it Work for You”)
Open each of the links and work through the activities to find information that is new to you and the presentation mode that helps you learn best. “Review It” at the bottom will help you prepare for the course assessments.

- What are the two focuses of the dietary guidelines?
- What is the purpose of the dietary guidelines?
- How are the guidelines intended to be used?

**Intakes**

Access your community resource list and read the description of the book *Dietary Reference Index: Essential Guide to Nutrient Requirements* to answer the following questions:

- What is the Recommended Daily Allowance (RDA) versus the Dietary Reference Index (DRI)?
- Does the DRI include the RDA?
- What is the risk assessment model for?
- Is food labeling a part of the DRI?
- What is the Estimated Average Requirement (EAR)?
- What is meant by adequate intake?
- What is meant by tolerable upper limits?

**A Food Label**

Access your community resource list and answer the following questions about the Krispy Krunchy label:

- Why is corn the first ingredient listed on the label?

Discuss why it is important to know the percentage of saturated fats.

- Why is it important to identify serving size?
- How many calories in a Krispy Krunchy serving come from fat?
- How many calories (per serving) are allowed before labeling a serving as "low calorie"?
- How many milligrams of sodium are allowed (per serving) before labeling a serving as "low sodium"?
- For the average consumer, how difficult is this list of nutrition claims able to be understood (e.g., low sodium, low fat, less fat, lean, light)?

**Replacing the Food Pyramid**

The food pyramid was developed by the United States Department of Agriculture as a visual tool to help individuals make healthy food choices balanced with daily exercise. It was not the first effort to visually assist Americans to eat a balanced diet. Watch the [CNN news video](https://www.cnn.com) to get a bit of history and a perspective on why the pyramid is being replaced with the 'food plate.'

- Why are guidelines important?
- What are the benefits of a plate over a pyramid?
- How do the recommendations of the plate differ from the recommendations of the
pyramid?
- What does the dietitian mean when she says ‘over fed and undernourished’?
- Do you feel that you already eat a balanced diet that closely matches the food plate?

Guidelines for Different Populations

Visit the following website and learn about targeted food planning and programs for different populations:

- ChooseMyPlate.gov

Find MyPlate nutrition information for the following topics:

- pregnant & breastfeeding women
- WIC program
- infants and toddlers
- preschoolers
- 6- to 11-year-olds
- college students
- older adults

Nutrition and Health Promotion

Review what you have learned about dietary guidelines as you prepare for this section on nutrition and health promotion. How are these topics related?

In this section, you will explore the roles of professionals in the field of nutrition and learn how nutrition is addressed in Healthy People 2020. You will also address how nutrition plays a part in ameliorating disease. From this information, what can you extrapolate about the role of the nurse?

This topic addresses the following competency:

- **Competency 211.1.1: Fundamentals of Nutrition**
  The graduate recognizes healthy eating patterns as defined by the Dietary Guidelines for Americans and the My Pyramid Food guide; explains the importance of sound nutrition in promoting and maintaining good health; and recognizes cultural sensitivities pertaining to variation in diet.

Truth in Advertising

Access your community resource list about the Enviga product. What do you think about the claims that Enviga makes?

Professionals in the Field of Nutrition

Visit the following website for information regarding the education and professional requirements for an RD and a DTR:

- American Dietetic Association
Reading Assignment

As you read in chapter 1 (“Nutrition: Making It Work for You”) focus on what constitutes a healthful diet. Consider these questions:

- What factors are involved in overall good health and wellness?
- Which of these factors are directly related to nutrition?

Review the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- “What is Nutrition, and Why Is It Important?” on pages 1-4 of chapter 1 (“Nutrition: Making It Work for You”)

Healthy People 2020

Access your community resource list. Review the nutrition-related objectives outlined in the Healthy People 2020 report.

Food and Nutrition Misinformation and Food Fads

Access your community resource list and read about food and nutrition misinformation from the American Dietetic Association (ADA).

- How does the ADA describe the responsibilities of dietetic professionals?
- How is nutrition misinformation described, and what are the hazards associated with misinformation?

Give an example of how dietary supplements impact consumers economically.

- Have you been vulnerable to any of these claims?
- Why do you think people want to believe unfounded claims?

Food Safety Assigned Reading

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- chapter 12 (“Nutrition Issues: The Safety and Security of the World’s Food Supply”)

Work through the activities and answer these questions:

- What food should be avoided by infants, young children, pregnant women, older adults, and persons who are immune-compromised?

Discuss general symptoms of food-borne illness and time of onset.

- How long can raw meat be stored in a refrigerator?
- What is the temperature range in which bacteria doubles in as little as 20 minutes?

Alcohol Consumption
As you read in chapter 8 (“Fluid Balance, Water, and Alcohol”) consider these questions:

- What nutritional issues did you discover in the Nutri-Case on Theo?
- What are the implications?
- How can alcohol consumption affect fetal development?

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- “How Much Alcohol is Safe to Drink?” on pages 239-248 of chapter 8 (“Fluid Balance, Water, and Alcohol”)

**Understanding the DASH Plan**

Learn about sodium in diet planning.

- What is the DASH plan?
- Is it a good plan even for people who do not have high blood pressure?
- What do you like about the DASH plan?

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:


**Health Promotion for Cancer Survivors**

Go to your community resource list and read about good nutrition and health promotion for cancer survivors. Think about the many special considerations addressed in the article related to a person recovering from cancer treatment.

In addition to the basic concepts of good nutrition, the clinician needs to consider the site of the cancer, the type of treatment the patient underwent, limitations related to physical activities, need to gain or lose weight, and aversion to smells or certain foods associated with past experience.

**Digestion and Metabolism**

Recently some celebrities have been in the news telling people about how they have suffered from Crohn's disease. Crohn's disease affects about 500,000 people in the United States and is a chronic disease that causes inflammation or swelling of the digestive tract. However, while this disease has recently received much publicity, there are many diseases of the gastrointestinal tract that affect digestion, metabolism, and absorption of nutrients.

The next activities associated with this subject introduce the mechanisms associated with digestion and metabolism. How does nutrition play a part in digestion and metabolism? How does poor nutrition play a role in disease? These are questions you will be able to answer after completing this section.

**Digestion and Digestive Organs**
This section will review key concepts about the digestive system and reinforce your knowledge so that you can use them in studying the pathology of various gastrointestinal disorders in your other nursing courses.

This topic addresses the following competency:

- **Competency 211.1.2: Digestion and Metabolism**
  The graduate identifies barriers to digestion specific to different ethnic groups; describes the process of catabolic and anabolic metabolism as it pertains to the energy-yielding nutrients; nutrient absorption; and recognizes factors that affect overall rate of metabolism.

**Concept Map of Digestion**

Create a concept map of digestion. Include the following concepts:

- digestive organs
- accessory organs
- enzymes
- hormones
- absorption
- digestion
- barriers to digestion
- diseases related to digestion

Link concepts and label the links, like in the following example:

- concept: enzymes
- link: *released from or released into*

Use only your memory of what you have learned so far. This will help you determine how well you understand the digestive process.

**Reviewing the Organs of Digestion**

How many of the following prompts can you respond to? An understanding of the digestive system and how it works is important to understanding nutrition.

Consider the following:

- What is mechanical digestion?
- What is chemical digestion?
- What part of the gastrointestinal (GI) tract does the majority of mechanical digestion?
- What are the primary functions of the digestive tract?
- Where does digestion begin?
- What is the function of the salivary glands, the soft palate, and the epiglottis?
- What is a bolus?
- What is chyme?
Locate and describe the cardiac and pyloric sphincters.

- What does the stomach secrete?
- The liver is not part of the GI track but contributes to digestion. How?
- What are the three enzymes released by the pancreas? How do they reach the small intestines?
- What does each enzyme do?
- What is the function of the gallbladder?
- Why is insulin important?
- What happens in the small intestines?
- What is absorbed in the large intestine?

Revisit your concept map and add any missing organs involved in digestion, along with their functions and secretions.

**Nutrient Absorption and Transport**

Review a diagram of the intestinal wall and the methods of absorption. Absorption can occur by simple diffusion, facilitated diffusion, active transport, or pinocytosis.

Water-soluble molecules are absorbed directly into portal circulation. Fat-soluble molecules are absorbed and transported through the lymphatic system. Eventually they are mixed with general circulation near the heart. Update your concept map to include the end products of digestion, along with which mode of absorption and transport it will take.

**Digestive Hormones**

When you wrote your concept map, what hormones came to mind? Add hormones to your concept map.

**Reading Assignment: Chapter 2**

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- chapter 2 ("The Human Body: Are We Really What We Eat?")

Work through the activities about digestion.

Add to your concept map what you have learned. Try to make as many connections and causal relationships as you can rather than just listing facts.

**Common Digestive Ailments**

Return to your concept map and review the diseases related to digestion. Did your concept map include dental problems, canker sores, or liver failure? Revise your concept map.

**Metabolism**

Metabolism involves chemical reactions in the body that allow food to be broken down into usable form. Often people will say they have a slow metabolism or a fast metabolism. What does this mean? What effect could this have? Think about why people say they are overweight.
Is the reason usually a "slow metabolism"? Think about the impact of metabolism on weight as you prepare for concept mapping on this topic.

This topic addresses the following competency:

- **Competency 211.1.2: Digestion and Metabolism**
  The graduate identifies barriers to digestion specific to different ethnic groups; describes the process of catabolic and anabolic metabolism as it pertains to the energy-yielding nutrients; nutrient absorption; and recognizes factors that affect overall rate of metabolism.

**Metabolic Concept Map**

Sometimes people claim they are overweight because they have a slow metabolism. What do they mean? Sketch a concept map about metabolism. What are the concepts that come to mind? How should you link them together?

**What Is a Kilocalorie?**

What is usually called a calorie is actually a kilocalorie. Confused? Research how calories work in your community resources.

Body weight is measured in kilograms because caloric requirements are given in kcal/kg. Convert your weight to kilograms by dividing your weight in pounds by 2.2 or by using an online converter. How many kilograms do you weigh?

**Metabolism and Energy**

Respond to any of the following prompts in your notebook or in the notes section of the course of study:

- What are metabolites?
- What are the two types of metabolic reactions?

**MyNutritionLab: Understanding Diabetes**

What do you know about diabetes? Read part of chapter 3 ("Carbohydrates: Plant Derived Energy Nutrients").

- What is diabetes?
- What does nutrition have to do with diabetes?
- Can eating too much sugar give you diabetes?

Read the following in the [MyNutritionLab (ASV1-Nutrition V3) e-text]:

- “What is Diabetes, and Why Has It Become a Public Health Concern?” on pages 91-95 of chapter 3 ("Carbohydrates: Plant Derived Energy Nutrients")

Access the following website:
Build a lunch for a diabetic patient who has a 1,800-calorie diet. Treat the meal as a single dish. Think about how many calories the patient should use for lunch. Remember that no more than 50% of the diet should be carbohydrates. How easy is this to do?

**Barriers to Digestion**

In certain diseases, a patient appears to eat normally but still loses weight. This suggests that there is something in the digestive system that is causing a barrier to digestion. This might be a physical barrier such as cancer or a chemical barrier. Have you ever experienced digestive difficulties? How did you handle them? Was your approach effective? Read the following case studies and reflect on them before proceeding to the next section.

This topic addresses the following competency:

- **Competency 211.1.2: Digestion and Metabolism**
  The graduate identifies barriers to digestion specific to different ethnic groups; describes the process of catabolic and anabolic metabolism as it pertains to the energy-yielding nutrients; nutrient absorption; and recognizes factors that affect overall rate of metabolism.

**Case Studies**

Consider the following cases:

**Case 1:** Mr. Davis, a 36-year-old postal worker, complains of epigastric pain and heartburn that is worse at night when lying flat. The discomfort is always worse after eating and, on occasion, a small amount is regurgitated. Mr. Davis has been taking an over-the-counter liquid antacid at night. A friend recommended trying Zantac, but due to the cost, Mr. Davis has yet to try it. Mr. Davis is about 20 pounds overweight, drinks alcohol occasionally, and does not smoke.

**Case 2:** Mr. Applegate, a 62-year-old accountant, has been waking up in the middle of the night with abdominal pain for several weeks. During the past few days, Mr. Applegate has felt similar pains late in the afternoons. He has not noticed any changes in bowel habits but has a decreased appetite. Mr. Applegate wonders if something diet-related is causing the pain.

**Case 3:** Ms. Hayworth, a 26-year-old advertising assistant, has been working a lot of overtime on a big project that will hopefully lead to a promotion. She has begun to experience abdominal cramps, along with nausea, vomiting, and occasional diarrhea. Because of the rapid onset of symptoms, Ms. Hayworth is more and more focused on where the nearest bathroom is located. She has begun to lose weight and feels exhausted.

**Conditions That Cause Barriers to Digestion**

You will learn about the following conditions in the following exercises:

- lactose intolerance
- constipation
- diarrhea
- heartburn
- reflux
- GERD
- inflammatory bowel disease
- peptic ulcer

**Lactose Intolerance**

Lactase is one of the many enzymes required for complete digestion of the disaccharide lactose.

- How common is lactose intolerance?
- Is lactose intolerance an allergy?
- What populations have a high incidence of lactose intolerance?
- What nutrients are of concern when dairy products are omitted from the diet?
- Can someone have a healthy diet without dairy products?

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- “What Happens to the Carbohydrates We Eat?” on pages 76-81 of chapter 2 (“The Human Body: Are We Really What We Eat?”)

**Constipation**

Try to answer the following questions in your notebook or in the notes section of the course of study:

- How is *constipation* defined?
- What can cause constipation?
- What should be recommended to a person suffering from constipation?

**Diarrhea**

Diarrhea is a serious health concern.

- Identify foods that aggravate diarrhea.
- What is the biggest concern when a patient has diarrhea?

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- “What Disorders Are Related to Digestion, Absorption, and Elimination?” on pages 56-64 of chapter 2 (“The Human Body: Are We Really What We Eat?”)

**Heartburn, Reflux, and GERD**

In your digestion file, list lifestyle changes that are recommended for patients with reflux and patients with GERD.

Review the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:
Inflammatory Bowel Disease

Crohn's disease and ulcerative colitis are chronic inflammatory bowel diseases. Do a web search and, in your digestion file, write a brief description of each disease and the recommended nutritional therapy that is recommended.

MyNutritionLab: Peptic Ulcer Disease (PUD)

Write a description of peptic ulcer disease (PUD).

- What causes PUD?
- What dietary restrictions are recommended?

Write your answers in your digestion file.

Review the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- “What Disorders Are Related to Digestion, Absorption, and Elimination?” on pages 56-64 of chapter 2 (“The Human Body: Are We Really What We Eat?”)

Responding to Case Studies

Given what you have learned, return to the three original case studies.

- What do you think is Mr. Davis's problem?
- What about Mr. Applegate and Ms. Hayworth?
- What were the important elements of each case that allowed you to match symptoms with diagnosis?
- When interviewing a patient with gastrointestinal distress, what questions would help you determine the likely etiology?

Macronutrients

Macronutrients are the elements of nutrition that are required in large amounts, such as carbohydrates, fats, and proteins. They are often referred to as energy nutrients. A healthy diet balances the intake of macronutrients according to the needs of the individual and change throughout the life span.

The activities associated with this subject will introduce the concept of macronutrients and their role in the diet. What are macronutrients? Have you ever heard the term? If not, prepare yourself to learn about them in this section.

Macronutrients

Nutritional needs of infants, children, young adults, pregnant women, nursing mothers, or elderly people vary greatly but will all include essential macronutrients.

What are macronutrients? Have you ever heard the term? If not, prepare yourself to learn about
them in this section as you gather your ideas together for concept mapping.

This topic addresses the following competency:

- **Competency 211.1.3: Macronutrients**
  The graduate recognizes energy-yielding macronutrients and their role in body functions; assesses the daily need, energy value, and healthy distribution for macronutrients in the diet and sources of each; and recognizes health hazards in overconsumption of macronutrients.

**Fad Diets**

Access and explore the following website:

- "Fad Diet Timeline"

Do you recognize any of these diets?

Notice when the calorie counting diet came into existence and the first liquid diet.

- What do you think of the cigarette diet and the drinking man's diet?

**Concept of Macronutrients**

Create a concept map of macronutrients that defines macronutrients, describes their physiological functions, and identifies food sources for each macronutrient, as well as intake recommendations and possible harmful effects of too much or too little of each type of macronutrient. Do not worry if you have no idea what a macronutrient is; just write down your best guess. (Hint: there are three macronutrient categories.)

**MyNutritionLab: The Six Classes of Nutrients**

What are nutrients?

- Is water a nutrient?
- What are the other five classes?
- Why is it important for a nurse to know these?

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- “What Are Nutrients?” on pages 5-9 of chapter 1 (“Nutrition: Making It Work for You”)

**MyNutritionLab: Protein Facts**

Can you respond to the following prompts about proteins?

- Define an essential amino acid and describe a complete protein.
- What is the source of complete proteins?
- Explain protein malnutrition and the consequence of negative nitrogen balance.
- What medical conditions may lead to protein-energy malnutrition (PEM)?
Why do endurance runners have a higher requirement of protein than body-builders?

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- chapter 5 (“Proteins: Crucial Components of All Body Tissues”)

Complete the activities and readings.

Go to the following animations:

- Protein Building Blocks
- Deamination/Transamination
- Protein Synthesis
- Enzymes
- Protein Digestion
- Protein Absorption
- Nitrogen Balance
- Fat Synthesis From Excess Protein

Make some diagrams of the processes to help you remember. Use the other multimedia animations to extend your understanding. Review the requirements and sources of protein and revise your concept map.

**High-Protein Diets**

Find the latest American Heart Association's statement related to high-protein diets. Do you agree with their assessment of high protein diets?

**MyNutritionLab: Carbohydrate Facts**

Can you respond to the following prompts on carbohydrates?

- Distinguish complex carbohydrates from simple sugars.
- Describe refined carbohydrates.
- Why is glucose the preferred fuel source for tissue?
- What is meant by a nutrient-dense source of complex carbohydrates?

Review the requirements and sources of carbohydrates.

If an adult female, averaging 2000 calories per day, consumed the following carbohydrates in three meals, how would you evaluate her carbohydrate intake?

- skim milk (1 cup) with raisin bran (1 cup) and banana
- whole wheat bread (2 slices)
- black beans (1 cup)
- pretzels (3 oz)
- grapes (1 cup)
- frozen yogurt (1 1/2 cups)
Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- chapter 3 (“Carbohydrates: Plant-Derived Energy Nutrients”)

Work through the activities on the Chapter Contents page.

Then go to the following animations to develop competence in carbohydrate processes:

- Carbohydrate Digestion
- Carbohydrate Absorption
- Hormonal Control of Blood Glucose
- Diverticulitis and Fiber

Make some diagrams to help you remember. Use the other multimedia animations and ABC news videos (found on the “Chapter Contents” page) to extend and apply your understanding. Then revise your concept map.

**MyNutritionLab: Lipid Facts**

Can you respond to the following prompts?

- Describe saturated fatty acids chemically.
- Where are phospholipids and glycolipids found in the body?
- What is meant by an essential fatty acid? Give an example of an essential fatty acid.
- What are lipids, triglycerides, fatty acids, phospholipids, cholesterol, lipoproteins, and waxes? What happens when a person is deficient in essential fatty acids?
- Are Omega-3 and Omega-6 fatty acids interchangeable?
- Are trans-fatty acids worse than saturated fats?

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- chapter 4 (“Fats: Essential Energy-Supplying Nutrients”)

Work through the activities on chapter 4 Chapter Contents page.

Then go to the following animations:

- Fats in Food
- Fat Digestion
- Lipid Absorption
- Lipoproteins: VLDL, LDL, and HDL

Make some diagrams to help you remember each one. Use the other multimedia animations and the ABC news videos (found on the Chapter Contents” page) to extend and apply your understanding of fats. Revise your concept map.

**Anorexia Nervosa**
Access the following website:

- "Anorexia Nervosa"

Scroll down to the section on pathophysiology. In the middle of the section, there is a description of the devastation of self-induced starvation. How does it fit with your understanding of the role of macronutrients in the body?

**Comparing Diets**

Having read the American Heart Association's stance on high-protein diets, access the following website:

- JAMA

Read the comparison of diets in overweight, premenopausal women. Be prepared to discuss high-protein diets in the message board.

**Micronutrients**

Micronutrients are nutrients required in very small quantities. However, that does not lessen their importance in nutrition. Examples of micronutrients are vitamins, minerals, and trace elements such as iron or copper. Given their small quantity, it is hard to imagine how important they can be to basic health, but an absence or deficiency can lead to serious disease and impairment.

The activities associated with this subject will introduce you to the concept of micronutrients. What are micronutrients? Have you ever heard the term? If not, prepare yourself to learn about them in this section as you gather your ideas together for concept mapping.

**Vitamins**

Taking vitamins is a common healthcare practice in the United States today, yet there are many varying opinions about the value of such practices. As you prepare for concept mapping, think about the way you or others make decisions about whether or not to take vitamins.

This topic addresses the following competency:

- **Competency 211.1.4: Micronutrients**
  The graduate identifies micronutrients essential to human health and recognizes manifestations of deficiency and/or toxicity; selects assessment tools for evaluating micronutrient content; and evaluates need for dietary supplements.

**Concept Map of Vitamins**

Draw a concept map of vitamins. Include the function of vitamins, types of vitamins, sources of vitamins, attitude towards vitamins, and diseases related to deficiencies. Challenge yourself and see what you know. Do you take supplemental vitamins?

**Vitamin Claim**
Visit the community resources and read about vitamin claims. What would you tell patients if they inquired about taking Centrum to lower their blood cholesterol? Can you find any links to scientific data?

**Vitamin Deficiency Disorders**

Do an internet search on diseases related to vitamin deficiencies. Include scurvy, megaloblastic anemia, and beriberi.

Find what you can on “Golden Rice.” What do you think could be the greatest benefit of golden rice?

**Vitamin Overconsumption**

Access the following website:

- "Fat-Soluble Vitamins"

Scroll down to see the vitamin facts table.

- Which vitamin is most detrimental when over-consumed?
- What are some symptoms of over-consumption? Why do you believe people over-consume vitamins?

**Vitamin Definition and Function**

Consider the following:

- What is a vitamin?
- What do vitamins do?
- What is the definition of an essential vitamin?
- What are the two categories of essential vitamins?

Do an Internet search to find information. Make certain you use only reliable sources.

- How have you determined they are reliable?

Revise your concept map.

**Assigned Reading About Vitamins**

Read the following in the [MyNutritionLab (ASV1-Nutrition V3)] e-text:

- chapter 6 (“Vitamins: Micronutrients with Macro Powers”)

Work through the activities and readings on the Chapter Contents page.

Go to the animations in chapter 6 and work through each of the following:

- Free Radical Formation
Medication and Vitamins

It is important to know about vitamin supplements since excess vitamins may interfere with medication. Access the following website and read about Coumadin, a medication that prevents blood clots by inhibiting vitamin K.

- "Important Information to Know When You Are Taking: Coumadin and Vitamin K"

Use of Vitamin Supplements

Visit the community resources to learn about vitamin supplements. How important do you think it is to include questions about the use of vitamin and mineral supplements in a patient's diet?

Read the abstracts and "Excess Vitamin A" case study. Why do you think the woman in the case study believed that high doses of vitamin A relieve arthritic pain and skin abnormalities? Do an Internet search of vitamin A and see what you find. Write your findings in your micronutrients file.

Concept Map of Vitamins (II)

Return to your original concept map and modify, revise, and add newly-learned concepts to it.

Minerals and Electrolytes

During a bout of intestinal flu, a child looks pale and thin and is very weak. The parent takes the child to the hospital, where the child is given intravenous fluids. The child almost immediately becomes more active. What happened during the flu episode? What effect did it have on the fluids and electrolytes? How do minerals and electrolytes affect nutrition? Think about this before proceeding to the rest of the activities in this section.

This topic addresses the following competency:

- **Competency 211.1.4: Micronutrients**
  The graduate identifies micronutrients essential to human health and recognizes manifestations of deficiency and/or toxicity; selects assessment tools for evaluating micronutrient content; and evaluates need for dietary supplements.

Mineral Deficiency Disorders

Visit the community resources and read about iodine deficiency disorder and iron deficiency disorder. In what parts of the world are these deficiencies likely to occur?

**Major Minerals and Electrolytes**

Write a definition of *major minerals*. Include the electrolyte minerals (sodium, potassium, and chloride).
Create a major mineral chart. Enter the major minerals and electrolytes in your chart. The chart should include function, source, requirements, deficiency, and toxicity. Visit the community resources for additional information.

**Trace Minerals**

Access the following website:

- ["Essential Trace Minerals"](link)

Write a definition of trace minerals. Create a trace mineral chart in your micronutrients file. The chart should include function, source, requirements, deficiency, and toxicity. Visit the community resources for additional information.

**Vitamin and Mineral Absorption**

Access and view the following video:

- ["Vitamins and Minerals"](link)

**Antioxidants**

Read about antioxidants in your community resources. Given this description of antioxidants, it is not surprising that makers of food products want to claim their product has antioxidant properties.

Answer the following questions:

- What is a nutrient content claim?
- What is a structure and function claim?
- What is a health claim?
- What is a dietary guidance statement?

**Assigned Reading About Minerals**

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- chapter 7 ("Minerals: Building and Moving Our Body")

Work through the activities and readings on the Chapter Contents page.

Go to the animation entitled "Calcium Metabolism." See if you can explain the process to a friend.

**Water Balance and Electrolytes**

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- chapter 8 ("Fluid Balance, Water, and Alcohol")

Work through the activities and readings on the Chapter Contents page.
Go to the following animations:

- Intracellular and Extracellular Fluid
- Water Balance
- Role of Electrolytes in Water Balance
- Alcohol Absorption

See if you can make drawings of these processes. Use other multimedia and ABC news videos (found on the “Chapter Contents” page) as needed to develop competency.

**Causes of Diarrhea**

Investigate causes of diarrhea. What are the challenges in using oral rehydration therapy in third world countries?

**Supplements**

Read the article on multivitamin-multimineral supplements in your community resources. What percent of the population takes vitamin or mineral supplements?

**Nutritional Assessment**

The activities associated with this subject will introduce you to basic nutritional assessment skills. As a nurse, you will need to incorporate your patients’ diets into plans of care at all levels of prevention to facilitate therapeutic dietary interventions. What you already have learned about nutrition will serve as the foundation for making future nutritional assessments.

**Nutritional Assessment**

A nutritional assessment involves the collection of subjective and objective data that permits the clinician to evaluate the nutritional status of a person. A thoughtful assessment will incorporate culture, lifestyle, attitudes, preferences, and misconceptions related to diet and food consumption. The purpose of an assessment is to develop a plan of care that promotes health and well-being for the individual.

What are the components of a nutritional assessment? What is the relationship of weight to nutrition? Prepare for concept mapping as you ponder these questions.

This topic addresses the following competency:

- **Competency 211.1.5: Nutrition Assessment**
  The graduate applies principles of basic nutrition to nutrition assessment of patients; describes the appropriate use of anthropometric tools to assess nutritional status; explains factors that influence dietary habits; discusses the importance of nutritional education; and recognizes cultural sensitivities that may influence nutritional assessment.

**Weight in American Culture**

Create a concept map with the following components:
• weight
• body image
• diet
• emotion
• activity (or exercise)
• genetics
• culture

Feel free to add concepts. Create links between concepts and attempt to explain their relationships.

**Personal Attitudes Related to Weight**

Explore your own attitudes about weight:

• How do you feel about people who are overweight?
• How do you feel about the increase of obesity in our society?
• Would you say that you are sympathetic towards persons struggling with weight problems or do you feel they should be more self-disciplined?
• Have you had contact with someone who has an eating disorder such as anorexia or bulimia?
• What do you think is the best way for clinicians to approach a patient about their weight?

**Assessing Body Composition**

Access the following webpage:

• [About BMI for Adults](#)

Read about BMI, waist circumference, and risk for disease. Find the BMI calculator and determine the BMI for the following persons. Is the person underweight, normal, overweight, obese, or extremely obese?

• A man----height: 5'11" waist circumference 36" weight: 200 lbs
• A man----height: 5'11" waist circumference 38" weight: 210 lbs
• A woman--height: 5'3" waist circumference 36" weight: 168 lbs
• A woman--height: 5'5" waist circumference 28" weight: 145 lbs
• A woman--height: 5'10" waist circumference 25" weight: 128 lbs

Click on the following link to find out if each individual's waist circumference alters their overall risk for type 2 diabetes, hypertension or cardiovascular disease:

• [Classification of Overweight and Obesity by BMI, Waist Circumference, and Associated Disease Risks](#)

Do you think that waist circumference measurements should be part of a routine health assessment?

**MyNutritionLab: Weight Management and Physical Fitness**
Review the following website:

- Choose My Plate

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- chapter 9 (“Achieving and Maintaining a Healthful Body Weight”)
- chapter 10 (“Nutrition and Physical Activity: Keys to Good Health”)

Work through the activities and readings on the Chapter Contents pages.

Be sure to see the following animations:

- Obesity in America: Low Cost, High Impact Solutions
- Glycolysis
- Energy Currency
- Cori Cycle

Make drawings of these processes to help you develop competency. Use ABC news videos (found on the “Chapter Contents” page) to develop more understanding and application to current issues.

**Diet Analysis**

There are a variety of methods used to access dietary adequacy. You may have experimented with SuperTracker & Other Tools on the ChooseMyPlate website. Other methods used in patient care are 24-hour recall, food frequency questionnaires (FFQs), three-day recall dietary assessment, and calorie counts.

Use the community resources, your book, and the Internet to define each of the methods listed, along with their strengths and weaknesses, in your nutritional assessment file. Search for articles that critique the different methods.

Revise your concept map.

**REAP Dietary Assessment Tool**

Search the Internet to learn about the Rapid Eating Assessment for Patients (REAP) that was developed to assist primary care physicians in quickly assessing a patient's diet and physical activity and facilitating patient counseling regarding weight and exercise.

**Childhood Obesity**

Access the following website:

- "Prevention of Pediatric Overweight and Obesity"

Answer the following questions in your nutritional assessment file:
• What do you believe are the challenges when the parents are overweight?
• What are the challenges when the parents are very fit and have extreme anxiety about their child's weight issues?
• What are the challenges when the child's siblings are overweight?

Modify Concept Map

Return to your concept map and modify it based on what you have learned about nutritional assessment.

Culture and Diet

Person A has high cholesterol and struggles with it because of living with a Southern spouse, who fries almost everything. Person B lives with an extended family in a traditional Italian home, eating pasta at every meal, but also struggles with type II diabetes. What do you already know about diet and culture from your own life experience? Gather your thoughts to prepare for the exercises to follow.

This topic addresses the following competency:

• Competency 211.1.5: Nutrition Assessment
  The graduate applies principles of basic nutrition to nutrition assessment of patients; describes the appropriate use of anthropometric tools to assess nutritional status; explains factors that influence dietary habits; discusses the importance of nutritional education; and recognizes cultural sensitivities that may influence nutritional assessment.

Food and Culture

Make a list of the following countries, states, religions, or groups in your notebook or in the notes section of the course or study:

• Greece, Italy, France, Mexico, China, Russia, India, Thailand, Ireland, Germany, Kenya, Iceland, Texas, Louisiana, New York, Muslim, Catholicism, Judaism, Islam, Buddhism, Hinduism, Native Americans, teenagers, senior citizens

Next to each list item, write whatever comes to mind that relates to food, food consumption, food traditions, etc. Do you know the meaning of any of the foods or traditions or ways of consuming foods?

Food Concept Map

Develop a concept map that links concepts related to food and food consumption (e.g., the concept of celebration or the concept of beliefs). Link your concepts and label your links.

Making Changes to Meet Cultural Needs

Access the following website:

• "Your Guide to Diet and Diabetes for Hispanic Audiences"
Watch the video of a poster presentation where the speaker describes the changes made to a website for Hispanic persons with diabetes.

Then access the following website:

- "Tu Gua para la Alimentacion y Diabetes" (Your Guide to Health and Diabetes).

This is the website described in the video presentation that was developed for Hispanics by the University of Illinois at Urbana.

What were the issues addressed in making changes to the website?

Visit your community resources to view two different food pyramids that have been developed for people from India who have diabetes.

What do you think about the design of this website? Is it easy to use?

What aspects of Thai life facilitate or hinder self-management of diabetes?

**Concept Map of Food and Culture**

Return to your concept map and update it based on your new knowledge.

**Nutrition Across the Life Span**

As individuals age, nutritional needs change. The body's absorption of many nutrients also changes. For example, because the stomach secretes less hydrochloric acid, many elderly people absorb less calcium. This may require that the individual needs to take increased amounts of some nutrients. Are there any periods during the life span where nutrition is particularly crucial?

This topic addresses the following competency:

- **Competency 211.1.5: Nutrition Assessment**
  The graduate applies principles of basic nutrition to nutrition assessment of patients; describes the appropriate use of anthropometric tools to assess nutritional status; explains factors that influence dietary habits; discusses the importance of nutritional education; and recognizes cultural sensitivities that may influence nutritional assessment.

**Feeding Older Adults**

What do you think are important considerations when considering the nutritional needs of older adults?

**MyNutritionLab: The Older Adult**

Read the following in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- “Nutrition for Older Adults” on pages 358-368 of chapter 11 ("Nutrition Throughout the
Life Cycle

What are the dietary recommendations for the older adult?

What factors affect nutrition?

MyNutritionLab: Infancy and Childhood

What is the risk of alcohol in pregnancy?

Review what you read about Fetal Alcohol Syndrome in the MyNutritionLab (ASV1-Nutrition V3) e-text:

- "Recap and Healthwatch" on pages 247-248 of chapter 8 ("Fluid Balance, Water, and Alcohol")

What would you say to a pregnant woman about drinking during her pregnancy?

Watch the following ABC news videos located in the Chapter Contents for chapter 11 ("Nutrition Throughout the Life Cycle"):

- "Breast Feeding"
- "Obesity in Children"

What is happening in the United States in regard to obesity? What needs to be done? Why is this issue important?

Final Steps

Congratulations on completing the activities in this course! This course has prepared you to complete the assessment associated with this course. If you have not already been directed to complete the assessment, schedule and complete your assessment now.

The WGU Library

The WGU Library is available online to WGU students 24 hours a day.

For more information about using the WGU Library, view the following videos on The WGU Channel:

- WGU: Accessing the Library
- WGU Library: Finding Articles, Books, & E-Reserves

Center for Writing Excellence: The WGU Writing Center

If you need help with any part of the writing or revision process, contact the Center for Writing Excellence (CWE). Whatever your needs—writing anxiety, grammar, general college writing concerns, or even ESL language-related writing issues—the CWE is available to help you. The
CWE offers personalized individual sessions and weekly group webinars. For an appointment, please e-mail writingcenter@wgu.edu.

Feedback

WGU values your input! If you have comments, concerns, or suggestions for improvement of this course, please submit your feedback using the following form:

- Course Feedback

ADA Policy

Western Governors University recognizes and fulfills its obligations under the Americans with Disabilities Act of 1990 (ADA), the Rehabilitation Act of 1973 and similar state laws. Western Governors University is committed to provide reasonable accommodation(s) to qualified disabled learners in University programs and activities as is required by applicable law(s). ADA Support Services serves as the principal point of contact for students seeking accommodations and can be contacted at ADASupport@wgu.edu. Further information on WGU’s ADA policy and process can be viewed in the student handbook at the following link:

- Policies and Procedures for Students with Disabilities