**Study Guide for Exam 1- Nutrition (Biology 28)**

**Tips/Strategies:**

* **Exchanging e-mail addresses & working in small groups to practice is highly encouraged!**
  + When working in groups, make an *agenda or specific list of questions* to cover
* When getting the test
  + Skim over ALL questions once
    - While doing this, jot down first 2-3 things you think of for each question
  + Pick a question you feel pretty good about to start with (you don’t have to start with Question 1)
  + Budget your time so that you feel you have time to express your thoughts on each question
* When working on a particular question
  + Explain your ideas fully and in complete sentences/complete thoughts
    - **Give *details* and *examples***
    - The more *relevant* information you give me, the more opportunities I have to award points!
  + Use the *language of biology* when appropriate
  + Use *labeled diagrams* (even rough sketches) if they help you express yourself

**The Food on Our Plates (Background reading: Chapter 1)**

* What is science?
* What is nutrition science, and what is the difference between macronutrients and micronutrients?
* What is a calorie exactly? How can you calculate the number of calories from carbohydrates, proteins, and fats when given the grams of each?
* What factors influence which foods we eat? Be able to elaborate on at least three factors.
* Which families’ weekly groceries in *Hungry Planet* surprised you the most? Which family’s groceries were most similar and most different from your own? Be ready to discuss at least three families’ grocery items, quantity of grocery items, weekly cost of groceries, and location.

**The Food on our Plates and Establishing Dietary Guidelines (Background reading: Chapter 2)**

* What is the difference between a portion and a serving size? How can we control portion sizes when traveling or away from the house?
* What are the major aspects of a healthy diet?
* Which items must be on a nutrition label? Which foods require a label by law? What health claims are allowed on nutrition labels by the FDA?
* What government agency regulates the validity of food labels and content of food products?
* What factors determine a person’s EER? What are some criticisms of the U.S. MyPlate?
* How would you walk someone through a nutrition label for the first time?
* How many calories are reasonable to consume in 1 serving?
* Which nutrients should be limited?
* Which nutrients should a consumer make sure to get enough of?
* How would you instruct someone to interpret daily values on a nutrition label?

**Carbohydrates: Fuel, Fiber, Affliction, and Fat? (Background reading: Chapter 3)**

* What are the building blocks (monomers) of carbohydrates? What are the polymers? What are some examples of monosaccharides, disaccharides, and polysaccharides?
* What is lactose intolerance? What causes the symptoms of LI and what are these symptoms? What are practical ways someone with LI can reduce discomfort associated with eating dairy while still maintaining recommended calcium levels?
* What are the functions of carbohydrates, and how many of our total daily calories are supposed to come from carbohydrates? How many of our daily calories are supposed to come from simple sugars? Are simple or complex carbs healthier? What is HFCS and how does its monosaccharide content compare to that of table sugar? Can carbs make you fat? Why?
* What is a whole grain? Why are whole grain products “healthier” than milled, processed products?
* What are the health benefits of dietary fiber? What are some examples of foods containing soluble and insoluble fiber? For every 100 calories, how many grams of fiber should we consume? What are the consequences of eating too little fiber? Too much fiber?
* What exactly is diabetes, and what are the two types? How do insulin and blood glucose function differently in each type? Referring to specific molecules and organs, explain how both Type 1 and Type 2 diabetes cause problems in the insulin-cell lock-key situation.

**Lipids [Fats]: The Good, the Bad, and the Plaquey (Background reading: Chapter 4)**

* What are the building blocks (monomers) of lipids? What are the polymers? What are the structural and functional differences between saturated and unsaturated fatty acids? Which foods are high in saturated fatty acids? Unsaturated fatty acids? What are essential unsaturated fatty acids, and what are some examples of these and what they’re found in? What is the process of hydrogenation, and how does it change unsaturated fatty acids? What are trans fatty acids, and what foods are they found in?
* What are the general functions of lipids, ie why do we need them?
* What is cholesterol? Why is cholesterol important? What are lipoproteins, and what do they do in our bodies? What is the difference between LDLs and HDLs? What are chylomicrons and VLDLs? Is limiting cholesterol the most important factor in avoiding plaque in blood vessels? Why or why not?
* What is Coronary Artery Disease? How is heart bypass surgery done by surgeons? What exactly is being bypassed and how did it get there in the first place?

**Protein: More than Meat and Muscle (Background reading: Chapter 5)**

* What are the building blocks (monomers) of proteins? What are the polymers? What are essential amino acids, and why are limiting essential amino acids significant in the body?
* What are the major functions of proteins? Give examples of specific functions proteins have in the body.
* What is meant by *transcription* and *translation* in biology? If given an amino acid translator table, be able to go through the process of *transcribing* and *translating* a DNA sequence to show how proteins are made (like our in-class activity). How can limiting essential amino acids cause changes in the structure and function of humans?
* What would you say to someone who said, “Vegetarians follow a ‘healthy’ diet?” What are the perceived benefits of a vegetarian diet, and what health trends are shown in those who follow a vegetarian diet? Does someone need to completely abstain from eating meat to experience the health benefits of vegetarianism?
* What foods are proteins mostly found in? What is the difference between a complete and incomplete protein? What are some examples of complete proteins that are not animal products? What are the benefits of eating plant proteins over animal proteins? What are the drawbacks? What complementary proteins can be combined to make a complete protein?
* What is the DRI for protein? Is there such a thing as too much protein? What health problems can result from eating too much protein?