BSC 1005: Life Science

Exam 1 Review

Fill this review out in detail as a study guide for Exam 1. Use your class notes, power point slides and textbook to help you. This is a general guide and does not necessarily include every detail that could be covered on the exam. Be sure to review your notes in addition to this study guide when preparing for the exam!

**Chapter 1:**

Terms and concepts:

* + **Science**
  + Steps of **scientific method**
  + **Hypothesis**
  + **Scientific** **Theory**
  + **Inductive** **reasoning** and **Deductive** **reasoning**
  + **Support** or **reject** a Hypothesis, **Alternative hypothesis**
  + **Experiments**
  + **Variables**
  + **Independent** **variables**
  + **Dependent variables**
  + **Controlled** **experiments**: what it is, why they are used.
  + **Control Group** and **Experimental Group**
  + **Placebo**
  + **Blind experiment**, **double blind experiment**
  + **Correlation**: what it is used for and cautious when interpreting correlations, review the stress and sickness example.
  + **Sampling Error**
  + **Statistical significance**
  + **Primary Source**  of information
  + **Secondary Source** of information
  + **Anecdotal Evidence**
  + Why to be careful when reading scientific and medical claims in the news and media

**Chapter 2:**

Terms and concepts:

* **General Chemistry:**
  + **Life:** list characteristics related to all life
  + **Homeostasis**
  + **Elements**
  + **Atoms:** know parts of an atom and their charge
  + **Molecule**
  + **Polarity**
  + **Water and Polarity:** can you draw a water molecule? Can you draw a water molecule performing hydrogen bonds?
  + **Properties of Water!**
  + **Solvent, solute, solution**
  + **How water dissolves solutes**
  + **pH:** define, which pH ranges are acidic, basic and neutral
  + **Hydrophilic, hydrophobic**
* **Organic Chemistry and Macromolecules**
  + **Organic chemistry**
  + **Carbon:** forms 4 bonds
  + **Covalent bonds**
  + **Macromolecules**: for each one ***know*** **what they are made of**, **what they do in the cell**
    - **Carbohydrates**
    - **Proteins:**  20 amino acids, peptide bonds, enzymes
    - **Lipids:** 3 types: **fat, cholesterol, phospholipid**- what are each used for?
    - **Nucleic Acids:** DNA and RNA, nucleotides (sugar, phosphate) and base pairs (A with T and G with C), double helix
  + **Characteristics of All cells**
  + **Prokaryotes:** basic cell features and example (bacteria)
  + **Eukaryotes:** what is aeukaryote, what type of organisms are eukaryotic, know basic cell structures and their functions!
    - **Mitochondria**
    - **Chloroplast**
    - **Endoplasmic reticulum**
    - **Golgi apparatus**
    - **Nucleus**
    - **Lysosome**
    - **Ribosome**
    - **Centrioles**
    - **Cytoskeleton**
    - **Cell wall**
  + **Unity of life (examples from slide 57) indicates a common ancestor**

**Chapter 3:**

Terms and concepts:

* + **Metabolism**
  + **Nutrients**
  + **Macronutrients**
  + **Water:** how much is needed and why
  + **Carbohydrates**: **simple** and **complex**, and examples of both, **fiber**
  + **Proteins: essential, complete**
  + **Fats:** use, **essential fatty acids**, **Saturated** and **Unsaturated** (examples), **trans fats**
  + **Micronutrients**
  + **Vitamins**: use, water soluble versus fat soluble
  + **Minerals**
  + **Whole foods** versus **processed foods**
  + **BMI**
  + **Diabetes:** define **type 1** and **type 2**, what is **insulin**?
  + **Hypertension, healthy blood pressure range**
  + **Heart attack**
  + **Stroke**
  + **Cholesterol**
  + **LDL and HDL**
  + **Anorexia**
  + **Bulimia**