

Adv Bio | Final Exam Review Sheet

Your final exam is scheduled for **Monday, June 1st, 2015**. It will cover chapters 3, 24, and 45. This review sheet is just that – a review of the important concepts, topics, and ideas. It is NOT all-inclusive – meaning that you should review things in addition to this sheet. I might suggest your notes, your book, and your vocabulary words. The final exam will only be questions from the “enlightenment” portion of the class. It will not be a matching of vocab (although it is implied that you know the terms). It will not have any Diversity of Life on it either. As a reminder, I am here after school on Monday, Tuesday, Thursday, and Friday. Any questions, please ask!

Chapter 3:

- Compare and contrast organic vs inorganic chemistry. Know the 4 differences contained in table 3.1
- Define what organic molecules are and what makes a molecule ‘organic’.
- Describe 3 reasons as to why the carbon atom is so special
- Compare and contrast hydrophobic vs hydrophilic
- Describe what an isomer is. Provide 2 examples – one real life and one chemistry related
- What are macromolecules? How many exist in chemistry?
- Define polymers and describe how it relates to monomers. Do the same for polysaccharides and monosaccharides.
- What happens during a hydrolysis reaction? Dehydration reaction? Why do these occur?
- Describe (in detail) the following items for EACH of the 4 major macromolecules in biology (carbohydrates, proteins, lipids, nucleic acids).
 - Shape of macromolecule
 - Function
 - Location in cell
 - Variations and the implications/uses of those variations of the molecules
 - Describe what monomers make it up.
 - Examples of the organic compound
- What is the difference between a saturated and an unsaturated fatty acid? Explain the structure of a fat molecule by stating its components and how they join together.
- Describe the structure of a steroid and how one steroid differs from another.
- Describe the 4 levels of protein structure and relate each level to particular bonding patterns.
- Compare/contrast DNA vs RNA
- Discuss the structure and function of ATP.
- Be able to draw the following organic molecules
 - 2, 2 dimethyl-hexane 1-fluoro, 2-chloro, 3, 5, 6-trimethyl-octane 3-methyl-2, 5-dioctene
 - 2, 4-dimethyl-hexane 5-ethyl-2,3-diiodo-heptane 5-ethyl-3,3-dimethyl-heptane
 - 7, 7-dimethyl-4-propyl-2-nonene 1, 3-dimethyl-cyclopentane cyclohexene

Chapter 24

- What are 4 adaptations of plants to life on land? Describe each and how that adaptation helps plants survive
- Describe what the alternation of generations means. Which one is dominant in each evolutionary group of plants?
- How do stomata work? What do they do in different conditions (hot, dry, wet, cold)
- Compare and contrast vascular plants with non-vascular plants. What are advantages and disadvantages of both?
- What is xylem? What does it do? What is the meaning of the word?
- What is phloem? What does it do? What is the meaning of the word?
- How does fertilization occur in a flowering plant? Describe the structures and functions of the flowering plant as described in class.
- List 4 events in the evolution of plants. How was each significant?
- Compare and contrast angiosperms and gymnosperms.

Chapter 45

- Describe the impact of the following animal behavior researchers. What did they do during their research? What conclusions did they draw based on the evidence from their experiments?
 - Konrad Lorenz
 - Peter Berthold
 - Andreas Helbig
 - Steven Arnold
 - B.F. Skinner
 - T.H. Clutton-Brock
- Describe the evidence for the claim that behavior has a genetic basis.
- Compare and contrast the nature or nurture components to animal behavior.
- Describe operant conditioning and provide examples for how operant conditioning is practical and useful. Compare this to imprinting.
- Behavior is adaptive - describe what that means and support your answers using 3 examples from the text.
- Describe 3 of the evolutionary advantages that females use in order to achieve reproductive success. Do the same for males. After doing this, explain how/why these strategies are forms of behavior and what the advantages and disadvantages are.
- Describe the 4 types of communicative behavior in a society. When are certain ones preferred and when are they avoided. Explain why for each!
- Compare and contrast Altruism versus self-interest. Give examples for when each is an evolutionary advantage.
- Apply altruism and self-interest to the survival of humans.