Biology 2020
Study questions for lecture 3 (atoms to polysaccharides), Spring 2004

1. What kind of bonds hold the atoms of a water molecule together? What type of bond holds water molecules together? What kinds of molecules are soluble in water?

2. What is the difference between an ionic bond and a covalent bond?

3. What is an amphipathic molecule and why is it important?

4. What makes a covalent bond polar? How does the presence of this type of bond influence interactions with other molecules?

5. What are the building blocks that make up polysaccharides, fats/lipids/membranes, proteins, and nucleic acids? Where can each of these larger units be found within the typical cell?

6. Define pH mathematically. Which of these groups is acidic or basic: methyl, carboxyl, amino, phosphate.

7. Name the functional groups in a polysaccharide.

8. What is the significance of alpha vs. beta hydroxyl (OH) at C1 when glucose molecules are polymerized into a chain?

9. How can weak bonds such as van der Walls forces, ionic and hydrogen bonds hold large macromolecules together?