





**(09/26//2013).** In theory, a mid-term grade is necessary for a student to assess how s/he is doing in class by midterm. In this course, students will have feedback on at least one major exam by midterm, several lab quizzes, lab assignments, and any homework or writing assignments. The instructor will, in general, assign an overall average grade at this point on the normal scale of A-F viewable on Banner. Students receiving a grade of “D” or lower should therefore carefully evaluate their option of dropping this course by midterm without academic penalty.

**Student identification:** Students should have in their possession at all times their VSU student identification card. In order to verify thi Ó p p > ) In e ol in the rp i thi

**TENTATIVE LECTURE OUTLINE: Chapters in Life are listed for 9<sup>th</sup> or 10<sup>th</sup> edition.**

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**Date:**

**Topics:**

**Chapters:**

**Generalized Eukaryotic Cell**

A. NUCLEUS

1. Defining characteristics: membrane bound nucleus, presence of organelles, meiotic division
2. Nucleus: compartmentalization, storage of genetic information
3. Nucleolus: location and function
4. Nuclear envelope, nuclear pores

B. MEMBRANE-BOUND ORGANELLES

1. Mitochondria
  - a. site of ATP production
  - b. self-replication
  - c. inner and outer membrane
2. Lysosomes: membrane vesicle containing hydrolytic enzymes
3. Endoplasmic reticulum:
  - a. rough and smooth components
  - b. rough endoplasmic reticulum site of ribosomes
  - c. double membrane structure, role in membrane biosynthesis
  - d. role in biosynthesis of secreted proteins
4. Golgi apparatus: general structure and role in packaging and secretion

C. PLASMA MEMBRANE

1. General function in cell containment
2. Protein and lipid components, fluid mosaic model
3. Osmosis
4. Passive and active transport
5. Membrane channels
6. Sodium/potassium pump
7. Membrane receptors
8. Membrane potential
9. Exocytosis and endocytosis
10. Cell-cell communication (General concepts of cellular adhesion)
  - a. gap junctions
  - b. tight junctions
  - c. desmosomes

D. CYTOSKELETON

1. General function in cell support and movement
2. Microfilaments: composition and role in cleavage and contractility
3. Microtubules: composition and role in support and transport
4. Intermediate filaments, role in support
5. Composition and function of eukaryotic cilia and flagella

