

Biol 263 Introduction to Cell Biology**Fall 2009****Time and location:** MWF 9:20 AM in room 104 Science Hall**Instructor:** Dr. Kurt A Toenjes**Office:** 133 Science Hall**Research Lab:** 103 Science Hall**Phone:** 896-5940.**Email:** ktoenjes@msubillings.edu**Office Hours:** MTWF 1:00 – 1:45 PM or by appointment.

Welcome to Introduction to Cell Biology. This course will introduce you to the structure and function of eukaryotic cells. Cell biology is a rapidly advancing field of biology and in recent years our understanding of the molecular workings of cells has increased dramatically. This course will introduce you to the latest advances in cell biology and provide you with an important foundation for your additional coursework in biology.

Text: Essential Cell Biology, 3rd Edition, by Alberts et. al. I recommend this text for this class.

Grading Policy and Assessment The exams will test your factual and conceptual understanding of cell biology, and your ability to solve problems related to the concepts we have discussed in class. The exam format will include multiple choice, True/False and short answer questions. The first three exams are worth 100 points each and the comprehensive final is worth 150 points. Therefore you can earn up to 450 points in the course.

Grading: Grades will be determined by numerical scores on each test. Unit exams and your final grade may be curved. The standards for awarding grades will be: A= 90%-100%, B= 80%-89%, C= 70%-79%, D= 60%-70%, and F= 0%-59%

Academic Honesty: You are expected to meet the highest standards of academic honesty and ethics. The exams and any other work submitted for a grade must be entirely the result of your own effort and represent your own understanding of the subject matter. Any cheating or assisting someone else in cheating will result in you receiving an F for the course.

Tentative Schedule

	Date
Exam I	9/28
Exam II	10/23
Exam III	11/20
Exam IV (Comprehensive Final Exam)	12/16 @ 8:00 am

Tentative List of Topics

I Foundations

- Overview of eukaryotic cells
- Microscopy
- Structure of Biomolecules
- Gene Expression

II Membrane Structure

- Structure of membrane lipids
- Lipid bilayer structure
- Membrane proteins

III Intracellular Compartmentalization and Transport

- Nucleus
- Membrane-bound organelles
 - Structure, function and evolution
- Protein processing and sorting, vesicular transport

IV Membrane Transport

- Transport of solutes across lipid bilayers
- Transporters in neural signaling

V Intercellular Communication

- Signal transduction
 - Ras-MAP Kinase pathways
 - Heterotrimeric G-protein pathways
 - JAK/STAT pathways

VI Cytoskeleton (microtubules, actin filaments, intermediate filaments)

VII Cell Reproduction and Cell Death

- Mitotic cell cycle
- Cell cycle regulation
- Programmed cell death

VIII Special Topic

- Cells in development

