

**Troy State University at Montgomery**  
**Principles of Biology**  
**Instructor: Dr. Jeff Cavanaugh**  
**Cell 334-546-3353 Wk 334-269-9111**

Class Hours: Tuesday and Thursday 5:30 p.m. - 7:50 p.m.  
Lab Hours: Tuesday 8:05 p.m. - 10:25 p.m.  
Office Hours: Monday, Tuesday, Wednesday 12:40-1:40  
Thursday 2:30-5:30  
Bldg. Bartlett Hall, Rm. # 209

Aug	24	Introduction Chapter 1	: The Scientific Method
	24	Chapter 2	: Inorganic Chemistry
	26	Chapter 3	: Organic Chemistry
	26	Chapter 4	: Prokaryotic and Eukaryotic Cell Structure
	31	Chapter 4	: Prokaryotic and Eukaryotic Cell Structure
	31	Chapter 5 & 6	: The Plasma Membrane, Enzymatic Activity
Sept	2	<b>TEST I</b>	
	7	Chapters 13 & 14	: DNA Replication, Protein Production
	9	Chapter 7	: Cellular Respiration
	9	Chapter 8	: Photosynthesis
	14	Chapter 9 & 10	: Mitosis and Meiosis
	14	Review	
	16	<b>TEST II</b>	
	21	Chapter 11	: Genetic Terminology, Punnet Square
	21	Chapter 12	: Genetic Diseases and Conditions
	23	Chapter 31 & 32	: Ecology
	23	Chapter 16 & 17	: The Hypothesis of Evolution
	28	Chapter 16 & 17	: Theory of Natural Selection
	28	Chapter 15	: Genetic Engineering
	30	<b>TEST III</b>	
Oct	5	Chapter 28	: Digestive System
	5	Chapter 28	: Cardiovascular System
	7	Chapter 30	: Reproductive System and Review
	12	<b>Lecture FINAL EXAM</b>	

Textbook: "Biology: A guide to the natural world." by David Krogh, 3<sup>rd</sup> edition.

## **Course Objectives:**

1. Demonstrate an understanding of the scientific method and a knowledge of the characteristics of life using man as a model.
2. Demonstrate an understanding of the chemical foundation of living cells.
3. Demonstrate the ability to describe movements of molecules across a cell membrane.
4. Describe the structure and function of cellular organelles.
5. Demonstrate an understanding of gene expression through the processes of transcription and translation.
6. Demonstrate a knowledge of the basic principles of cellular respiration and photosynthesis.
7. Demonstrate an understanding of the cell cycle and describe the steps of cell division (mitosis and meiosis).
8. Demonstrate an understanding of Mendelian genetics and its relationship to inherited genetic disorders.
9. Demonstrate an understanding of the hypothesis of evolution and the theory of natural selection.
10. Demonstrate a knowledge of the anatomy and physiology of the major organ systems (digestive, cardiovascular, and reproductive).

## Course Requirements:

1. The student will be responsible for reading the textbook assignments for each topic covered in class and demonstrate competency on three (3) lecture tests and a final exam.
2. All classes will start promptly at five (5) minutes after the hour. Excessive tardiness will not be tolerated and will count against you for any grade scaling. Starting with your second tardy, each will count against you as ½ day absence. A total of three (3) absences will result in a forfeit of any grade scaling. Five (5) absences will result in a failing grade for non-attendance.
3. If the student fails to meet a scheduled examination, an examination make-up date will be announced by the instructor. **Students may only make-up one examination per quarter.** If a student misses two (2), one (1) of them will be recorded as a zero ('0') grade.
4. The following grade scale will be used in grade determination:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	Below 60%
5. The four (4) examinations will be equally weighted in grade determination. Any students found to be guilty of cheating or of dishonesty on an examination, will receive a failing grade for the course.
6. Any student with a documented disability condition (ex. physical, learning, psychiatric, vision, hearing, etc.) who has registered with the Disability Services Program and/or who feels that he/she may need to discuss individual course adaptations or accommodations, or if you have emergency medical information to share with me, or if you will need special arrangements in case the building must be evacuated, please see me at the beginning of the course. If you have a disability and may need accommodations but have not registered with the Disability Services Program on the 4<sup>th</sup> floor of the Whitley Hall, Room #427, or if you suspect that you have a disability, please call 334-241-9587 and make an appointment with the Disability Services Coordinator.

**Troy State University at Montgomery**

**Principles of Biology Lab**

**Instructor: Dr. Jeff Cavanaugh**

**Cell 334-546-3353 Wk 334-269-9111**

Class Hours: Tuesday, Thursday 5:30-7:50 pm  
Lab Hours: Tuesday 8:05-10:25 pm  
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**Schedule:**

- Week #1: Scientific method with metric measurements (first hour).  
Understand use of the compound microscope (second hour).
- Week #2: Osmosis; egg and potato experiment (first hour).  
Acids, bases, and pH (second hour).
- Week #3: Protein production, transcription and translation and the relation of mutations to  
protein production.
- Week #4: LAB MIDTERM**
- Week #5: Mitosis and onion root tip slides (first hour).  
Meiosis, crossing over, segregation, and independent assortment (second hour).
- Week #6: Genetics Reebops experiment (first hour).  
Natural Selection demonstration (second hour)
- Week #7; Anatomy demonstration.
- Week #8: Comprehensive FINAL EXAM**

**Course Objectives:**

After completing the course, the student will be able to:

1. Be familiar with the metric system of measurement and measuring tools. LAB I
2. Understand the concept and the steps and the scientific method. LAB II
3. Demonstrate a knowledge and competence in the use of the compound microscope, including the ability to prepare and examine wet-mount preparations. LAB I.
4. Demonstrate an understanding of the concepts of acids, bases, and the pH scale. LAB II.
5. Demonstrate an understanding of the process of diffusion and osmosis. LAB II.
6. Demonstrate an understanding of the steps of protein production (transcription and translation). LAB III.
7. Demonstrate a knowledge of the steps of mitosis and meiosis as well as the concepts of crossing over, independent assortment, and segregation in relation to genetic variation. LAB IV.
8. Demonstrate an understanding of the concepts of genetics and patterns of inheritance. LAB V.
9. Demonstrate an understanding of the theory of natural selection. LAB VI.
10. Demonstrate an understanding of the anatomy of the digestive, cardiovascular, and the reproductive system.

### **Course Requirements:**

1. The student will be responsible for taking adequate notes during lab and demonstrating competency on the lab midterm and comprehensive final examinations.
2. All classes will start promptly on the hour. Excessive tardiness and absences will not be tolerated and will count against you for any grade scaling. A total of three (3) absences will result in a **failing** grade for non-attendance.
3. If the student fails to meet a scheduled examination, the instructor will announce an examination make-up. **Students may only make-up one examination per course.**
4. The two (2) examinations will be equally weighted and the following scale will be used in grade determination:

A	90 - 100%
B	80 - 89%
C	70 - 79%
D	60 - 69%
F	Below 60%
5. Any students found to be guilty of cheating or dishonesty on an examination will receive a failing grade for the course.