

## **BIOL-UA 11 Principles of Biology I**

### **Instructors:**

Stephen Small  
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### **Course Description:**

Primarily for science majors and pre-health students. This 4 credit course acquaints students with the molecules of life, cell metabolism, and division. It also covers the molecular basis of gene action, chromosomal structure, genetic inheritance, and evolution. This course includes lecture and recitation components; there is no laboratory component. A separate 1 credit laboratory course (BIOL-UA 123) is offered during Spring semester and Summer session II.

### **Co-requisite:**

General Chemistry I and Laboratory (CHEM-UA 125) or  
Advanced General Chemistry I and Laboratory (CHEM-UA 127).

### **Textbook and Required Materials:**

*Campbell Biology* 11<sup>th</sup> edition, by Urrey et al. hard copy or e-book (Included)  
*iClicker* or *iClicker REEF*

The use of an iClicker is required for participation in the lecture part of the course. iClickers purchased for use in General Chemistry can be used in Principles of Biology.

### **Grading:**

3 Exams	25% each
11 Recitation Assignments	20% total
Oral Participation in Recitation	5%

### **Topics:**

#### **Module 1: Molecules and Metabolism**

Water and the molecules of life  
Cells  
Cellular metabolism  
Respiration and Fermentation  
Photosynthesis  
DNA Replication  
Mitosis and the cell cycle

#### **Module 2: Cellular information flow**

Chromosome structure  
Meiosis and Mendel  
Prokaryotic transcription  
Translation  
Eukaryotic transcription  
Signaling, transduction  
Gene regulation in development  
Modern experimental methods



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### **Module 3: Heredity and Evolution**

Principles of genetics

Genes on chromosomes

Population genetics

Mutation and selection

Speciation and the history of life