

## BIOLOGY 100 – PRINCIPLES OF BIOLOGY – Fall 2008

Course description: This is an introductory biology course which covers the main concepts in biology in a lecture/ laboratory format. The course satisfies the F4 LinC (laboratory requirement for graduation). The human organism will be used as the primary focus organism for each topic. Lab exercises correlate with the lecture content. (Note - there is a fetal pig dissection).

Instructor - Dr. Karen Kurvink

Lecture - Biol 100 - MWF 4 (11:30 – 12:20 AM) Collier Hall of Science 204

Lab – A - Monday 12:45 - 3:45 Collier Hall of Science 300

OR

B - Wednesday 12:45 – 3:45 Collier Hall of Science 300

Text - **BIOLOGY – Concepts and applications - Starr/Evers/Starr- 2008**

### Course objectives:

1. To cover the basic principles of biology.
2. To introduce students to the process of science and experimental design.
3. To emphasize biological systems related to the human organism in the context of “evolutionary conservation in design” for all higher organisms .

### Course comments:

1. “Showing up” for lectures and laboratories is critical for success in this course.  
If you miss a lecture or lab you should submit a written/signed explanation of the reason for your absence. Unexcused absences will result in a lowered course grade. Lab attendance is recorded as 20 pts/lab.
2. Unit exams will cover material from both the designated lecture and laboratory portions of the course. The exams will contain a variety of types of questions. Optional help sessions will be offered before each exam to answer questions and to clarify the material covered. Each unit exam is 100 pts.
3. A contracting option is available for students who have a specific interest in doing an individual project. This is optional and must be discussed and contracted with the professor.

4. Course grade: This grade will be determined by dividing earned points by the total possible number of points. The percentage will translate into a letter grade according to the following scale:

90 - 100%	A	+ and - will be determined by the professor
80 - 89%	B	
70 - 79%	C	
60 - 69%	D	
Below	F	

Tentative point distribution:

Four unit exams (100 pts each)	400 pts
Lab attendance/participation	220 pts
Practical (pig)	60 pts
Mini-practical (plants)	20 pts
Poster or power point	50 pts (per student)
Optional efforts	maximum of 100 pts
Lecture attendance	100 pts
Final class video	20 pts

Tentative Lecture Schedule

Aug 25 (M)	Introduction to the course	Chapter 1
Aug 27 (W)	Cell chemistry	Chapter 2 & 3
Aug 29 (F)	Cell structure and function	Chapter 4
Sept 1 (M)	Labor Day - no classes	
Sept 3 (W)	Ground rules of metabolism	Chapter 5
Sept 5 (F)	Cell division – mitosis	Chapter 8
Sept 8 (M)	Cellular respiration	Chapter 7
Sept 10 (W)	Meiosis and sexual reproduction	Chapter 9
Sept 12 (F)	Animal reproduction and development	Chapter 39
Sept 15 (M)	Animal tissues and organ systems	Chapter 29
Sept 17 (W)	Digestive system	Chapter 37

Sept 19 (F)	UNIT EXAM 1 (1,2,3,4,5,7,8,9,39 29)	
Sept 22 (M)	Respiratory system	Chapter 36
Sept 24 (W)	Structural support/movement	Chapter 33
Sept 26 (F)	Circulatory system	Chapter 34
Sept 29 (M)	Immunity	Chapter 35
Oct 1 (W)	Excretory system	Chapter 38
Oct 3 (F)	Endocrine system	Chapter 32
Oct 6 (M)	<b>Fall Recess</b>	
Oct 8 (W)	Nervous system	Chapter 30
Oct 10 (F)	Sensory perception	Chapter 31
Oct 13 (M)	Plants and animals common challenges	Chapter 25
Oct 15 (W)	Plant structure and function	Chapter 26 & 27
Oct 17 (F)	Plant reproduction and development	Chapter 28
Oct 20 (M)	Photosynthesis	Chapter 6
Oct 22 (W)	Mendelian genetics	Chapter 10
Oct 24 (F)	UNIT EXAM 2 (37,36,33,34,35,38,32,30,31)	
Oct 27 (M)	Mendelian patterns	Chapter 11
Oct 29 (W)	Chromosomal variation Down syndrome	Chapter 11
Oct 31 (F)	DNA structure and function	Chapter 12
Nov 3 (M)	Protein synthesis	Chapter 13
Nov 5 (W)	Controls over genes	Chapter 14
Nov 7 (F)	Studying and manipulating genomes	Chapter 15

Nov 10 (M)	Prokaryotes and viruses	Chapter 19
Nov 12 (W)	Population Genetics	Chapter 17: 264-269
Nov 14 (F)	Processes of Evolution	Chapter 17: 269-286
Nov 17 (M)	Evidence of evolution	Chapter 16
Nov 19 (W)	Prokaryotes and viruses	Chapter 19
Nov 21 (F)	Ecology	Chapter 41
Nov 24 (M)	EXAM 3 (25, 26,27,28,6, 10,11,12,13,14,15)	
Nov 26 (W)	Thanksgiving Holiday	
Nov 28 (F)	Thanksgiving Holiday	
Dec 1 (M)	Ecosystems	Chapter 42
Dec 3 (W)	Population ecology	Chapter 40
Dec 5 (F)	Environmental challenges	Chapter 43: 754-761
Dec 8 (M)	Regional Biomes	Chapter 43: 762-780
Dec 10 (W)	Natural Connections	

FINAL EXAM PERIOD - UNIT EXAM 4 (19, 17, 16, 19, 41, 42, 40, 43)

### **Tentative Lab Schedule**

Week 1 Aug 25-27	Microscope/cells Scientific literature - Example stem cell articles Group exercise: "Stem cells"
Week 2 Sept 1-3	No lab – Labor Day Holiday
Week 3 Sept 8-10	Enzyme activity - spectrophotometer Mitosis
Week 4 Sept 15-17	Meiosis Reproduction and Development Tissues

Week 5 Sept 22-24	Muscles/skeletal system Fetal pig - digestive system Digestive tract slides
Week 6 Sept 29 -1	Fetal pig - respiratory system Fetal pig - circulatory system Blood slides Fetal pig - endocrine system
Week 7 Oct 6 - 8	No lab - Fall Recess
Week 8 Oct 13-15	Fetal pig - excretory system Fetal pig - reproductive system Placenta types Fetal pig - nervous system Review for practical
Week 9 Oct 20 Oct 22	Open lab – pig review <b>Practical exam</b>
Week 10 Oct 27-29	Plant structure and function Plant reproduction
Week 11 Nov 3-5	<b>Mini practical</b> on plant slides Human traits Karyotype
Week 12 Nov 10-12	DNA isolation DNA structure Protein synthesis
Week 13 Nov 17-19	Population genetics Phylogenetic tree construction
Week 14 Nov 24-26	No lab – Thanksgiving Holiday
Week 15 Dec 1-3	Evolution discussion Environmental concerns
Week 16 Dec 8-10	Environmental posters/powerpoint