

## BIOLOGY 100 – PRINCIPLES OF BIOLOGY – Spring 2009

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)

Lab Text - **BIOLOGY – Concepts and applications - Starr/Evers/  
Starr -2009**

### Course objectives:

1. To focus on 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. Optional lectures and/or videos may be available during the semester. These will be announced by the professor in terms of topic and/point

value. Note in each case the earned points/possible points will be added to the other points earned in the course.

5. 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)	30 pts
Poster or power point	50 pts (per student)
Optional efforts	0 to 100 pts maximum
Lecture attendance	100 pts
Final class video	20 pts

#### Tentative Lecture Schedule

Jan 19 (M)	Introduction to the course	Chapter 1
Jan 21 (W)	Cell chemistry	Chapter 2 & 3
Jan 23 (F)	Cell structure and function	Chapter 4
Jan 26 (M)	Bacteria and viruses	Chapter 19
Jan 28 (W)	Cellular respiration	Chapter 5,7
Jan 30 (F)	Cell division – mitosis	Chapter 8
Feb 2 (M)	Meiosis and sexual reproduction	Chapter 9
Feb 4 (W)	Animal reproduction and development	Chapter 39
Feb 6 (F)	Animal development	Chapter 39
Feb 9 (M)	Digestive system	Chapter 37

Feb 11 (W)	UNIT EXAM 1 (1,2,3,4,5,7,8,9,19, 39)	
Feb 13 (F)	Respiratory system	Chapter 36
Feb 16 (M)	Structural support/movement	Chapter 33
Feb 18 (W)	Circulatory system	Chapter 34
Feb 20 (F)	Immunity	Chapter 35
Feb 23 (M)	Excretory system	Chapter 38
Feb 25 (W)	Endocrine system	Chapter 32
Feb 27 (F)	Nervous system	Chapter 30
<b>Feb 28 to Mar 8</b>	<b>Spring break</b>	
Mar 9 (M)	Sensory perception	Chapter 31
<b>Mar 10 (T)</b>	<b>Practical exam</b>	
Mar 11 (W)	Plants and animals common challenges	Chapter 25
Mar 13(F)	Plant structure and function	Chapter 26 & 27
Mar 16 (M)	<b>UNIT EXAM 2</b> (37, 36, 33, 34, 35, 38, 32, 30, 31)	
Mar 18 (W)	Plant reproduction and development	Chapter 28
Mar 20 (F)	Photosynthesis	Chapter 6
Mar 23 (M)	Mendelian genetics	Chapter 10
<b>Mar 24 (T)</b>	<b>Mini-practical on plants S &amp; F</b>	
Mar 25 (W)	Mendelian patterns	Chapter 11
Mar 27 (F)	Chromosomal variation Down syndrome	Chapter 11
Mar 30 (M)	DNA structure and function	Chapter 12
Apr 1 (W)	Protein synthesis	Chapter 13 & 14

Apr 3 (F)	Studying and manipulating genomes	Chapter 15
Apr 6 (M)	Population Genetics	Chapter 17: 264-269
Apr 8 (W)	Processes of Evolution	Chapter 17: 269-286
Apr 10 (F)	No class - Good Friday	
Apr 13 (M)	No class – Easter Monday	
Apr 15 (W)	Evidence of evolution	Chapter 16
Apr 17 (F)	EXAM 3 (25, 26,27,28,6, 10,11,12,13,14,15)	
Apr 20 (M)	Ecology	Chapter 41
Apr 22 (W)	Ecosystems	Chapter 42 Chapter 43:762-780
Apr 24 (F)	Population growth (guest speaker)	Chapter 40
Apr 27 (M)	Ecological video	
Apr 29 (W)	Environmental challenges	Chapter 43: 754-761
May 1	Natural connections	Chapter 43:762-780

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

### **Tentative Lab Schedule**

Jan 20	Microscope/cells Scientific literature - Example stem cell articles Group exercise: "Stem cells"
Jan 27	Cells/Tissues (Chapter 29) Enzyme activity - spectrophotometer
Feb 3	Mitosis Meiosis Reproduction and Development
Feb 10	Muscles/skeletal system

	Fetal pig - digestive system Digestive tract slides
Feb 17	Fetal pig - respiratory system Fetal pig - circulatory system Blood slides Fetal pig - endocrine system
Feb 24	Fetal pig - excretory system Fetal pig - reproductive system Placenta types Fetal pig - nervous system Review for practical
<b>Mar 10</b>	<b>Practical exam</b>
Mar 17	Plant structure and function Plant reproduction
Mar 24	<b>Mini practical</b> on plant slides Human traits Karyotype
Mar 31	DNA isolation DNA structure Protein synthesis
Apr 7	Population genetics
Apr 14	Evolution discussion Phylogenetic trees
Apr 21	Exercise on human population growth Regional biomes - Tropical rain forest example
Apr 28	Environmental concerns Environmental posters/powerpoints Course evaluation