BIOLOGY 100A- PRINCIPLES OF BIOLOGY Fall Semester 2006

Course description: **Thai is an introductory biology course which covers the principle concepts in biology in a lecture and laboratory format. It satisfies the F4 LinC (laboratory requirement for graduation). The human organism will be used as the primary focus organism for each topic. In lab there is a fetal pig dissection which allows the student to observe the organ systems as they are covered in lecture.**

Instructor- Dr. Karen Kurvink

Lecture- Biol 100A MWF 4(11:30-12:10PM) Collier Hall of Science Room 204
Lab A Monday (12:45-3:45PM) Collier Hall of Science Room 300
Lab B Wednesday (12:45-3:45PM) Collier Hall of Science Room 300

Text – BIOLOGY- Concepts and Applications 6th edition (2006) by Cecie Starr

Course Objectives –

1. **To cover the basic principles of general biology.**
2. **To introduce students to the process of science and experimental design.**
3. **To emphasize the relationship of biology to the human organism.**

Tentative Lecture Schedule

Mon	**Aug 28**	**Introduction to course**	**Chapter 1**
Wed	**Aug 30**	**Principles of cellular life**	**Chapter 2,3**
Fri	**Sept 1**	**Cell structure and interactions**	**Chapter 4**
Mon	**Sept 4**	**No class**	
Wed	**Sept 6**	**How cells work**	**Chapter 5**
Fri	**Sept 8**	**Cellular respiration**	**Chapter 7**
Mon	**Sept 11**	**Mitosis**	**Chapter 8**
Wed	**Sept 13**	**Meiosis**	**Chapter 9**
Fri	**Sept 15**	**Reproductive system**	**Chapter 38**
Mon	**Sept 18**	**Early development**	**Chapter 38**
Wed	**Sept 20**	**Animal tissues and organ systems**	**Chapter 28**
Fri	**Sept 22**	**Musculoskeletal system**	**Chapter 32**
Mon	**Sept 25**	**Digestive system**	**Chapter 36**
Wed	**Sept 27**	**Respiratory system**	**Chapter 35**
Fri	**Sept 29**	**Unit Exam 1**	**(Chapters 1,2,3,4,5,7,8,9,38)**
Mon	**Oct 2**	**Circulatory system**	**Chapter 33**
Wed	**Oct 4**	**Immune system**	**Chapter 34**
Fri	**Oct 6**	**Excretory system**	**Chapter 37**
Mon	**Oct 9**	**Spring Break**	
Wed	**Oct 11**	**Spring Break**	
Fri	**Oct 13**	**Endocrine system**	**Chapter 31**
Mon	**Oct 16**	**Nervous system**	**Chapter 29**
Wed	**Oct 18**	**Sensory perception**	**Chapter 30**
Fri	**Oct 20**	**Plants and animals- common challenges**	**Chapter 27**
Mon	**Oct 23**	**Plant structure & function**	**Chapter 27**
Wed	**Oct 25**	**Plant reproduction**	**Chapter 27**
Fri	**Oct 27**	**Unit Exam 2**	**(Chapters 28,29, 30, 31,32,33,34,35,36,37)**
Mon	**Oct 30**	**Photosynthesis**	**Chapter 6**
Wed	**Nov 1**	**Infectious disease**	**Chapter 19**
Fri	**Nov 3**	**Mendelian genetics**	**Chapter 10**
Mon	**Nov 6**	**Chromosomes/human genetics**	**Chapter 11**
Wed	**Nov 8**	**DNA/structure and function**	**Chapter 12**
Fri	**Nov 10**	**Protein synthesis**	**Chapter 13,14**

Mon	**Nov 13**	**Studying and Manipulating genomes**	**Chapter 15**
Wed	**Nov 15**	**Processes of evolution (population genetics)**	**Chapter 16**
Fri	**Nov 17**	**Evolutionary patterns**	**Chapter 17.18**
Mon	**Nov 20**	**Unit Exam 3**	**(Chapters 24,25,26,27,6,19,10,11,12,13,14)**
Wed	**Nov 22**	**Thanksgiving vacation**	
Fri	**Nov 24**	**Thanksgiving vacation**	
Mon	**Nov 27**	**Ecology Community structure and biodiversity**	**Chapter 40**
Wed	**Nov 29**	**Ecosystems (biogeochemical cycles)**	**Chapter 41**
Fri	**Dec 1**	**Population ecology**	**Chapter 39**
Mon	**Dec 4**	**Human population growth**	
Wed	**Dec 6**	**Environmental challenges**	**Chapter 42**
Fri	**Dec 8**	**Regional biomes**	**Chapter 42**
Mon	**Dec 11**	**Life connections**	

Unit Exam 4- During final exam period **(Chapters 16,17,18,39,41,42)**

Tentative Lab Schedule

Week 1 Aug 23 and 30 **Microscope/cells**
Scientific measurement
Scientific literature-Example stem cell articles
Stem cell assignment

Week 2 Sept 4 and 6 **No lab (due to Labor Day holiday)**

Week 3 Sept 11and 13 **Enzyme activity-spectrophotometer**
Mitosis
Stem cell discussion

Week 4 Sept 18 and 20 **Meiosis**
Reproduction/development
Assisted reproductive technology

Week 5 Sept 25 and 27 **Tissues**
Muscles/skeletal system
Fetal pig-external anatomy
Fetal pig – digestive system
Digestive tract slides

Week 6 Oct 2 and 4 **Fetal pig- respiratory system**
Fetal pig- circulatory system
Blood slides
Fetal pig endocrine system

Week 7 Oct 9 and 11 **Spring break**

Week 8 Oct 16 and 18 **Fetal pig- excretory system**
Fetal pig- reproductive system
Placenta types
Fetal pig- nervous system
Review for practical

Week 9 Oct 23 **Practical exam**

Week 10 Oct 30 and Nov 1 **Plant structure and function**
Plant reproduction

Week 11 Nov 6 and 8 **Mini practical on plants**
Human traits

Karyotype
Select environmental topics (8 groups)

Week 12 Nov 13 and 15 DNA isolation
Protein synthesis

Week 13 Nov 20 and 22 No lab- Thanksgiving

Week 14 Nov 27 and 29 Evolution discussion
Phylogenetic tree

Week 15 Dec 4 and 6 Environmental posters (groups)

Course comments:

1. **"Showing up" for lectures and laboratories is critical for success in this course. If you have to 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 grade.**

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.**

3. **A contracting option is available for students who desire alternative ways to earn course Points. For this semester, the emphasis will be on "Planet Earth issues" including infectious diseases. The format will be to prepare a 10 minute power point presentation on your topic which will be presented during the final lab (contract value 50 pts) or to prepare a research paper on the topic (point value 50-100 points) which will be due on April 25. This paper must be referenced and contain a bibliography. Note, you may elect to do both the presentation and the paper. If you plan to select the contract option, you must have your topic and point values determined by the March 3 (Friday before Spring break).**

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**
80-89 %	**B+ and – grades will be added at the discretion of the professor**
70-79 %	**C**
60-69 %	**D**
Below	**F**