**GENETICS (BSC 219)**

**COURSE SYLLABUS – FALL, 20112**

**INSTRUCTOR**

**Dr. Wade Nichols**

Office: SLB 344

Hours: T 11:00 am-noon, F 1:00-2:00 pm

Phone: 438-8141

Email: **wanicho@ilstu.edu**

**LECTURES**

Moulton Hall, Room 208, 9:35-10:50 am, T&R

**COURSE DESCRIPTION**

Genetics 219 serves as a required course for majors in the Biological Sciences. Prerequisites for this course are Biological Diversity (BSC 196) and Molecular and Cellular Basis of Life (BSC 197). It is assumed students are already familiar with the concepts and facts associated with cell reproduction, Mendel’s laws of heredity, DNA structure and function, and protein synthesis (all of which were covered in BSC 197).

Students in Genetics 219 will learn the basic terminology and principles of genetics. They will be introduced to the major subdivisions of genetics, including transmission genetics, molecular genetics and population/quantitative genetics, and they will develop an understanding of the basic facts and principles within each subdiscipline.

**COURSE WEB SITE**

<http://bio.illinoisstate.edu/wanicho/219/Genetics.htm>

**REQUIRED TEXT**

The course textbook is *Genetics: A Conceptual Approach* (3rd edition) by Benjamin A. Pierce. Reading assignments will be given for the various topics listed in the Tentative Lecture Outline. Students may use the text to become familiar with the lecture material and to clarify and/or expand upon the lecture material.

**EMAIL ADDRESSES**

If the instructors need to email the class, we will use your ISU email addresses. It is assumed you are monitoring your ISU email accounts.

**LECTURE EXAMS**

There will be 4 lecture exams consisting of 3 midterm exams and a non-comprehensive final exam (the final covers only the new material since the 3rd exam). All 4 exams are worth 100 points.

A variety of different types of questions will generally be found on each exam. These may include fill in the blank, multiple choice, essay, definitions, matching and problem solving. Each question on an exam will have a certain number of points associated with it. The instructor may, on occasion, award partial credit for certain questions. Students are expected to take the exams as they are scheduled during the semester (the 3 midterms are given during regular lecture periods; the final exam is given at an assigned date and time during final exam week). If a student must miss an exam and has a valid excuse (e.g., a note from a physician), the student may be allowed to take a make-up exam. The format of the make-up exam is up to the discretion of the course instructor.

**HOMEWORK**

There will be 12 homework assignments given throughout the semester, each worth 5 points. The 10 best scores will be counted toward students’ grade, therefore, a possible total of 50 points from homework will count towards final grade.

**EXAM DATES**

|  |  |
| --- | --- |
| **Exam** | **Tentative Date** |
| Exam 1 | Tue., Sept. 13 |
| Exam 2 | Tue., Oct. 19 |
| Exam 3 | Tue., Nov 6 |
| Exam 4 | TBD |

**GRADING**

The grading scale for Genetics 219 is given below:

|  |  |  |
| --- | --- | --- |
| **Total Points** | **Percentage** | **Course Grade** |
| 405-450 | 90-100% | A |
| 360-404 | 80-89.9% | B |
| 315-359 | 70-79.9% | C |
| 270-314 | 60-69.9% | D |
| 0 - 269 | 0-59.9% | F |

 **OFFICE OF DISABILITY CONCERNS**

Any student needing to arrange a reasonable accommodation for a documented disability should contact Disability Concerns at 350 Fell Hall, 438-5853 (voice), 438-8620 (TDD).

**TENTATIVE LECTURE OUTLINE**

(Reading assignments are from *Genetics: A Conceptual Approach (3rd edition)*

**August 21:                 Course Introduction**

**August 23:                 Cellular Reproduction (Chapter 2)**

**August 28:                 Basic Principles of Heredity (Chapter 3)**

**August 30:             Sex Determination and Sex Linkage (Chapter 4)**

**September 4:             Extensions and Modifications of Basic Principles (Chapter 5)**

**September 6:             Pedigree Analysis (Chapter 6)**

**September 11:           Catch up & Review for Exam I**

**September 13:           Exam I**

**September 18:           Linkage, Recombination, and Gene Mapping (Chapter 7)**

**September 20:           Bacterial and Viral Genetics (Chapter 8)**

**September 25:           Chromosome Variation (Chapter 9)**

**September 27:           DNA (Chapter 10)**

**October 2:                  Chromosome Structure (Chapter 11)**

**October 4:                  DNA Replication (Chapter 12)**

**October 9:                Exam II**

**October 11:                Transcription (Chapter 13)**

**October 16:                RNA and RNA processing (Chapter 14)**

**October 18:                Genetic Code and Translation (Chapter 14)**

**October 23:                Gene Expression in Prokaryotes (Chapter 15)**

**October 25:                Gene Expression in Eukaryotes (Chapter 18)**

**October 30:              Mutations and DNA repair (Chapter 19)**

**November 1:              Molecular Genetic Analysis (Chapter 20)**

**November 6:              Exam III**

**November 8:           Genomics and Proteomics (Chapters 21)**

**November 13:            Organelle Genetics (Chapter 21)**

**November 15:**            **Developmental Genetics and Immunogenetics (Chapter 22)**

**November 20:          No Class (Thanksgiving break)**

**November 22:            No Class (Thanksgiving break)**

**November 27:            Cancer Genetics (Chapter 23)**

**November 29:**            **Quantitative genetics (Chapter 24)**

**December 4:              Population genetics (Chapter 25)**

**December 6:**              **Evolutionary Genetics (Chapter 26)**

**TBD**            **Exam IV**