

Purpose of this Course

This course is offered as a general education course in the College of Letters and Science. Its target audience is the non biology, non science major who wishes to be exposed to some of the wonders of modern biology and wishes to learn something about molecular biology (which we read about every day in the newspaper and hear about on radio and television) and apply this knowledge to human diseases where we know something about the genetic components. The first part of the course will cover some basic aspects of human genetics beginning at the cellular and population level. Later we will talk about some specific genetic diseases not only with respect to the genetic aspects of the disease, but also talking about the physiology and treatment for these diseases. Lastly we will talk about the problems associated with genetic screening and some of the ethical issues involved with our knowledge of human genetics.

Some of the topics that will be covered in this course include:

- ◆ Prokaryotes vs Eukaryotes
- ◆ The Cell
- ◆ The Genome
- ◆ Basic Genetics
- ◆ The Human Genome Project
- ◆ Selected Human Diseases with Genetic Implications
- ◆ Ethics of Human Genetics

Format:

Course will include lectures and discussions on various topics related to human genetics and various diseases. In addition, a number of videos will be used to enhance understanding of specific topics.

Text:

Human Genetics: Concepts and Applications, 5th edition by Ricki Lewis
WCB/McGraw-Hill, 2003

Approximately one third of the exam content will be based on material in the assigned reading
This will be the end of this edition of the text so I encourage used copies if possible

Exams and Grading

- ◆ Optional grading (letter or P/NP)
- ◆ 2 exams, a midterm and a final will include both lecture material as well as assigned reading
- ◆ midterm worth 100 points and final exam 200 points (emphasis will be on last part of course though exam is cumulative)
- ◆ Exam will be a combination of short answer (fill in, multiple choice) and short essays

Office Hours

Monday and Thursday 9 – 11am. I will always remain after lecture as long as needed. Feel free to schedule appointments outside of these times. My office is in Bren Building – Room 4013 and my phone number is 893-2162

Syllabus - Winter 2004

| <u>Date</u> | <u>Topic</u> | <u>Reading</u> |
|-------------|--|----------------|
| 05 January | Introduction to Course – What is Human Genetics? | |
| 07 January | History of Genetics – Focus on Recent History | Chapter 1 |
| 12 January | Introduction to Cell Biology | Chapter 2 |
| 14 January | Chromosome Organization and DNA | Chapter 9-12 |
| 19 January | Martin Luther King Jr. Holiday | Chapter 2 |
| 21 January | Meiosis | Chapter 9 |
| 26 January | Human Karyotypes and Pedigrees | Chapter 12 |
| 28 January | Diseases with Chromosomal Abnormalities | |
| 2 February | Human Diseases - 1 | |
| 04 February | Human Diseases – 2 | Chapter 4 |
| 09 February | Midterm Exam | Chapter 5 |
| 11 February | Human Diseases - 3 | |
| 16 February | Presidents' Day Holiday | |
| 18 February | More Human Diseases | Chapter 17 |
| 23 February | Cancer as a Genetic Disease | Chapter 19 |
| 25 February | Gene Therapy | |
| 01 March | Catch up Time | Chapter 21 |
| 03 March | Ethical Considerations | |
| 08 March | To be announced | |
| 10 March | Summary and Review – What have we learned?? | |

Final Exam – 16th March 4:00 – 7:00 pm