[A-3]COURSE SYLLABUS

1. Course Description (Approximately 100 words)

This course begins with an exploration of human genetics and the mechanism by which mutations arise in DNA, and how these mutations lead to human diseases. We also cover experimental methods used to detect and analyze these mutations. Part of the discussion focuses on the implications for individuals and societies that arise from the ability to predict the likelihood of disease based on DNA sequence. In the following sections of the course we examine the cellular defects that result due to mutations in specific genes, which leads to loss of expression of proteins or expression of altered proteins. In particular we discuss the development of different types of cancers, and the mechanisms of diseases such as cystic fibrosis, Alzheimer's disease and mad-cow or prion diseases

2. Course Goals and Objectives (Approximately 100 words)

By the end of this course, students will be able to:

-Describe the molecular basis of the major human diseases (infection, chronic inflammation, atherosclerosis, COPD, CF, MD, and some rare genetic and congenital diseases)
-Comprehend the mechanisms underlying major human diseases including infection, inflammation, diseases affecting the circulatory and muscular systems as well as a sample of rare genetic diseases.
-Compare normal and pathological cell and organ function as they relate to the major human diseases studied in this course.
-Appreciate the role of ongoing scientific analysis to understand disease mechanisms and critically evaluate evidence supporting our current understanding of the molecular basis of some of the major human diseases

3. Textbook (Title, Author, Publisher, Year of Publication, etc.)

An Introduction to Human Molecular Genetics (2nd Edition), J.J. Pasternak, 2005.

Human Molecular Genetics (3rd Edition), T. Strachan & A.P. Read, 2004.

Molecular Biology of the Cell (5th Edition), B. Alberts et al., 2008.

4. Reference

Thompson and Thompson Genetics in Medicine. 7th Edition.

5. Course Requirements and Grades

EXAM = 70%
C.A.T. = 30%

TOTAL = 100%

6. Course Calendar

Week	Main Content
1	What is Disease?
2	CATEGORIES OF INHERITED METABOLIC DISEASES
3	Other diseases
4	Classification of diseases
5	PATHOLOGENESIS
6	CELL INJURY AND CELL DEATH
7	C.A.T.
8	Genetic disorders
9	Chromosomal Problems
10	Mutation
11	Cancer Part 1
12	Cancer Part 2
13	REVISION AND ASSIGNMENTS
14	EXAMINATION