



جامعة دبي
UNIVERSITY of DUBAI

Department of General Education

Course Syllabus

Semester: Academic Year: 2008-2009
Course No. : GBIO 100 Sec 01
Course Title: Biotechnology
Prerequisites: None
Faculty Member: Dr. Mayson H. Alkhatib
Office Hours: Sat (7-10) pm, Room 210

RULES TO BE ADHERED TO

- Students who are late for more than 10 minutes will be allowed to sit for the class but will be marked as absent in the attendance record.
- Students cannot leave the class during lecture time and those who do not return to class after the break will be considered as absent for that class.
- Mobile phones must be switched off during class. Students using their mobile phones will be asked to leave the class immediately and will be considered absent.
- Students found whispering or talking during lectures will be asked to leave the class and will be considered as absent for that class.
- Mobile phones are not allowed during the mid-term and final exams. Be sure you carry a calculator and/or a watch if you have a need for either one of them.
- Students are expected to use a variety of references in their assignments (books, on-line sources, journals...).
- Students are required to do some further readings (not just the handouts) prior to coming to class.
- Late submission of assignments will be penalized by 10% a day.
- In case of absence, ensure to obtain class materials and handouts.
- Keep copies of your assignments for your own record.
- UD cheating policy and absenteeism policies will be strictly enforced.

Brief Course Description: This course explains the basics of biotechnology. It describes the structure and function of genes and their role in the modern technology tools. It also elaborates the applications of gene technology in the human uses, environment, and food and agriculture areas.

Course Objectives: The Following course objectives correlate to current UD student's standards.

- Understand the meaning of biotechnology.
- Understand the structure and function of genes.
- Applies steps of the scientific method, logical reasoning and creative thinking to answer questions and solve problems related to why and how do we do biotechnology.
- Understand and apply the scientific concepts of gene technology in the human uses, environment, and food and agriculture areas.
- Discuss the ethical issues of biotechnology

Course Outline & Focus Questions

I. Basics of Biotechnology

- What is Biotechnology?
- DNA and genes
- Why do we do biotechnology?
- How do you do biotechnology?
- Ethics of biotechnology

II. Applications of Biotechnology

1. Human Uses

- Fighting infectious diseases
- Antibiotics
- Producing human products
- Reproductive technologies
- The human genome project
- Genetic disorders
- Gene therapy
- Cloning
- Stem cells
- Transplantation
- DNA profiling
- Ethics of research involving humans

2. Environment

- Biological control of pests
- Protecting threatened species
- Resurrecting extinct species
- Cleaning up and managing the environment
- Researching new products
- Ethics of research involving the environment

3. Food and Agriculture

- A problem with weeds - the canola story
- A problem with insects - the cotton story
- Other reasons to modify crops - soybeans
- The international scene
- Genetically modified food labeling
- Ethics for Food and Agriculture research

Education Resources

- 1) Handouts and power point slides given during the lecture.
- 2) References
 - Rennumbers, R., Demain, A., **Biotechnology for Beginners**, Academic Press, 2007.
 - Kristiansen, B., Ratledge, C., **Basic Biotechnology**, Cambridge University Press, 2006.
- 3) There are a number of web sites that cover the basics of biotechnology and gene technology.
 - CSIRO Gene Technology in Australia <http://genetech.csiro.au/>
 - An animated primer on the basics of DNA, genes and heredity, from the Dolan DNA Learning Center, Cold Spring Harbour Laboratory, USA <http://vector.cshl.org/dnaftb/>
 - The biotechnology section of the web site of the US National Museum of Health <http://www.accessexcellence.org/AB/>
 - DNA – Genes and things, from the Eureka! Science site; recommended by the US National Science Teachers Association http://www.eurekascience.com/ICanDoThat/dna_genes.htm
 - DNA and biotechnology, from the web site of The Tech science centre in San Jose, USA http://www.thetech.org/exhibits_events/online/genome/
 - More web links can be found on the CSIRO Gene Technology site: <http://genetech.csiro.au/>

Evaluating Student Performance

Midterm Exam	20%	Wed. 2/7/2008
Final Exam	40%	Mon. 14/7/2008
Class Participation	10%	
Quizzes	10%	Thu. 26/6/2008 & Wed. 9/7/2008
Assignment & presentation	20 %	Mon. 7/7/2008