

Republic of IRAQ

Ministry of Higher Education & Scientific Research

AL-Nahrain University / College of Science



جمهورية العراق

وزارة التعليم العالي والبحث العلمي

جامعة النهرين / كلية العلوم

University: Al-Nahrain

College: Science

Department : Computer Science

Stage: First year

Lecturer name : Dr. Mohsen Hahem Risan

Academic Status: Assist. Professor

Course Instructor	Dr. Mohsen Hahem Risan
E_mail	Mohsen1972r@gmail.com
Title	Biotechnology
Course Code	Non
Course Description	An introduction to biotechnology including history and applications of DNA / RNA technology, molecular biology. and know Basic biological concepts and current molecular techniques are developed and explored through didactic and laboratory activities. Career pathways and biotechnology products are highlighted.
Learning Outcome	<p>A. Articulate discipline-specific concepts.</p> <p>B. Demonstrate college-level critical thinking, argumentation, and analysis skills.</p> <p>C. Demonstrate an awareness and understanding of cultural and social diversity and gain the skills necessary to interact appropriately within diverse environments.</p> <p>D. Demonstrate an understanding of the scientific method and its application, including interpreting and analyzing scientific data, forming hypotheses, and evaluating experiments.</p> <p>E. Demonstrate competent and relevant technology skills.</p> <p>and the student will be able to do the following:</p> <p>a- perform basic and analytical laboratory techniques.</p> <p>b- perform general bacteriology and microbial techniques including making media and culturing bacteria</p> <p>c - perform DNA manipulation techniques including transformation, DNA restriction analysis , DNA fingerprinting and gel electrophoresis</p>
Textbook	Basic Biotechnology , Colin Ratledge , Bjorn Kristiansen (Editor), Publisher: Cambridge University Press; 2nd edition (2001) 584 pages

References	papers and topics from the internet.				
Course Assessment	Term Tests	Laboratory	Quizzes	Assignments	Final Exam
	30%	non	5%	5%	60%
General Notes	There isn't notes				

Course weekly Outline

week	Topics Covered	Lab. Experiment Assignments
1	History of Biotechnology, Modern definition of biotechnology, Importance and applications of Biotechnology.	
2	branches of biotechnology	
3	Introduction to cell	
4	Protein , Nucleic Acids	
5	Applications of Biotechnology	
6	Bioremediation, Biosensors , Biofuels, Biodegradation	
7	Fermentation Technology , Solid State Fermentation, Industrial Fermentors , Types of Fermentation Process.	
8	Medical Biotechnology	
9	Biotechnology Vaccines	
10	Biotechnology in : Antibiotics, Vitamines and Amino acids, Citric acid , Enzymes.	
11	Microbial Enhanced Oil Recovery (MEOR) , Biotechnology and MEOR	
12	Bioprocessing Opportunities , Genetic Modification of Crop Plants, Fungi and Biotechnology	
13	Fungi and bacteria and Biotechnology	
14	Production of Fungal Enzymes	
15	Environmental Biotechnology	

Instructor Signature:

Dr. Mohsen Hahem Risan