



وكالة الجامعة للشؤون التعليمية
البرامج الدراسية والتطوير

(5)

مختصر توصيف المقرر

Applied Biotechnology

:(Course Information) *

تطبيقات التكنولوجيا الحيوية	:
BIOL-454	:
هندسة وراثية BIOL-453	:
لا يوجد	:
	:
3	:
Module Title:	Applied Biotechnology
Module ID:	BIOL-454
Prerequisite (Co-requisite):	Genetic Engineering, BIOL-453
Co-requisite :	N/A
Course Level:	8 th level
Credit Hours:	3 Hours

Module Description

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This course provide experience in molecular biology lab techniques and experimentation. The course also, participate in understanding of genetic engineering so that informed decisions can be made regarding social/ethical issues and concerned with techniques for engineering multicellular organisms to improve their productivity and adaptability to their environment, with emphasis on domestic animals and plants.

Module Aims

أهداف المقرر:

1	Studying molecular biology lab techniques.	1
2	understanding of genetic engineering.	2
3	Studying different techniques for engineering multicellular organisms to improve their productivity.	3
4	Studying different techniques for engineering multicellular organisms to improve their adaptability to their environment.	4

Learning Outcomes:

مخرجات التعليم:

1	Knowing about aseptic technique and plant tissue culture.	1
2	Knowing about DNA function and modeling activities	2
3	Knowing different techniques of DNA extraction, Gel electrophoresis, DNA quantitation, DNA Sequencing, PCR, Restriction Enzyme Analysis of DNA and Bacterial transformation.	3
4	Knowing about genomics and bioinformatics	4
5	Knowing about microarray technology.	

Course :

Contents:

ساعات التدريس (Hours)	الأسابيع (Weeks)	(Subjects)
3	1	Introduction <ul style="list-style-type: none"> • Social Issues and Bioethics • Making lab solutions • Appropriate lab practices
6	2	Aseptic technique and plant tissue culture
3	1	Classical Biotechnology- Food and fermentation: yogurt, root beer, biofuels
3	2	DNA structure and function <ul style="list-style-type: none"> • Modeling Activities
15	5	Techniques of recombinant DNA <ul style="list-style-type: none"> • DNA extraction • Gel electrophoresis • DNA quantitation • DNA Sequencing • PCR

		<ul style="list-style-type: none"> • Restriction Enzyme Analysis of DNA • Bacterial transformation
6	2	DNA Profiling <ul style="list-style-type: none"> • Transposons, VNTRs • DNA Barcoding
6	2	Genomics and bioinformatics <ul style="list-style-type: none"> • Microarray technology • RNAi

Textbook and :

References:

ISBN	Publishing Year	Publisher	اسم المؤلف (رئيسي) Author's Name	Textbook title
ISBN 978-953-51-2248-7	2016	InTech	Dharumadurai Dhanasekaran and Yi ,Jiang	Actinobacteria - Basics and Biotechnological Applications
	Publishing Year	Publisher	اسم المؤلف (رئيسي) Author's Name	Reference
014240327X	2005	Puffin Books	Nancy Werlin	Double Helix
075380848X	1998	Puffin Books	Jeremy Rifkin	The Biotech Century

