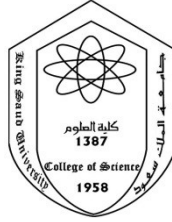


KINGDOM OF SAUDI ARABIA
MINISTRY OF HIGHER EDUCATION
KING SAUD UNIVERSITY
COLLEGE OF SCIENCE
DEPARTMENT OF BOTANY
& MICROBIOLOGY



المملكة العربية السعودية
وزارة التعليم العالي
جامعة الملك سعود
كلية العلوم
قسم النبات والأحياء الدقيقة

COURSE SPECIFICATION

GENETIC ENGINEERING

(BOT 652)

Course Specification

For Guidance on the completion of this template, please refer to *of Handbook 2*
Internal Quality Assurance Arrangements

Institution	king Saud University
College/Department	College Of Science/ Department of Botany And Microbiology

A Course Identification and General Information

1. Course title and code: Genetic Engineering (Bot 652)
2. Credit hours 2 (2 + 0)
3. Program(s) in which the course is offered. Ph. D. of Science Botany - Genetics
4. Name of faculty member responsible for the course Dr. Abd El-Zaher M. A. Mustafa
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any) BOT 251, BOT 253 & BOT 357
7. Co-requisites for this course (if any)
8. Location if not on main campus

B Objectives

1. Summary of the main learning outcomes for students enrolled in the course. <ul style="list-style-type: none"> To learn the essential aspects in Molecular Genetics To learn the structure and replication of the Genetic Material To learn the essentials of Genetic Engineering and DNA Recombination To recognize the kinds and functions of Enzymes manipulating DNA To recognise the vectors used in DNA recombination To recognize the kinds of DNA libraries and their screening To acquire the skills of DNA extraction and Electrophoresis. To acquire some skills concerning presentation, dialogue and discussion
2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field) Utilizing the Research projects in training the students and renewing the knowledge To look for video animation to see the shape and structure of DNA and its replication and information expression .

C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

1 Topics to be Covered		
Topic	No of Weeks	Contact hours
DNA structure and replication.	2	4
Essentials of Genetic Engineering	2	4
Enzymes manipulating DNA.	3	6
Restriction Endonucleases	1	2
DNA Vectors.	3	6
c-DNA Library and Genomic Library	3	6

2 Course components (total contact hours per semester):			
Lecture: 14	Tutorial:	Practical/Fieldwork/Internship: 14(28h)	Other:

3. Additional private study/learning hours expected for students per week. (This should be an average :for the semester not a specific requirement in each week)

<p>4. Development of Learning Outcomes in Domains of Learning For each of the domains of learning shown below indicate:</p> <ul style="list-style-type: none"> • A brief summary of the knowledge or skill the course is intended to develop; • A description of the teaching strategies to be used in the course to develop that knowledge or skill; • The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.
a. Knowledge
<p>(i) Description of the knowledge to be acquired DNA structure and Replication, Essentials of Genetic Engineering, Enzymes manipulating DNA including Restriction enzymes, DNA Vectors, c-DNA library and Genomic library .</p>
<p>(ii) Teaching strategies to be used to develop that knowledge Lectures. Presentation Open discussion Practical. Reference.</p>
<p>(iii) Methods of assessment of knowledge acquired Theoretical examination . Practical examination .</p>
b. Cognitive Skills
<p>(i) Cognitive skills to be developed Utilizing vectors and Restriction enzymes in DNA Recombination and Genetic Engineering Construction and screening of DNA Library.</p>
<p>(ii) Teaching strategies to be used to develop these cognitive skills Seminars, Tutorials, and practical labs Using internet to look for films, videos to see models and animation of DNA and RNA.</p>
<p>(iii) Methods of assessment of students cognitive skills Practical tests. Discussion of scientific reports .</p>
c. Interpersonal Skills and Responsibility
<p>(i) Description of the interpersonal skills and capacity to carry responsibility to be developed Skills of grouped work.</p>
<p>(ii) Teaching strategies to be used to develop these skills and abilities Practical project among students .</p>
<p>(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility Observation of students during the practical project. Discussion of the practical project.</p>
d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain. Research in Data base, Gene banks and internet Communication with geneticists
(ii) Teaching strategies to be used to develop these skills Practical classes Internet. communication .
(iii) Methods of assessment of students numerical and communication skills Theoretical and practical examination
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required N/A
(ii) Teaching strategies to be used to develop these skills N/A
(iii) Methods of assessment of students psychomotor skills N/A

5. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Sessional examination	7/13	20
2	Practical examination	Fourteen	20
3	Practical reports	During semester	10
4	final theoretical examination	End	50

D. Student Support

1. Arrangements for availability of faculty for individual student consultations and academic advice. (include amount of time faculty are available each week) Office hours

E Learning Resources

1. Required Text(s)
2. Essential References C. J. Howe, 2007. Gene Cloning and Manipulation, Second Edition. CAMBRIDGE UNIVERSITY PRESS
3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List) D.L.hartl and E.W.Jones .2001.5 th .ed. Genetics: Analysis of Genes and Genomes. Jones and Bartlett Publ. Inc. T.A.Brown 1989. Genetics a molecular approach. Van Nosterand Reinhold (international) Co.Ltd.
4.Electronic Materials, Web Sites etc
5- Other learning material such as computer-based programs/CD, professional standards/regulations

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Lecture rooms, laboratories, etc.) Lecture room equipment with power point need projector laboratory equipment with some chemicals, microscopes ,glass wear , centrifuge and spectrophotometer .
2. Computing resources Computers with connection point
3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Student questionnaire to evaluate the course . Discussion with students to develop the teaching.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Notices of department members and others institute members who has relation with. Student evolution to be done by the department .
3 Processes for Improvement of Teaching Comparison of student results for many years back. Comparison of student result with related courses Developing teaching and teaching methods . Upgrading stuff member form point e-teaching and educational and psychological background .
4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution) <ul style="list-style-type: none">• Investigation of a sample of the answer sheets by an Independent faculty stuff• Periodic interchange investigation of the some answer sheets with some colleagues
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. <ul style="list-style-type: none">• Comparisons and statistical analysis of the students degrees within and among groups• Workshops and seminars with the students, colleagues and specialists