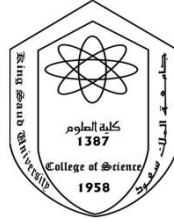


**KINGDOM OF SAUDI ARABIA
MINISTRY OF HIGHER EDUCATION
KING SAUD UNIVERSITY
COLLEGE OF SCIENCE
DEPARTMENT OF BOTANY
& MICROBIOLOGY**



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

COURSE SPECIFICATION

ADVANCED CYTOGENETICS

(BOT 553)

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: Genetics (BOT 553)
2. Credit hours: (2+1)
3. Program(s) in which the course is offered: M.Sc. Botany. (If general elective available in many programs indicate this rather than list programs)
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): General Botany (BOT 251, BOT 253)
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 an overview of Mendelian Genetics. To learn the Chromosomal theory of Genetics To learn the phenomenon of Linkage and Crossing over and Genetic Maps. To learn the Chromosomal structure and Karyotype To learn the Chromosome behavior during cell divisions To learn the Numerical and Structural Chromosomal changes. To acquire the skills of treating with the problems and training concerning the course. 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) <ul style="list-style-type: none"> Utilizing the internet by the students for more knowledge in Genetics Using special software for analyzing the genetic data of Transmission Genetics

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
An overview of Mendelian Genetics	2	6
Chromosomal theory of Genetics	1	3
Linkage, Crossing over and Genetic Maps	3	9
Chromosomal structure and Karyotype	3	9
Chromosome behavior during cell divisions	2	6
Numerical and Structural Chromosomal changes	3	9

2 Course components (total contact hours per semester):			
Lecture: 45 hours	Tutorial:	Practical/Fieldwork/Internship: 30 hours	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) 15 hours/ Semester

4. Development of Learning Outcomes in Domains of Learning For each of the domains of learning shown below indicate: <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
(i) Description of the knowledge to be acquired <ul style="list-style-type: none"> • To know an overview of Mendelian Genetics • To learn the Chromosomal theory of Genetics. • To Chromosomal structure and Karyotype • To learn the phenomenon of Linkage and Crossing over and Genetic Maps • To learn the Chromosome behaviour during cell divisions • To learn the Chromosomal structure and Karyotype • To learn the Numerical and Structural Chromosomal changes
(ii) Teaching strategies to be used to develop that knowledge <ul style="list-style-type: none"> • The Lecture • Practical Lessons • Internet communications • Presentations by students • Seminars with students and specialists
(iii) Methods of assessment of knowledge acquired <ul style="list-style-type: none"> • Mid-Term exams • Lab exams • Presentations by students • Discussions during the lectures • Final Exam
b. Cognitive Skills
(i) Cognitive skills to be developed <ul style="list-style-type: none"> • Skills of collection of the genetic data concerning Transmission Genetics • Presentation skills • Skills of updating the knowledge in the field of Genetics
(ii) Teaching strategies to be used to develop these cognitive skills <ul style="list-style-type: none"> • Practical Experiments • Utilizing the internet by the students for more knowledge in General Genetics • Problems in Heredity • Seminar • Homework

(iii) Methods of assessment of students cognitive skills
<ul style="list-style-type: none"> • Lab exams • Presentations by students • Seminar • Homework Observations • Contact with graduated students
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed
<ul style="list-style-type: none"> • Skills of working in a teamwork • Skills of presentation and Discussion • Skills of communication with Scientists and researchers
(ii) Teaching strategies to be used to develop these skills and abilities
<ul style="list-style-type: none"> • Preparation of some presentations • Communication with Scientists and researchers • Practical project by a student-team
(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility
<ul style="list-style-type: none"> • Observations during the Practical field project • Discussion of the Practical project
d. Communication, Information Technology and Numerical Skills
(i) Description of the skills to be developed in this domain.
<ul style="list-style-type: none"> • Skills of data preparation for statistical analysis • Skills of Statistical analysis using software • Skills of reading results and prediction of the future • Skills of getting the new in science
(ii) Teaching strategies to be used to develop these skills
<ul style="list-style-type: none"> • Practical lab lessons • Internet communications • Using the computer software in treating the genetic data
(iii) Methods of assessment of students numerical and communication skills
<ul style="list-style-type: none"> • Seminar • Practical lab exam • Discussions of the practical project
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required
NOT Applicable
(ii) Teaching strategies to be used to develop these skills
NOT Applicable
(iii) Methods of assessment of students psychomotor skills
NOT Applicable

5. Schedule of Assessment Tasks for Students During the Semester			
Assess ment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	First Mid-term Exam	7 th	10/100
2	Second Mid-term Exam	13 th	10/100
3	Seminar and project discussion	14 th	10/100
4	Practical lab Exam	16 th	20/100
5	Final Exam	18 th	50/100

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 (8 weekly)
- Personal web site
- Contact by e-mail

E Learning Resources

1. Required Text(s)
2. Essential References
3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List) Russell, P.J. (2002). <i>i Genetics</i> . pp 828. Benjamin Cummings, San Francisco
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.) <ul style="list-style-type: none">• Lecture class equipped with a Data Show• E-learning class for reviewing the course, internet communications and other numerical skills
2. Computing resources Computers with the office and statistical software
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 <ul style="list-style-type: none">• Questionnaires filled by the students at the beginning and the end of the semester• Seminars with the students to discuss the learning strategies and its improvement• Internet communications with the students
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department <ul style="list-style-type: none">• Notes and advises from colleagues and other stuff• Independent evaluation by the students
3 Processes for Improvement of Teaching <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• Studying the reports of self assessment and the independent reviewers reports
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