

Kingdom of Saudi Arabia

**The National Commission for Academic Accreditation &
Assessment**

COURSE SPECIFICATION

Experimental Plant Taxonomy

Course Specification

Institution King Khalid University
College/Department College of Science/ Department of Biological Sciences

A Course Identification and General Information

1. Course title and code: Experimental Plant Taxonomy
2. Credit hours 2 h
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Science College - Department of Biological Sciences
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered 8th level/ 4th year
6. Pre-requisites for this course (if any) Taxonomy of flowering plants
7. Co-requisites for this course (if any) None
8. Location if not on main campus

B Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

The course will expand the student's knowledge to understand the experimental methods in identifying plant species.

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)

1. The course material in the form of Powerpoint presentations will be deposited as pdf files on the department Website that could be accessed by the students enrolled in the course.

2. Assignments, Quizzes, and any other material will be posted on an e.learning home page of the course.

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

1.1 Topics to be Covered		
List of Topics	No of Weeks	Contact hours
The concept of experimental plant taxonomy	1	1
Taxonomical anatomy (stomata and epidermal trichomes)	1	1
Taxonomical anatomy (Vascular bundles, types and distribution)	1	1
Palenology and plant taxonomy	1	1
Pollen grains (shapes, types)	1	1
Cytotaxonomy	1	1
Taxonomical evidences from chromosomes	1	1
Evolutionary trends within plants	1	1
Chemotaxonomy	1	1
Alkaloids, Flavenoids	1	1
Protein fingerprinting of plant species	1	1
Molecular taxonomy	1	1
DNA fingerprinting of plant species	1	1

1.2 Practicals to be Covered

List of Topics	No of Weeks	Contact hours
Preparation of leaf strips to study stomata	1	2
Preparation of leaf strips to study epidermal trichomes	1	2
Preparation of sections in stem to study vascular bundles	1	2
Preparation of sections in leaf petiole to study vascular bundles	1	2
Pollen grain preparations	1	2
Cytological preparations of chromosomes (mitosis)	1	2
Mitotic index and phase index	1	2
C-metaphase chromosomes	1	2
Chromosome number, type and B-chromosomes	1	2
Cytological preparations of chromosomes in germ cells (meiosis)	1	2
Presentation to protein gel electrophoresis	1	2
Presentation to PCR technique	1	2
Presentation to DNA gel electrophoresis	1	2

Lecture: 13	Tutorial: --	Practical/Field work/Internship: 13	Other:
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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)

NA

4. Development of Learning Outcomes in Domains of Learning

For each of the domains of learning shown below indicate:

- 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

1. Plant taxonomy

2. Experimental methods
3. Anatomical taxonomy
4. Palenology
5. Cytotaxonomy
6. Chemotaxonomy
7. Molecular Taxonomy

(ii) Teaching strategies to be used to develop that knowledge

- **Lectures**
- **Link the practical concepts with the theoretical part**
- **Multi-media, videos , animationsetc.**

(iii) Methods of assessment of knowledge acquire

Two theoretical and two practical exams per semester accounts for 50% of final assessment. End of the semester examination with combination of deferent types of questions such as matching, multiple choice, short essay accounts for other 50%.

b. Cognitive Skills

(i) Description of cognitive skills to be developed

1. **Understanding the concept of species**
2. **Understanding methods in experimental plant taxonomy**
3. **Understanding the evolutionary trends within plant species**

(ii) Teaching strategies to be used to develop these cognitive skills

- **laboratory**
- **Lecture**

(iii) Methods of assessment of students cognitive skills

1. **In class MCQ's Quizes**
2. **Practical and theoretical exams**
3. **oral discussion**

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed

1. **Work independently and as a team work**
2. **Manage resources, time and other members of the group**
3. **Communicate results of work with others**

(ii) Teaching strategies to be used to develop these skills and abilities

1. **Practical work and its relation to the theoretical part**
2. **Oral communications with the students**

(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility

Writing short essays in certain topic related to the course

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

Use of computer programs

(ii) Teaching strategies to be used to develop these skills

1. **Using computer programs in the course requirements**
2. **Using microscopes and other tools for practical training**

(iii) Methods of assessment of students numerical and communication skills

1. **In class MCQ's Quizzes**
2. **Practical and theoretical exams**
3. **oral discussion**

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			
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Practical First Exam	6	12.5%
2	Theoretical First Exam	7	12.5%
3	Second Theoretical Exam	12	12.5%
4	Practical Final Exam	13	12.5%
5	Theoretical Final Exam	14	50%

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

10 Office hours / week

E Learning Resources

1. Required Text(s)
• Plant Taxonomy and Biochemistry: Clive A. Stace 1989, the press syndicate of the Univer. of Cambridge, New York
2. Essential References : -----
3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)
4-.Electronic Materials, Web Sites etc

Websites on the internet that are relevant to the topics of the course
5- Other learning material such as computer-based programs/CD, professional standards/regulations
Multimedia associated with the text book and the relevant websites

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.) 50 seats/ class room 20 seats/lab Computer access with data show and internet
2. Computing resources Computer room containing about 15 computers
3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list) Data show Microscopes Overhead projector Models

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Course evaluation by student Student-faculty meeting
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Peer consultation on teaching Discussion with the group of faculty teaching the same course Departmental council discussions
3 Processes for Improvement of Teaching Conducting Departmental workshops given by experts

Periodical departmental revisions of each method of teaching
Monitoring of teaching activities by senior faculty members
Development of the parent relation between the teacher and the students.

4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

Assigning group of faculty members teaching the same course to grade some question for various students

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

1. **The course material and learning outcomes are periodically reviewed and the changes to taken are approved by the departmental and the higher councils**
2. **The head of the department take the responsibility of implementing the proposed change.**
3. **Periodical meetings with outstanding students in the course to discuss the problems that face them in the course**
4. **Comparison between similar courses in relevant faculties from different universities.**