

Kingdom of Saudi Arabia

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

COURSE SPECIFICATION

Principle of Plant Taxonomy- BOT -373

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: Principle of Plant Taxonomy- 322 BOT
2. Credit hours: 4 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: Mahmoud Fawzy Mahmoud
5. Level/year at which this course is offered: 6th level/Third year
6. Pre-requisites for this course (if any) Plant Morphology (271 BOT)
7. Co-requisites for this course (if any) None
8. Location if not on main campus Main campus

B Objectives

1. Summary of the main learning outcomes for students enrolled in the course. At the end of this course the students should be able to acquire the knowledge regarding: <ol style="list-style-type: none">1. To know about the basics of plant taxonomy sciences and its history2. To know flower parts and how to describe it3. To know about fertilization in the plant.4. To know characters of monocot and dicot.5. To know characters of some families of the plant
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) <ol style="list-style-type: none">1. Continues updating the course and the included topics2. Using the E-learning system provided by the university3. Using the recent textbook and references in teaching

4. Making the students to be familiar with the knowledge websites like; Wikipedia, Nature, American Scientists and Science Magazine
5. Induction the self-independence in students via giving seminars on the topics of the course.
6. Showing scientific video, film or animations available on the website related to the course topics.
7. Study of some recent applications in the world and try to be linked to 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
An introduction to plant taxonomy and its benefit and aims of the study	1	3
Basic of the plant taxonomy sciences- development of plant taxonomy sciences- <i>Carl Linus</i> taxonomy and Engler taxonomy	1	3
Units of Taxonomy-Binomial nomenclature- Phylogeny – Taxonomical evidences.	1	3
Study the flower (Type of flower according to the whorls-Floral parts- Symmetry in the flowers).	1	3
Floral Parts (Calyx-Corolla) Aestivation- Androecium- Pollen grains.	1	3
Gynoecium (ovary –style- stigma-no of carpels)-Flower positions-Floral diagram-Floral formula- Descriptive characters	1	3
Fertilization in the plant- Placentation- Monocot (general characters and keys to it)	1	3
Monocot (Palmae- Glumiflorae-Graminae-Liliflorae- Amaryllidiaceae-Iridiaceae)	1	3
Dicot (general characters-keys to dicot)- Urticales (Moraceae)-Centrospermae (Chenopodiaceae- Amaranthaceae-Nyctaginaceae -Portulacaceae- Caryophyllaceae) Dialypetalae –Ranales (Nymphaeaceae- Ranunculaceae- Annonaceae) Rhoeadales (Cruciferae)	1	3
Dialypetalae-Rosales-Rosaceae Geraniales (Euphorbiaceae, Rutaceae, Tropaeolaceae, Oxalidaceae, Geraniaceae, Zygophyllaceae)	1	3
Dialypetalae –Malvales (Malvaceae-<i>Bombaceae</i> - <i>Sterculiaceae</i> - <i>Tiliaceae</i> <i>Parietales</i>(<i>Caricaceae</i>, <i>Violaceae</i>, <i>Theaceae</i>, <i>Tamaricaceae</i>, <i>Passifloraceae</i>)	1	3

Dialypetalae- Myrtales (Lythraceae, Punicaceae, Myrtaceae) Malvales (Malvaceae) Sympetalae Primulales (Primulaceae) (Plumbaginales (Plumbaginaceae) Controtae : Apocynaceae, Asclepiadaceae, Oleaceae.	2	6
Sympetalae –Tubiflorae (Lentibulariaceae, Acanthaceae, Verbenaceae, Labiatae, Bignoniaceae, Scrophulariaceae, Solanaceae, Convolvulaceae). Campanulate (Compositae)	2	6

1.2 Practicals to be Covered		
List of Topics	No of Weeks	Contact hours
Study the differences between monocot and dicot.	1	2
Discuss the basic of how to dissect the flower and composition of each floral part (essential and nonessential). Placentation- Flower positions- Floral diagram –Longitudinal section- Floral formula.	1	2
Inflorescences types.	1	2
Fruits type.	1	2
Herbarium- its role- how to collect the plant specimen- make herbarium plant sample and keeping it	1	2
Discuss practically in details the followings families: Liliaceae-Palmae-Graminae), with drawing and writing (Longitudinal section- Floral diagram -Floral formula) for each of them.	1	2
Discuss practically in details plants belonging to Centrospermae (<i>Chenopodium murale- Bougainvillea glabra, Nerium oleander</i>) with drawing and writing (Longitudinal section- Floral diagram -Floral formula) for each of them.	2	4
Discuss practically in details (<i>Tropaeolum majus- Salvia officinalis, Hibiscus rosa sinensis</i>) with drawing and writing (Longitudinal section- Floral diagram -Floral formula) for each of them.	2	4
Discuss practically in details plants belonging to (Cruciferae- Solanaceae- Bignoniaceae) with drawing and writing (Longitudinal section- Floral diagram -Floral formula) for each of them.	2	4

Discuss practically in details plants to (<i>Cyperus rotundus</i>-<i>Gypsophila elegans</i> – <i>Conyza bonariensis</i>, <i>Helianthus annuus</i>) with drawing and writing (Longitudinal section-Floral diagram -Floral formula) for each of them.	1	2
Sample from pollen grains for microscopic studies	1	2
Study in details pollen grains morphology.	1	2
TOTAL	15	30

Lecture: 45	Tutorial: --	Practical/Field work/Internship: 30	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. Knowledge of history of plant taxonomy (Artificial-Natural-Phylogeny)**
- 2. Knowledge of describing the plant specimens and to which family it belongs.**
- 3. Knowledge the basics of how to make a taxonomy to different families**
- 4. Knowledge about the source of plant taxonomy and its keys and plant nomenclature**

(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 different types of questions such as matching, multiple choice and short essay accounts

b. Cognitive Skills

(i) Description of cognitive skills to be developed

- **Ability to identify the differences in morphology between different plants**
- **Ability how to describe the plants in details.**
- **Ability to make a relation between human and its environments.**
- **Ability to belong the plant to its family.**

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

- **Lectures**
- **Field trips**
- **Witting reports on their field trips**

(iii) Methods of assessment of knowledge acquired

- **Mini-tests**
- **Theoretical examinations and reviews**
- **Interaction between staff member and students**

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**

<ol style="list-style-type: none"> 2. Manage resources, time and other members of the group 3. Communicate results of work with others
<p>(ii) Teaching strategies to be used to develop these skills and abilities</p> <ol style="list-style-type: none"> 1. Link the theoretical concepts with practice through reports on many aspects, and field visits 2. Practical application through training 3. Oral communications with the students
<p>(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility</p> <ul style="list-style-type: none"> • Writing essays in certain topic related to the course • Oral presentation of selected topics
<p>d. Communication, Information Technology and Numerical Skills</p>
<p>(i) Description of the skills to be developed in this domain.</p> <p>Use of computer programs in theoretical teaching and accessing into websites dealing with this course</p>
<p>(ii) Teaching strategies to be used to develop these skills</p> <ol style="list-style-type: none"> 1. Using computer programs in the course requirements 2. Field study for practical training
<p>(iii) Methods of assessment of students numerical and communication skills</p> <ol style="list-style-type: none"> 1. In class MCQ's Quizzes 2. Practical and theoretical exams 3. Oral discussion
<p>e. Psychomotor Skills (if applicable)</p>
<p>(i) Description of the psychomotor skills to be developed and the level of performance required</p> <p style="text-align: center;">NA</p>

(ii) Teaching strategies to be used to develop these skills NA
(iii) Methods of assessment of students psychomotor skills NA

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	quiz Exam	sudden	5%
2	First Theoretical Exam	6	10%
3	Second Theoretical Exam	11	10%
4	First Practical Exam	7	10%
5	Final Practical Exam	13	15%
6	Theoretical Final Exam	16	50%
7			
8			

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) التصنيف التطوري للنباتات الزهرية والأساس السيتولوجي والوراثي , الهيئة العامة للكتب والأجهزة العلمية , مطبعة جامعة القاهرة , (1971) تصنيف النباتات الزهرية , د. شكري ابراهيم , دار الفكر العربي , القاهرة. مقدمة في علم تقسيم النبات , قاسم السحار (1987)

مورفولوجيا النباتات الزهرية تأليف مصطفى الحديدي، محمد نصر الدين هلالى وعرفة أحمد عرفة- دار المريخ (1994)
التصنيف التطوري للنباتات الزهرية , صلاح الدين عيد , (1972)

2. Essential References

External Morphology of Angiosperms Venkates Warlu, V (1977), Chan &Company Ltd. New Delhi.

تصنيف النباتات الزهرية ا.د عبدالفتاح بدر- دار الاندلس للنشر والتوزيع -حائل

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**

- **<http://users.rcn.Com/jkimball.ma.ultranet/>**

- **Biology Pages <https://lms.kku.edu.sa/webapps/portal/frameset.jsp>**

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

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.

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

Attachment 2(f)

Guidelines on Using the Template for a Course Specification

Descriptions of what should be included in program and course specifications and in the annual and periodic reports are included in Section 2.4 of Part 2 of this *Handbook*

Institution, College/Department	Show the name of the institution and the college or department principally responsible for the course.
A. Course Identification and General Information	
1. Course title and code	Show the title and the institutional code number for the course.
2. Credit hours	Write the number of credit hours for the course.
3. Program(s) in which the course is offered	Write the name of the program in which the course is offered. A course may be offered in more than one program and a brief explanation may be needed to show how it relates to those programs. As a guide, if a course is an important component of several programs, list these programs. If it is used as a general skills course or a service course for a number of programs this should be noted and an indication given of the fields that are supported by it. (A first year course in mathematics might be an example of this.) If the course is a general elective which could be taken in many different programs this should be noted but those programs would not be listed.
4. Name of faculty member responsible for the course	If a single member of teaching staff has been given responsibility for teaching and reporting on the delivery of a course that persons name should be given. If a team of staff teach the course and one person has been given coordinating responsibility that persons name should be shown. If it is a new course for which an instructor has not yet been appointed that should be noted and the new appointees name included when it is known.
5. Level/year at which the course is offered	Show the year level when the course is intended to be taken.
6. Pre-requisites for this course	List any courses or other requirements that are prerequisites for enrolling in the course.
7. Co-requisites for this course	List any courses or other experiences that must be taken concurrently with this course.
8. Location if not on main campus	If the course is offered in a different location such as an industry setting or in another city or township indicate where this is done.
B. Objectives	
1. Summary of main learning outcomes.	This is intended as a brief statement of the main learning outcomes of the course. Detailed learning outcomes in domains of learning are shown in the next section.
2. Course	Briefly describe any plans for developments or changes in

development plans	the course such as changes in use of web based material, new techniques of instruction, changes in content or increased reliance on students self study or use of library resources. The description should include the reason(s) for the changes being made.
C. Course Description	
The general course description set out in the Handbook or Bulletin should be attached.	
1. Topics to be Covered	Complete the table to indicate the amount of time and the total number of contact hours intended to be given for each topic in the course. If part of a week is allocated for a particular topic use decimals to indicate time fraction. (For example a particular topic may be planned for 2.5 or 3.5 weeks).
2. Course Components	Indicate the total contact hours intended to be given in each organizational arrangement—Lecture, tutorial, laboratory etc.
3. Additional Private Study or Learning Hours	Indicate the amount of time expected of students in private study, assignment or other work associated with the course This should be shown as an average amount of time per week over the semester.
4. Development of Learning Outcomes in Domains of Learning	In this item summarize the learning outcomes expected from the course in each of the domains of learning, the teaching strategies to be used to develop that learning and the way student learning will be assessed. Note that every course is not expected to contribute to every domain. However wherever it is feasible to do so courses should be designed to contribute to the development of skills such as effective group participation, capacity for independent learning, communication skills, and problem solving abilities. The description of teaching strategies requires more than a specification of the organizational arrangement shown under C 2 and should indicate what will be done within those arrangements to develop the kind of learning sought.
a. Knowledge	
(i) Knowledge to be acquired	This should be a list of topics or areas of knowledge that students should know and understand when they complete the course.
(ii) Teaching strategies	Explain what strategies will be used to develop students' knowledge and understanding. <i>Example—Lectures, tutorials and independent study assignments. Introductory lecture gives an overview of the content and significance of the course and of its relationship to students' existing knowledge. Each subsequent lecture begins with a similar overview linking the particular content of the presentation to the general overview. Tutorials review the content of each lecture and clarify any matters not</i>

	<i>understood. Individual assignments require use of library reference material and web sites to identify information required to complete tasks.</i>
(iii) Methods of assessment	Explain how acquisition of knowledge will be assessed. <i>Example--15 minute multiple choice test on content on completion of each topic with results carrying 20% of final assessment. Multiple choice knowledge item on final exam.</i>
(b) Cognitive Skills	
(i) Cognitive skills to be developed	List the thinking and problem solving skills the course is intended to develop. As a guide it may be useful to begin with the phrase "The ability to...." The list should include both the use of analytic and predictive formulae and conceptual tools when asked to do so, and the ability to identify and use ones that are appropriate for new and unanticipated problems.
(ii) Teaching strategies	Explain techniques to be used to teach and encourage appropriate use of cognitive skills. <i>Example—Explanations and examples given in lectures and practiced under supervision in tutorials and laboratory tasks. Transfer of learning encouraged by use of analytical tools in different applications and through discussion of potential application in other areas. Assignment tasks include some open ended tasks designed to apply predictive, analytical and problem solving skills (Eg. What would happen if.....?, How could.....?)</i>
(iii) Methods of assessment	Explain method of assessment for cognitive skills. <i>Example—Problem solving questions carrying 50% of mark on tests given at the end of each topic and on end of semester examination. Group and individual assignments require application of analytical tools in problem solving tasks.</i>
(c) Interpersonal Skills and Responsibility	
(i) Skills to be developed	List the objectives of this course for improving students' interpersonal skills, capacity for self directed learning, and personal and social responsibility.
(ii) Teaching strategies	Explain what will be done in the course to develop students' interpersonal skills, personal and social responsibility, and capacity for independent learning. <i>Example—One group assignment in which 25% of assessment is based on individuals contribution to the group task. (Instructor meets with each group part way through project to discuss and advise on approach to the task) Two individual assignments requiring investigation using internet and library resources as a means of developing self study skills. Role play exercise on controversial issue relevant to the course based on a case study, with discussion in tutorial of appropriate responses and consequences to individuals involved.</i>

(iii) Methods of assessment	Explain how interpersonal skills and responsibility will be assessed. <i>Example—Assessment of group assignment includes component for individual contribution. Capacity for independent study assessed in individual assignments.</i>
(d) Communication Information Technology and Numerical Skills	
(i) Skills to be developed	Indicate the contribution of this course to students' communication, IT and numerical skills. Note that what is intended in this section is the development of generic skills for all students rather than specialized studies relevant to a field of study that would be included under items a. or b. For example a course in history or philosophy might include some use of basic mathematical or statistical information and the use of ICT in searching for information and presenting reports. A course in computer science might include the ability to present written reports that develop language ability.
(ii) Teaching strategies	Explain what will be done in the course to develop students' numerical and communication skills. <i>Example—Student assignments require good standards of use of ICT. Where standards are inadequate the student is referred for special remedial instruction. Student essay assignments require proper style and referencing format as specified in college style manual.</i>
(iii) Methods of assessment	Explain how numerical and communication skills will be assessed in this course. <i>Example—Test questions require interpretation of simple statistical information. Assessments of students assignment and project work include expectation of adequate use of numerical and communication skills. Five percent of marks allocated for standard of presentation using ICT.</i>
(e) Psychomotor Skills	
(i) Skills to be developed	Indicate any psychomotor skills the course is intended to develop and describe the standard to be achieved.
(ii) Teaching strategies	Explain processes to be used to develop required psychomotor skills as specified in course learning outcomes.
(iii) Methods of assessment	Explain how psychomotor skills will be assessed.

6. Schedule of Assessment Tasks	Complete the table to show the dates planned for each assessment task and the proportion of the final assessment allocated for that task.
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D. Student Support

1. Availability of teaching staff for	Describe the arrangements to be made for individual student counseling and advice. This should include the time
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consultations and advice.	allocation and schedule for teaching staff to meet with students.
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E Learning Resources

1. Required Texts	List any required texts.
2. Essential References	List reference material regarded as essential for teaching the course.
3. Recommended Books and Reference Material	Attach list of material that should be available for reference by students undertaking the course.
4. Electronic Materials	List requirements for access to electronic materials, data bases etc.
5. Other Materials	List any other learning materials that are required for the course

F. Facilities Required

1. Accommodation	Specify accommodation requirements for delivery of the course indicating the type of facility (eg lecture rooms, laboratories etc. the amount of time needed, any special requirements for scheduling, and the number of students to be accommodated.
2. Computing resources	Specify requirements for computer access.
3. Other Resources	Specify any other requirements for the course including specialized equipment. Attach list if necessary.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Quality of Teaching	Describe strategies. Eg. confidential completion of standard course evaluation questionnaire. Focus group discussion with small groups of students.
2. Other Strategies for Evaluation of Teaching	Describe any other strategies for evaluation of teaching. Eg. observations and assistance from colleagues, independent assessment of standards achieved by students, independent advice on assignment tasks, etc.
3. Processes for Improvement of Teaching	Describe processes for improvement of teaching. Eg. Workshops on teaching methods, review of recommended teaching strategies.
4. Processes for Verifying Standards of Student Achievement	Describe methods used to compare standards of achievement with standards achieved elsewhere. Eg. check marking of a sample of examination papers or assignment tasks,
5. Action Planning for Improvement	Describe process for reviewing feedback on the quality of the course and planning for improvement