



شرح وتكوين البيان

**The University of Jordan**  
**Accreditation & Quality Assurance Center**

**COURSE Syllabus**

1	Course title	Plant Anatomy
2	Course number	Bio. 0304351
3	Credit hours (theory, practical)	2+1
	Contact hours (theory, practical)	2+3
4	Prerequisites/corequisites	Plant Biology
5	Program title	Bachelor of Biological Sciences
6	Program code	0304
7	Awarding institution	University of Jordan
8	Faculty	Sciences
9	Department	Biological Sciences
10	Level of course	Undergraduate
11	Year of study and semester (s)	Third Year, Both Semesters
12	Final Qualification	-----
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English
15	Date of production/revision	-----

#### 16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Room, 216, Open hours, Tel ext.22207, aleisawi@ju.edu.jo

#### 17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

-----

#### 18. Course Description:

*As stated in the approved study plan.*

This course is basic biology course designed for the students at the B. Sc. Level. It is also suggested by other branches of agriculture sciences. The main objectives of this course are to link structure with function. Therefore, it concentrates on the organization of tissues from the embryo, then studying each type of fundamental tissue types, functions, characterizations, their locations. Then studying dermal tissue especially epidermis organization cell types, functions, developmental type and various trichomes types. Then a special concentration on the vascular tissue xylem, phloem and vascular cambium, especially cell types and their functions, developmental aspects and uses in identification of wood. Then Periderm characteristics, various types, cell types, functions and different Periderm aspects including lenticels, leaf abscission, wound healing

and so on. Then study of roots stems and leaves, different types, tissues, primary, secondary and anomalous growth types. Then nodal anatomy and apical meristems organization of both shoot and root tips.

The practical part is the most important side of this course since it is based mostly on fresh preparation of wet mounts of various plant parts and tissue. The samples used for study are taken from local plants either wild or cultivated, picked by students every class from around the university. Plant parts, roots stems, periderm, lenticels, buds, fibers and other aspects are taught directly as a demonstration time taken from the class after the brief introduction which gives the students the chance to refresh and to see thing actually rather than learning only from text books.

1. 19. Course aims and outcomes:
- 2.

**A- Aims:**

To teach the student the structural details of various tissues and organs and the uses and functions of each structure as well as the basic development of seed plants from immature to mature. In addition linking structure to function of plant organs and tissues

**B- Intended Learning Outcomes (ILOs):** Upon successful completion of this course students will be able to

...

1. Understand internal organization of the plant body; summary of cell types and tissues; development of the seed plant.
2. Know the cell (Protoplasmic and non protoplasmic components)
3. Understand cell wall structure (components, layers, intercellular spaces, pits and their types, original growth of cell wall)
4. Know the parenchyma and collenchyma tissue types and functions
5. Know sclerenchyma (sclereids and fibers) types and distribution
6. Understand epidermis composition, developmental aspects, stomata structures and types, and trichomes
7. Understand xylem (primary & secondary xylem), axial and radial systems growth layers, sap heart wood, and wood variations
8. Understand xylem (coniferous, monocot & dicot wood), storied and nonstoried, annual rings tyloses, development of secondary wood, and wood identification.
9. Understand vascular cambium organization, developmental changes, patterns of cambial activity
10. Understand phloem cell types, primary and secondary phloem
11. Understand periderm structure and related tissues, development, outer aspects of bark in relation to structure and lenticels.
12. Learn about the root types and variation, adventitious roots, primary and secondary growth, physiological aspects of secondary growth.
13. Learn about the stem (primary growth and development including initial layers and apical meristems)
14. Learn about the stem (types, growth and secondary structure)
15. Learn about the leaf (basic types and development, abscission, structure in relation to environment, monocots, dicotyledons and gymnosperm leaves).

**20. Topic Outline and Schedule:**

3.

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Plant Development	1	Dawud Al-Eisawi	1	1-6	A
The Cell	2	DE	2	1-6	A
Cell Wall	3	DE	3	1-6	A
Parenchyma and Collenchyma	4	DE	4	1-6	A
Sclerenchyma	5	DE	5	1-6	A
Epidermis	6	DE	6	1-6	A
Xylem	7	DE	7	1-6	A
Xylem	8	DE	8	1-6	A
Midterm Exam	9	DE	9	1-6	A
Vascular Cambium	10	DE	10	1-6	A
Phloem	11	DE	11	1-6	A
Periderm	12	DE	12	1-6	A
The root	13	DE	13	1-6	A
The stem	14	DE	14	1-6	A
The stem	15	DE	15	1-6	A
The leaf	16	DE	16	1-6	A

**21. Teaching Methods and Assignments:**

Development of ILOs is promoted through the following teaching and learning methods:

1. Lecturing
2. Explanations and lecturing as well as practical preparation work during practical classes
3. Some take home solving problems exams
4. Questions during lectures about past lectures and information
5. Giving extra marks for answering drop questions
6. Assigned exams as agreed upon

**22. Evaluation Methods and Course Requirements:**

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

1. Based on assigned written exams
2. Based on assigned practical exams
3. Based on practical preparation achievements
4. Drawing note books
5. Take home exams
6. Extra activities and drop answers

**23. Course Policies:**

A- Attendance policies: Taking attendance every lecture and every practical class

B- Absences from exams and handing in assignments on time: Make up exams

C- Health and safety procedures: Wearing lab coats and presence of first aid requirements

D- Honesty policy regarding cheating, plagiarism, misbehavior: Strict observation during exam times and carefully inspecting exam papers and practical preparations

E- Grading policy: Midterm and final theory exams; first, second and final practical exams

F- Available university services that support achievement in the course: General Library, Teaching Assistant, Network

**24. Required equipment:**

1. Microscopes
2. Slides and cover slips
3. Dyes and Basic Chemicals
4. Overhead projector, PowerPoint projectors and laptop Computer
5. Screen
6. White and Black Boards
7. Fume hood
8. Dissecting tools

**25. References:**

A- Required book (s), assigned reading and audio-visuals:

**Anatomy of Seed Plants**  
**Second Edition, 1975**  
**K. Esau**  
**J. Wiley (Publishers)**

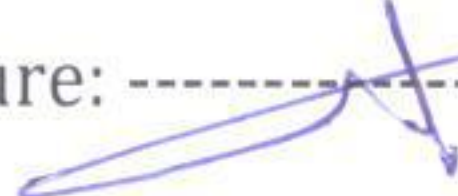
B- Recommended books, materials, and media:

Cutler, D. F. (1978). *Applied Plant Anatomy*. Longman, London and New York. Pp. 103.

Mauseth, J. D. (1988). *Plant Anatomy*. The Benjamin Cummings Publishing Company, Inc. Menlo Park, Reading, Don Mills, Wokingham, Amsterdam, Sydney, Singapore, Madrid, Bogotá, Santiago, San Juan. Pp. 560.

Rudall, P. (1987). *Anatomy of Flowering Plants. An Introduction to Structure and Function*. Edward Arnold, London. Pp. 80.

**26. Additional information:**

Name of Course Coordinator: Dawud Al-Eisawi-----Signature: ----- Date: 18/1/2016--

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: -----Signature: -----

Copy to:  
Head of Department  
Assistant Dean for Quality Assurance  
Course File