

## Course Syllabus

1	Course title	Plant Hormones and Plant Tissue Culture
2	Course number	0334953
3	Credit hours (theory, practical)	3 (1 theory, 2 practical)
	Contact hours (theory, practical)	1 theory, (6 practical)
4	Prerequisites/corequisites	-
5	Program title	PhD
6	Program code	
7	Awarding institution	The University of Jordan
8	School	Science
9	Department	Biological Sciences
10	Level of course	2 <sup>nd</sup> year
11	Year of study and semester (s)	2018-2019 (Second semester)
12	Final Qualification	
13	Other department (s) involved in teaching the course	
14	Language of Instruction	English
15	Date of production/revision	

### 16. Course Coordinator: Prof. Dr. Samih Tamimi

Office numbers, office hours, phone numbers, and email addresses should be listed.  
Greenhouse Building, phone 22227, e.mail: [tamimi@ju.edu.jo](mailto:tamimi@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 provides graduate-level knowledge and expertise in plant tissue culture theory and practice including media, sterilisation, explants, micro propagation, callus culture, organogenesis, embryogenesis, somatic variation, doubled haploids, interspecific hybrids, protoplast fusion and methods of gene transformations.

## 19. Course aims and outcomes:

<p><b>A- Aims:</b> This course will develop the graduate capabilities of knowledge ability, comprehension and applications of plants in cell and tissue culture systems, and how cell and tissue culture contributes to global sustainability. It will also develop the practical skills and confidence of students to successfully culture plant cells and tissues.</p>
<p><b>B- Intended Learning Outcomes (ILOs):</b> Upon successful completion of this course students will be able to</p> <ol style="list-style-type: none"> <li>1. Explain and discuss the general theoretical backgrounds and practical techniques of plant cell and tissue culture</li> <li>2. Explain the various components of plant tissue culture media, e.g. minerals, growth factors, hormones, and what governs the choice of components.</li> <li>3. Find, read, understand and integrate literature in the field of plant cell and tissue culture</li> <li>4. Devise, carry out and interpret experiments in plant cell and tissue culture</li> <li>5. Carry out, interpret and present a non-standard experiment in the field of plant cell and tissue culture, based on own literature search and own idea</li> </ol>

## 20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Introduction	1			by examination, practical reports, research presentations, and a seminar	Students will be provided with lists of relevant texts, library resources (Including appropriate journals) and freely accessible Internet sites. Other material will be provided in class.
Major Plant hormones used in plant tissue culture	2,3				Students will be provided with lists of relevant texts, library resources (Including appropriate journals) and freely accessible Internet sites. Other material will be provided in class.
Facilities and supplies	4				See above
Tissue culture media	5				See above
Callus and cell culture	6,7				
Micropropagation	8,9				

Organogenesis	10				
Haploid culture	11				
Embryo culture	12				
Protoplast culture	13				
Plant transformation	14,15				
Germplasm preservation	16				

## 21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:  
Lectures, practical work, demonstrations, research project

## 22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:  
Learning will be assessed by examination, practical reports, research presentations, and a seminar.  
Assessment details is as follows:

Assessment	Marks	Due Date
Mid- term examination	30%	Mid of Semester
Practical reports	10%	Last week of semester
Research presentation	10%	Last week of semester
Seminar	10%	During semester
Final Exam	40%	End of semester

### 23. Course Policies:

- A- Attendance policies:
- B- Absences from exams and handing in assignments on time:
- C- Health and safety procedures:
- D- Honesty policy regarding cheating, plagiarism, misbehavior:
- E- Grading policy:
- F- Available university services that support achievement in the course:

### 24. Required equipment: ( Facilities, Tools, Labs, Training....)

Plant growth cabinet, Autoclave, Microwave oven, Laminar flow Bench and other basic lab tools and instruments

### 25. References:

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

Recommended books, materials, and media:

1. ATUL, K and KUMAR, V.A. (1998). Clonal Tissue Culture of Important Fruit Crops. International Book Distributing Company
2. GRIFFITHS, A., DOYLE, J.B and NEWELL, D.G. (1998). *Cells and Tissues: Laboratory Procedures*. Wiley Scientific Publishers.
3. KARL-HERMANN. N, ASHWANI, K and JAFARGHOLI, I. (2009). *Plant Cell and Tissue Culture: A Tool in Biotechnology: Basics and Applications (Principles and Practices)*. Springer. Berlin. New York. London.
4. Dixon, R.A., and Gonzalez, R.A. (Eds) (1995). *Plant Cell Culture: a Practical Approach*, 2nd edn. IRL Press at Oxford University Press, Oxford, UK.
5. Collin, H.A., Edwards, S.(1998). *Plant Cell Culture*. BIOS Scientific Publishers, Oxford, UK
6. Trigiano, R.N., D.J. Gray (Eds) 2010. *Plant tissue culture, development and biotechnology*. CRC Press

Useful websites

1. <https://www.intechopen.com/books/recent-advances-in-plant-in-vitro-culture/plant-tissue-culture-current-status-and-opportunities>
2. <https://home.cc.umanitoba.ca/~frist/PLNT2530/outline.html>

**26. Additional information:**

Name of Course Coordinator: ---Samih Tamimi-----Signature: ---SMT-----Date: -18.4.2019-----  
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Head of curriculum committee/Department: ----- Signature: -----

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

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

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