



Course Specifications

Course Title:	Plant Hormones
Course Code:	2014109-3
Program:	Bachelor in Botany
Department:	Biology
College:	Sciences
Institution:	Taif University

Table of Contents

A. Course Identification	3
6. Mode of Instruction (mark all that apply)	3
B. Course Objectives and Learning Outcomes	3
1. Course Description.....	3
2. Course Main Objective.....	3
3. Course Learning Outcomes	4
C. Course Content	4
D. Teaching and Assessment	4
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods.....	4
2. Assessment Tasks for Students	5
E. Student Academic Counseling and Support	5
F. Learning Resources and Facilities	5
1. Learning Resources	5
2. Facilities Required.....	6
G. Course Quality Evaluation	6
H. Specification Approval Data	7

A. Course Identification

1. Credit hours: 3 hr.
2. Course type a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 7th level / 4th year
4. Pre-requisites for this course (if any): Plant Physiology (1) 2013106-3
5. Co-requisites for this course (if any): None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	6hr/Week	100 %
2	Blended		-
3	E-learning		-
4	Distance learning		-
5	Other		-

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	30
3	Tutorial	-
4	Others (specify)	-
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description:

Studying the different types of plant hormones mainly: Auxins, Gibberellins, Cytokinins, Ethylene and Abscisic acid, their chemical structure, biosynthesis and translocation. the role of these hormones in plant growth and development.

2. Course Main Objective:

Studying applications of plant hormones on growth and propagation. The different types of plant hormones, chemical structure, biosynthesis and translocation. The role of these hormones in plant growth and development. and the economic importance of these hormones.

3. Course Learning Outcomes

CLOs	Aligned PLOs
------	--------------

CLOs		Aligned PLOs
1	Knowledge and Understanding:	
1.3	Identify basics, routine procedures and technical requirements of different scientific tools and equipment.	K3
2	Skills:	
2.1	Relate applications of biological sciences based on integration of academic knowledge and professional skills.	S1
2.3	Apply concepts and basics of biological sciences in economic, social, and environmental contexts.	S3
2.4	Illustrate functions of macromolecules (e.g., DNA, proteins, lipidsetc.) in different biological systems.	S4
3	Values:	
3.2	Appraise decisions regarding academic and/or professional self-development.	V2

C. Course Content

No	List of Topics	Contact Hours
1	Introduction and history of plant hormones Definition of a plant hormone	3L+3P
2	Plant Growth Promoters: Auxins – The different types, their composition and importance	3L+3P
3	Auxins: - Biosynthesis Auxins – Physiological effects of auxins	3L+3P
4	Auxins transport in plants: The physiological effects of Auxins	3L+3P
5	Gibberellins: Bioassay and Transport; The physiological effects of Gibberellins	3L+3P
6	Cytokinins: Bioassay – metabolism – Transport; The physiological effects of Cytokinins	3L+3P
7	Growth Inhibitors: Ethylene – Bioassay and structure The physiological effects of ethylene	3L+3P
8	Absciscic Acid: Chemical composition – Measurement The physiological effects of Absciscic Acid.	3L+3P
9	ABA – Biosynthesis – Mode of Action	3L+3P
10	New Growth Hormones – Polyamines – Gasminic Acid – Salicylic acid	3L+3P
Total		30L + 30P

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding:		
1.1	Identify basics, routine procedures and technical requirements of different scientific tools and equipment.	Brain storming	Midterm exam- Final exam
2.0	Skills:		
2.1	Relate applications of biological	Collaborative learning	Midterm exam-

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	sciences based on integration of academic knowledge and professional skills.		Practical exam - Final exam
2.2	Apply concepts and basics of biological sciences in economic, social and environmental contexts.	Interactive learning	Midterm exam- Practical exam - Final exam
2.3	Illustrate functions of macromolecules (e.g., DNA, proteins, lipids etc.) in different biological systems.	Problem solving	Practical exam - Final exam
3.0	Values:		
3.1	Appraise decisions regarding academic and/or professional self-development.	Concept maps	Activities evaluation

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments and activities: 1- Written Assignment, Practical reports 2- Power-point presentation	Variable Variable	5 5
2	Mid-term Exam	8 th	20
3	Periodic Exam	12 th	10
4	Periodic Practical Exam	Continuous	15
5	Final Practical Exam	14 th	5
6	Final Exam	16 th	40

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

6 hours per week for academic advice and consultations and the students know these hours according to the time of professor who teach the course.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Debbie Rees, Graham Farrell and John Orchard. 2012. Crop Post-Harvest: Science and Technology: Perishables. Blackwell Publishing Ltd, West Sussex, UK, 464 pp. -Nobel, P. 2005. Physicochemical and Environmental Plant Physiology, 3rd. ed. Elsevier Company Publisher. -Hartman, H.I. and Kester, D.E. 1983. Plant Propagation, Principles and Practices. 4th ed. 727 pp. Printice-Hall, Inc., Englewood Cliffs, New Jersey, USA.
Essential References Materials	(1) روبرت ديفلين و فرانسيس ويذام ١٩٩٨م. ترجمة: محمد محمود شرقاوي، عبد الهادي خضر، علي سعد سلامة ونادية كامل. فسيولوجيا النبات الطبعة الثانية. الدار العربية للنشر والتوزيع، القاهرة. (2) محمد جميل عبد الحافظ. ١٩٨٢م (١٤٠٢هـ). فسيولوجيا النبات (الجزء الأول). عمادة شؤون المكتبات، جامعة الملك سعود، الرياض.

	(٣) الطيب حياتي وعلي الزواوي. ٢٠٠٦م (١٤٢٦ هـ). أساسيات في فسيولوجيا النبات. مكتبة المتنبى، الدمام.
Electronic Materials	Blackboard website
Other Learning Materials	Computer-based programs and professional software. A. Journal of Plant Hormone Science B. Data show, Power point. Plant growth regulators for laboratory and experiments.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	- Classrooms for 40 students\lecture. - Laboratory for 20 students\ lab activity
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	1. Plant growth substances (chemicals). 2. Paper Chromatography. 3. pH-meter 4. Spectrophotometer 5. Gas Liquid Chromatography -Phytosociological software's. - Preserved specimens

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching - Written evaluation comments. - Small group discussion	Students	Direct
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department - Colleagues open discussion - Asking one of my colleagues to attend my lectures to get feedback on the teaching strategies and tactics	Staff members	Direct
3. Processes for Improvement of Teaching - Enhancing personalized learning. - Provide activities of sufficient variety and depth to allow different levels of learning to take place. - Differentiate by using various starting points and tasks for different ability levels. - Carefully plan realistic deadlines so that all students have a sense of achievement. - Continuously assess teaching groups and give feedback about their learning and their successes	Staff members	Direct
4. Processes for Verifying Standards of Student		

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Achievement (e.g., 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) - Randomly selected exam papers will be graded by one of my colleagues.	Staff members	Direct
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. - Consult colleagues who have taught the same or similar courses to learn from their strategies and their general impressions of the students who typically take the course. - To modify the goals for the course.	Staff members	Direct

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Biology Department
Reference No.	Committee number 14 - Academic Year 1442-1443H
Date	22\5\2022G – 21\10\1443H

كلية العلوم
قسم الأحياء
College of Science
Department of Biology



عمادة كلية العلوم
Deanship of Sciences College
جامعة الطائف
TAIF UNIVERSITY