



## Course Syllabus

1	Course title	Weed Management
2	Course number	606731
3	Credit hours	3
	Contact hours (theory, practical)	3
4	Prerequisites/corequisites	Weed Science 646231
5	Program title	MSc. In Plant protection
6	Program code	
7	Awarding institution	
8	School	School of Agriculture
9	Department	Department of Plant Protection
10	Level of course	MSc.
11	Year of study and semester (s)	2024/2025 1 <sup>st</sup> semester
12	Other department (s) involved in teaching the course	
13	Main teaching language	English
14	Delivery method	<input checked="" type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online
15	Online platforms(s)	<input type="checkbox"/> Moodle <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
16	Issuing/Revision Date	Dec. 10 <sup>th</sup> 2024



### 17. Course Coordinator

Name: Dr. Wisam M. Obeidat

Office hours: Tuesday, and Thursday: 10:30 a.m.- 11:30 a.m.

Office number: 187

Phone number: 22518

Email: [wi.obeidat@ju.edu.jo](mailto:wi.obeidat@ju.edu.jo)

### 18. Other instructors:

Name:

Office number:

Phone number:

Email:

Contact hours:

### 19 Course Description:

The course covers the socioeconomic impact of weeds, review of various control methods and their integration. It deals with the ecological importance of weeds, their evolution and success in agroecosystem. All aspects of weed management and prevention methods of weed invasion to new habitats are included. It studies the biology of some common weeds and examples on their management. Some ecological terms are discussed and weed management strategies in different agroecosystems are evaluated. Weed interaction with other agricultural pests and their management in weed managed system are also included. The course covers different weed management practices followed or recommended in main crops. It includes presentation of research papers.





## 20 Course aims and outcomes:

### A- Aims:

At the end of the course

- To provide students with a comprehensive view about proper weed management
- Demonstrate in depth knowledge of core concepts in weed management

**B- Student Learning Outcomes (SLOs):** Upon successful completion of this course student will be able to:

#### A. Knowledge and Understanding:

Students are expected to gain knowledge in the following aspects:

A1- Planning for better environmentally friendly agriculture

A2- Planning for vegetation management in natural habitats

A3- Discussing scientific information about the potential impact of weed management strategies as a vital tool for boosting agriculture

A4- Following up on the scientific advancements in weed management,

A5- Ability to participate effectively in scientific forums

A6- Execution of well-structured scientific research

#### B. Intellectual Analytical and Cognitive Skills: The student is expected to

B1- Predict weed infestation

B2- Plan a weed control strategy and design a weed management program.

B3- Be familiar with all weed control strategies in different agricultural systems and available weed control methods for different crop categories.

#### C. Subject-Specific Skills: Students are expected to

C1- Initialize and participate in planning and executing proper weed management strategy

C2- Work effectively with farming communities whether subsistent, small, or large farmers

C3- Work effectively with the private sector for the planning of economic crop management at the official or private sector

#### D. Transferable Key Skills: Students are expected to

D1. Manage weed problems in different growing systems

D2. Know different weed species, ecology, propagation, dispersal, persistence, evolution, and management methods

D3. Know how to collect and prepare the most recent literature on weed management, lecture on certain topics pertaining to the study subject, present topics in front of an audience and exchange knowledge, and share in discussion.

PLOs	1	2	3	4	5	6	7	8
SLOs of the course								
A1- Planning for better environmentally friendly agriculture	√	√						
A2- Planning for vegetation management in natural habitats	√	√	√		√			
A3- Discussing scientific information about the potential impact of weed management strategies as a vital tool for boosting agriculture	√	√	√	√	√			
A4- Following up on the scientific advancements in weed management	√	√	√	√	√			
A5- Ability to participate effectively in scientific forums			√	√	√			
A6- Execution of well-structured scientific research			√	√	√			

OE-AQAC-03.02.01



**Upon the successful completion of this program (PLOs) students should be able to:**

1. Implement the advanced concepts and processes in various disciplines in Plant Protection.
2. Extract information and findings of science from the literature on Plant Protection.
3. Plan, conduct, and analyze the results of scientific research.
4. Communicate effectively with his supervisors and colleagues orally and in writing.
5. Employ expertise and skills gained in the development production, research, and extension on different levels in the public and private sectors in Jordan and worldwide.
6. Engage efficiently in scientific teamwork.
7. Publish research in the field of Plant Protection in peer-reviewed scientific journals.
8. Commit to ethics and compliance responsibilities for being an agricultural engineer, especially with regard to the agricultural sector, environment, and society.

## 21. Topic Outline and Schedule:

Week	Lecture	Topic	Intended Learning Outcome	Learning Methods Face to Face (FF) Blended (B) Fully Online (FO)	Platform MS teams (MS) Moodle (M))	Lecturing Synchronous (S) Asynchronous (AS)	Evaluation Methods Assignment (A) Exam (E) Presentation (P) Quiz (Q) Report (R)	Resources
1	1.1	Introduction to course contents and requirements	A1	FF	MS	S	E	All
	1.2	Ecological role of weeds in agroecosystem, yield losses due to weeds in the world, Socio-economic dimensions of weed impacts	A1, A2, B1, B2	FF	MS	S	E	All
2	2.1	Ecological role of weeds in agroecosystem, yield losses due to weeds in the world, Socio-economic dimensions of weed impacts	A1, A2, B1, B2	FF	MS	S	E	All
	2.2			FF	MS	S	E	All
3	3.1	Ecophysiological characteristics of weeds, biology of weed seeds in the soil. General considerations for weed	A1, A2, B1	FF	MS	S	E	All
	3.2			FF	MS	S	E	All

		management through comprehensive understanding of various strengths of developmental stages in life cycle of the weed, regeneration potentials– seed and vegetative propagule production and dispersal, germination and dormancy, aggressiveness and persistence						
4	4.1	Ecology of weed invasion and weed prediction. Weed complex, , Weed adaptations to agro-ecosystems Seed laws Weed shifts, rate of development of resistance. Alien weed invasions, weed dominance	A1, A2, B1	FF	MS	S	E	All
	4.2			FF	MS	S	E	All
5	5.1	Ecology of weed invasion and weed prediction. Weed complex, Weed adaptations to agro-ecosystems Seed laws Weed shifts, rate of development of resistance. Alien weed invasions, weed dominance	A1, A2, B1	FF	MS	S	E	All
	5.2	Genetics and Weed Evolution	C3, D3	FF	MS	S	E	All
6	6.1	Concept of weed management, tools of Weed control pre {managerial. genetic improvement, crop rotation,	A2, A3, A4, A6, B1, B2, C1	FF	MS	S	E	All
	6.2			FF	MS	S	E	All

		habitat diversification, field selection Allelopathy as a weed control strategy						
7	7.1	Preventive, quarantine at small and large scales, clean seeds and stocks, sanitation, types and Impact & applications in Jordan farming systems	A2, A3, A4, A6, B1, B2, C1	FF	MS	S	E	All
	FF			MS	S	E	All	
8	8.1	Midterm Exam						
	8.2	Management of weed competition and critical period of weed competition	A3, A4, B2, C2, C3, D3	FF	MS	S	E	All
9	9.2	Factors in weed-crop balance, intercropping and weed management	A3, A4, B2, C2, C3, D3	FF	MS	S	E	All
	FF			MS	S	E	All	
10	10.1	Effect of different tillage and agronomic and agronomic management systems. tillage, ploughing levels. zero, minimum, conservation and clean system, fallow system, habitat renovation, mulching..), agricultural, physical, herbicides..}, and post {spacing, stale seed bed, herbicides and residual effects, post plant tillage	A3,A4, B2, C2, C3, B3, D2, D3	FF	MS	S	E	All
	10.2			FF	MS	S	E	All



		and hoeing,, fertilizer and irrigation, chemigation..}, factors affecting success( method efficiency vs weed persistence strategies).						
11	11.1	Herbicide applications, mode of actions and weed physiology, development of resistant strains to certain management pressures, Herbicide Resistant weeds	A3,A4, B2, C2, C3, B3, D2, D3	FF	MS	S	E	All
	11.2			FF	MS	S	E	All
12	12.1	Biological weed control in agroecosystems	A3, B2, B3, C1, C3, D1, D2, D3	FF	MS	S	E	All
	12.2	Weed management and insect manipulation in agro ecosystem	A3, B2, B3, C1, C3, D1, D2, D3	FF	MS	S	E	All
13	13.1	Weed management in Good Agricultural Practices (GAP) system, and in organic farming ( proper agricultural & managerial practices), Impact on the farming communities in Jordan. Weed management: ecological guidelines.	A3, B2, B3, C1, C3, D1, D2, D3	FF	MS	S	E	All
	13.2			FF	MS	S	E	All
14	14.1	Students prepare term papers and	A3, A4,	FF	MS	S	E	All



	14.2	presentations: a- Case studies	A6, B3, C2, C3, D1, D2, D3	FF	MS	S	E	All
<b>Final Exam based on university schedule</b>								



## 22. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods: Learning through lectures, field trips, practical part of this course and laboratory work, weed samples collection, slides on weed species in farm land and natural habitats, literature review, all weed species samples and information on each species are displayed in the laboratory.

## 23. Evaluation Methods and Course Requirements:

Homework, Quiz, Exam, presentation, term paper...etc

Each student is required to Each student will be assigned to perform, present and discuss a case study on one of the key topics in the course. Most recent literature on these species should be consulted. Students prepare term should be submitted by the end of the semester and before the final exam.

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

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
Mid. Term Exam (end of modules 1)	30		6-7 <sup>th</sup> week	
Students Presentations (2 presentations)	8			
In class work	5			
Research paper (Case study)	17			
Final Exam (theoretical and practical)	40		As scheduled by the university	

## 24. Course Policies:

A- Attendance policies:

**<15% , <20% with a permission ; medical report**

B- Absences from exams and submitting assignments on time:

- **Assignments will not be accepted after deadline**
- **Absence of exams with a medical report must be submitted following regulations and**

**a makeup exam will be scheduled within one week**

C- Health and safety procedures:

- **Mask must be worn all the time in class and lab**
- **Social distancing**

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

From (%)	To (%)	Scale	Mark	Result
0	54	0	C	Fail
55	59	2.5	C+	Good
60	64	2.75	B-	Very Good
65	74	3	B	Very Good
75	79	3.5	B+	Very Good
80	85	3.75	A <sup>-</sup>	Excellent
86	100	4	A	Excellent

F- Available university services that support achievement in the course:

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

Class room equipped with Smart board and computer, Teaching Lab with fresh and dry samples of weeds, sprayers and calibration tools.

## 26. References:

### **Main Reference/s:**

1. Aldrich, R.J. and Kremer, R.J. (1997). *Principles in Weed Management*. 2<sup>nd</sup> Edition. Iowa State University Press. Ames, Iowa.
2. Bridges, D.C. (1995). Ecology of Weeds. In: *Handbook of Weed Management Systems*, ed. A.E. Smith. Marcel Dekker, New York, pp. 19-34.
3. Buhler, D.D. (ed.). (1999). *Expanding the Context of Weed Management*. The Haworth Press Inc. New York.
4. Kempen, H.M. 1987. Growers weed management guide. Thopson publications, Fresno, California..
5. Labrada, R., J.C. Ceasly and C. Parker.(eds.) 1994. Weed management for developing countries. FAO paper#121.
6. Labrada, R. 2003. Weed management for developing countries. Addendum 1.

### **References:**

1. Aldrich, R.J. and Kremer, R.J. (1997). *Principles in Weed Management*. 2<sup>nd</sup> Edition. Iowa State University Press. Ames, Iowa.
2. Anderson, W.P. Weed Science: principles. 1977. West publishing Co. New York . ISBN 0-8299-0084-5
3. Bridges, D.C. (1995). Ecology of Weeds. In: *Handbook of Weed Management Systems*, ed. A.E. Smith. Marcel Dekker, New York, pp. 19-34.
4. Buhler, D.D. (ed.). (1999). *Expanding the Context of Weed Management*. The Haworth Press Inc. New York.
5. Caseley, J.C., Cussans, G.W. and Atkin, R.K.(eds.). (1991). *Herbicide Resistance in Weeds and Crops*. Butterworth-Heinemann, Oxford, England.
6. Charudattan, R. and Walker, H.L. (eds.). (1982). *Biological Control of Weeds with Plant Pathogens*. John Wiley & Sons. New York.
7. Colbert, F.O. and E.M. Rose. 1985 Principles of weed control in California. Thomson Publications, Fresno
8. Duke, S.O. (1987). *Weed Physiology*. Vol. 1 & 2. CRC Press Inc. Boca Raton, Florida.
9. Duke, S.O. (1996). *Herbicide-Resistant Crops. Agricultural, Environmental, Economic, Regulatory, and Technical Aspects*. CRC Press, Boca Raton, Florida.
10. Egley, G.H. and Duke, S.O. (1985). Physiology of weed seed dormancy and germination. Pages 28-64 In: *Weed Physiology*, ed. S.O. Duke, CRC Press, Boca Raton, Florida.
11. Grace, J.B. and Tilman, D. (eds.) (1990). *Perspectives on Plant Competition*. Academic Press Inc. London.
12. Holm, L.G., Plucknett, D.L., Pancho, J.V. and Herberger, J.P. (1977). *The World's Worst Weeds: Distribution and Biology*. University of Hawaii, Honolulu. USA.
13. Holzner, W. and Numata, M. (eds.). (1982). *Biology and Ecology of Weeds*. Dr. W. Junk



Publishers. The Hague-Boston-London.

14. Kempen, H.M. 1987. Growers weed management guide. Thopson publications, Fresno, California..
15. Labrada, R. 2003. Weed management for developing countries. Addendum 1.
16. Labrada, R., J.C. Ceasly and C. Parker.(eds.) 1994. Weed management for developing countries. FAO paper#121.
17. LeBaron, H.M. and Gressel, J. (eds.). (1982). *Herbicide Resistance in Plants*. John Wiley & Sons. New York, USA.
18. Powles, S.B. and Holtum, J.A.M. (eds.). (1994). *Herbicide Resistance in Plants. Biology and Biochemistry*. Lewis Publishers, Boca Raton, Florida.
19. Qasem, J.R. (2003). *Weeds & Their Control*. Deanship of Academic Research, University of Jordan, Amman, Jordan. 628 PP.
20. Radosevich, S., Holt, J. and Ghersa, C. (1997). *Weed Ecology: Implication for Management* .2<sup>nd</sup> Edition. John Wiley & Sons Inc. New York.
21. Rice, E.L. (1985). *Allelopathy*. 2<sup>nd</sup> Edition. Academic Press, INC. London.
22. Ross, M.A. and C.A. Lembi. 1985 Applied weed science . Burgess Publishing. Minneapolis
23. Van Rign, P.J. (2000). *Weed Management in Humid and Sub-Humid Tropics*. Royal Tropical Institute, KIT Press, Amsterdam.

## 27. Additional information:

Websites to be announced during the course

Name of Course Coordinator: Dr. Wisam Obeidat- Signature: ----- Date: December 23, 2024

Head of Curriculum Committee/Department: ----- Signature: -----

Head of Department: Prof. Nida' Salem----- Signature: -----

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