



Course Syllabus

1	Course title	Parasitic Flowering Plants
2	Course number	606771
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 st semester
12	Other department (s) involved in teaching the course	
13	Main teaching language	English
14	Delivery method	X Face to face learning ☐ Blended ☐ Fully online
15	Online platforms(s)	☐ Moodle ☐ Microsoft Teams ☐ Skype ☐ Zoom ☐ Others.....
16	Issuing/Revision Date	Dec. 10 th 2024



17. Course Coordinator

Name: Dr. Wisam M. Obeidat

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18. Other instructors:

Name:

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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

- General categorization and identification of parasitic flowering plants (PFP)
- Most important parasitic weeds in the world
- Potential impact of parasitic weeds on agriculture worldwide
- Parasitic weeds in Jordan, species, distribution, host range, and their impact Management of parasitic weeds

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- Use knowledge in identifying types of parasitic weed species in a specific area
- A2- Employ skills acquired in managing parasitic weeds
- A3- Prepare and deliver well-structured reports about parasitic weeds and their possible management approaches in certain areas
- A4- Be aware of the hazards of parasitic weeds in various areas
- A5- Initialize and participate in establishing proper effective management of parasitic weeds
- A6- Work effectively with farmers (subsistent, small or large) in minimizing the negative impact of parasitic weeds

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

- B1- Know parasitic weeds and their distribution, problems and management in the world.
- B2- Know the regional spread of parasitic species and losses caused to agriculture and the environment
- B3- Know the mechanism of parasitism and the physiological effects of parasites on host species
- B4- Gain knowledge on parasitic weeds worldwide and their management.
- B5- Keep current information on recent developments on parasitic weed magnitude, problem, and management.

C. Subject-Specific Skills: Students are expected to

- C1- Identify parasitic weeds
- C2- Discuss information about the potential impact of parasitic weeds
- C3- Discuss/explain the essential concepts and major principles relevant to parasitic weeds biology and physiology of parasitism
- C4- Point out parasitic weeds distribution in Jordan, and their management.

D. Transferable Key Skills: Students are expected to

- D1. Be able to employ the knowledge in developing strategic management of parasitic weeds
- D2. Work effectively with farming communities whether subsistent, small or large farmers
- D3. Work effectively with private sector
- D4. Perform effectively at scientific forums

PLOs	1	2	3	4	5	6	7	8
SLOs of the course								
A1- Use knowledge in identifying types of parasitic weed species in a specific area	√	√						
A2- Employ skills acquired in managing parasitic weeds	√	√	√		√			
A3- Prepare and deliver well-structured reports about parasitic weeds and their possible management approaches in certain areas	√	√	√	√	√			
A4- Be aware of the hazards of parasitic weeds in various areas	√	√	√	√	√			
A5- Initialize and participate in establishing proper effective			√	√	√			

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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, botanical affiliations of PFP and agronomic importance	A1	FF	MS	S	E	4, 5, 6, 7
	1.2	Evolutionary aspects	A1,B1	FF	MS	S	E	1, 4,5
2	2.1	Parasitism concept, taxonomy, species of agricultural importance	A1,B1,C1	FF	MS	S	E	1, 4, 6, 7
	2.2	Scope of agronomic problems, distribution of parasitic weeds (PW) worldwide, Host range a- Orobanche, Cistanche	A1,B1,C1, C2	FF	MS	S	E	3, 4, 9
3	3.1	b- Striga	A1, A2, A3, A4, B1, B2,	FF	MS	S	E	4

			C1, C3, D1					
	3.2	c- Cuscuta	A1, A2, A3, A4, B1, B2, C1, C3, D1	FF	MS	S	E	4,6
4	4.1	d- Viscum, Osyris, Cynomorium	A1, A2, A3, A4, B1, B2, C1, C3, D1	FF	MS	S	E	4
	4.2	Seeds: life span, post ripening, conditioning	A1, A2, A3, A4, B1, B2, C1, C3, D1	FF	MS	S	E	3, 4, 7
5	5.1	Germination and dormancy, preconditioning, stimulants and species host relationship, phenology, variations	A1, A2, A3, A4, B1, B2, C1, C3, D1	FF	MS	S	E	3, 4, 6, 7
	5.2	Parasitic habit , morphological and anatomical reductionism	A1, A2, A3, A4, B3, B4, B5, C1	FF	MS	S	E	1, 4
6	6.1	Chemotropism, haustoria initiation, attachment	A1, A2, A3, A4, B3, B4, B5, C1	FF	MS	S	E	4

	6.2	Papilla formation, penetration, link to host conductive tissues	B3, B4, C1, D1, D2	FF	MS	S	E	4, 8
7	7.1	Comparative histology of germination, establishment of Viscum, Orobanche, Cuscuta	A3, A4, A5, B2, C2, C3, C4	FF	MS	S	E	3, 4, 5, 7
	7.1	Regulation of early development, effect on the host	A4, B3, D1, D2	FF	MS	S	E	4
8	8.1							
	8.2	Mineral nutrition of host & parasite	B2, B3	FF	MS	S	E	4, 7
9	9.2	Trends in metabolic reductionism	A1, B1, C1	FF	MS	S	E	4
	9.2	Water relations, osmo-regulation, drought tolerance & host resistance	A1, B1, C1	FF	MS	S	E	4, 5
10	10.1	Leaf conductance in host & parasite	A1, B1, C1	FF	MS	S	E	4, 8
	10.2	Biochemical aspects of parasitism, hormonal levels	A1, B1, C1	FF	MS	S	E	8
11	11.1	Biotic interactions, mimicry, reversion of species in Loranthaceae	A1, B4, C1, C3	FF	MS	S	E	1, 2, 4

	11.2	PW management Host resistance patterns, breeding for resistance	B5, C3, C4, D2, D3, D4	FF	MS	S	E	9
12	12.1	Management resources, stimulants, seed bank reduction	B5, C3, C4, D2, D3, D4	FF	MS	S	E	4, 9
	12.2	Fumigants, soil solarization, organic matter fermentation	B5, C3, C4, D2, D3, D4	FF	MS	S	E	4, 6, 9
13	13.1	Fertility, nodulation for the control of Orobanche and Striga	A1, B1, B3, C3, C4, D1	FF	MS	S	E	4, 9
	13.2	Flooding, Rotation, planting date differential response to climatic and edaphic factors	A1, B1, B3, C3, C4, D1	FF	MS	S	E	4, 6, 9
14	14.1	Catch crops, trap crops, spacing and shading, non-host and parasite development	A2, A5, A6, B5, C4, D3, D4	FF	MS	S	E	1, 3, 4, 6, 9
	14.2	Control methods-tillage, grazing, hoeing, cutting Biological control. Bioherbicides	A2, A5, A6, B5, C4, D3, D4	FF	MS	S	E	4, 6, 9, 8
Final Exam based on university schedule								





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 th 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 ⁻	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:

References:

1. Musselman, L.J. (1987). Parasitic weeds in agriculture, Volume 1, Striga. CRC Press. 317 pages. ISBN 0849362725
2. Barlow, B.A. (1983). Biogeography of Loranthaceae and Viscaceae. In the Biology of Mistletoes, ed. , M. Calder. and P. Bernhardt. Academic Press, Sydney, pp. 19-46.
3. Joel, M.D., Gressel, J., and Musselman, L.J. (eds.). (2013). Parasitic Orobanchaceae. Parasitic mechanisms and control strategies. Springer, London.
4. Parker, C. and C. R. Riches. (1993). Parasitic weeds of the world, biology and control. Cab International. 332 pages. ISBN 0851988733
5. Press, M. and Graves, J. (eds.). (1996). Parasitic Plants. Chapman & Hall, New York.
6. Qasem, J.R. (2003). Weeds and their Control. University of Jordan, Amman, Jordan
7. Qasem, J.R. (2006). Recent advances in parasitic weed research, an overview. In: *Weed Management Handbook*, 2006 pages 627-728 (H.P. Singh *et al.*, eds.). ISBN -13: 978-1-56022-957-5, ISBN 1-56022-957-8. The Haworth Press Inc., USA.
8. Qasem, J.R. (2006). Parasitic weeds and allelopathy, from the hypothesis to the proof. In: *Allelopathy, A Physiological Process with Ecological Implications*, 2006 page 565-637 (Manuel J. Reigosa and Nuria Pedrol, and Luis Gonzalez eds.) ISBN-IO 1-4020-4279-5 (HB), ISBN-13 978-1-4020-4279-9 (HB), ISBN-IO 1-4020-4280-9 (e-book), ISBN-13 978-1-4020-4280-5 (e-book): Springer, The Netherlands.
9. Suerborne, Joachim.(1991). Parasitic flowering plants, ecology and management. Verlag Josef Margraf, . ISBN 3-8236-1217-4. 127 pages
10. Various proceedings of symposia, workshops and conferences on parasitic weeds
11. Websites to be announced during the course
12. Specialized journals, articles and research papersQasem, J.R. (2003). *Weeds & Their Control*. Deanship of Academic Research, University of Jordan, Amman, Jordan. 628 PP.
13. Radosevich, S., Holt, J. and Ghera, C. (1997). *Weed Ecology: Implication for Management* .2nd Edition. John Wiley & Sons Inc. New York.
14. Rice, E.L. (1985). *Allelopathy*. 2nd Edition. Academic Press, INC. London.
15. Ross, M.A. and C.A. Lembi. 1985 Applied weed science . Burgess Publishing. Minneapolis
16. 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: -----