Plant - Insect Interactions
Ent / Bot / Zool 473

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Course web site accessible through Learn@UW

Date		Topic	Reading*
		An Overview Of Plant - Insect Interactions	
Jan	18	Course Objectives, Requirements, Mechanics	
	20	Interspecific Interactions	
	23	Diversity of interactions among plants and insects	Chpt 1
	25	Biology, Diversity and Population Dynamics of Insects	
	27	Biology, Diversity and Population Dynamics of Insects	
	30	Impacts of Insects on Plant Fitness	Chpt 2; 1, 2
		Discussion Topics Due	
		Plant Traits That Influence Utilization By Insects	
Feb	1	Nutritional ecology of plant feeding insects	Chpt 4; 3,4
	3	Plant Defenses against herbivory: Morphological	5
	6	Plant Defenses against herbivory: Chemical	Chpt 3;
	8	Plant Defenses against herbivory: Chemical	6
	10	Plant Defenses against herbivory: Chemical	7
	13	Plant Defenses against herbivory: Induced Chemical Defenses	8, 9
	15	EXAM #1	
	17	** Student Discussions: Induced Responses in Plant -Insect Interactions	
	20	Plant Defenses against herbivory: Ecological	10, 11, 12,
	22	Plant Defenses against herbivory: Theories of Plant Defense	13, 14, 15,
	24	** Student Discussions: Theories of Plant Defense	
		Insect Traits That Facilitate Utilization Of Plants	

	27	Host Specialization: Host species range; Plant part specificity	Chpt 5; 16, 17,
Mar	1	Morphological & Physiological Adaptations	
	3	Physiological Adaptations	18
	6	** Student Discussions: Theories of Plant Feeding Breadth	
	8	Behavioral & Ecological Adaptations	Chpt 6;
19,20			
	10	Host Selection Behavior	Chpt 7
	20	** Student Discussions: Habitat Structure and Herbivory	
	22	EXAM #2	

Plant - Insect Interactions In Complex Trophic Relationships

	24	Tritrophic Interactions	Chpt 9
	27	Tritrophic Interactions	
21, 22, 23			
	29	** Student Discussions: Tritrophic Interactions	
	31	Pollination Ecology & Mutualism	Chpt 11; 24,25
Apr	3	Insectivorous plants	26
	5	Guest lecture: Dan Herms	
	7	** Student Discussions: Symbiosis	
	10	Role of Insect herbivores in Plant Community Ecology & Succession	27,28

Reciprocal Interactions In Plant - Insect Systems

	12	Coevolution	Chpt 10
	14	Coevolution	29,30
	17	** Student Discussions: Coevolution	
	19	Feedback amongst plants, mycorrhizae, and herbivores: Stuart Wooley	
	21	No Class	
	24	** Student Discussions: Community Ecology	

Implications Of Plant - Insect Interactions To Natural Resource Management

	26	Application of plant - insect interactions to human welfare & natural resource issues	Chpt	12; 31,32,33
	28	** Student Discussions: Environmental issues & plant-insect interactions		
May	1	Implications of global change to plant – insect interactions: R. Lindroth		34
	3	Complex societal issues arising from plant- insect interactions		
	5.	EXAM #3		

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*Chapter readings refer to Schoonhoven et al. Insect-Plant Biology; Numbered readings refer to list below

** All discussions are in Entomology Conf. Rm. 243 Rm, through Rm 237

1. Crawley, M. J. 1985. Reduction of oak fecundity by low-density herbivore populations. Nature. 314: 163-164.
2. Simms, E. L.; Rausher, M. D. 1987. Costs and benefits of plant resistance to herbivory. Amer. Naturalist. 130: 570-581.
3. Mattson, WJ. 1980. Herbivory in relation to plant nitrogen content. Ann Rev Ecol Syst 11: 119-161.
4. White, T. C. R. 1984. The abundance of invertebrate herbivores in relation to the availability of nitrogen in stressed food plants. Oecologia. 63: 90-105.
5. Quiring, D. T., P. R. Timmins & S. J. Park. 1992. Effect of variations in hooked trichome densities of Phaseolus vulgaris on longevity of Liriomyza trifolii adults. Env. Ent. 21: 1357-1361.
6. Fraenkel, G. S. 1959. The raison d'être of secondary plant substances: These odd chemicals arose as a means of protecting plants from insects and now guide insects to food. Science. 129: 1466-1470.
7. Langenheim, J. H. 1994. Higher plant terpenoids - a phytocentric overview of their ecological roles. Journ. Chem. Ecol. 20: 1223-1280.
8. Agrawal, A. A. 1998. Induced Responses To Herbivory and Increased Plant Performance. Science. 279: 1201-1202.
9. Karban, R., I. T. Baldwin, K. J. Baxter, G. Laue & G. W. Felton. 2000. Communication between plants: induced resistance in wild tobacco plants following clipping of neighboring sagebrush. Oecologia. 125: 66-71.
10. Atsatt, P. R.; O'Dowd, D. J. 1976. Plant defense guilds. Science. 193: 24-29.
11. Carroll, G. 1988. Fungal endophytes in stems and leaves: From latent pathogen to mutualistic symbiont. Ecology. 69: 2-9.
12. Hunter, M. D. 1992. A variable insect-plant interaction: the relationship between tree budburst phenology and population levels of insect herbivores among trees. Ecol. Entomol. 16: 91- 95.
13. Coley, P. D.; Bryant, J. P.; Chapin, F. S. 1985. Resource availability and plant antiherbivore defense. Science. 230: 895-899.
14. Feeny, P. 1976. Plant apparency and chemical defense Pp 1-40 In Wallace, J.W. & R.L. Mansell. Recent Advances in Phytochemistry. Vol 10. Biochemical Interactions between Plants and Insects.
15. Herms D, Mattson WJ 1992. The Dilemma of Plants: To grow or defend. Quar Rev Biol. 67: 283-335.
16. Bernays, E. A. & O. Minkenberg. 1997. Insect herbivores - different reasons for being a generalist. Ecology. 78: 1157-1169.
17. Joshi A, Thompson, JN. 1995. Trade-offs and the evolution of host specialization. Evol Ecol 9: 82-92
18. Rhoades, D. F. 1985. Offensive-defensive interactions between herbivores and plants: Their relevance in herbivore population dynamics and ecological theory. Amer. Natur. 125: 205-238.
19. Dussourd, D. E.; Denno, R. F. 1991. Deactivation of Plant Defense - Correspondence Between Insect Behavior and Secretory Canal Architecture. Ecology. 72: 1383-1396.
20. Craig, T. P.; Itami, J. K.; Price, P. W. 1989. A strong relationship between oviposition preference and larval performance in a shoot galling sawfly. Ecology. 70: 1691-1699.
21. Turlings, T. C. J., J. H. Loughrin, P. J. Mccall, U. S. R. Rose, W. J. Lewis & J. H. Tumlinson. 1995. How caterpillar-damaged plants protect themselves by attracting parasitic wasps. Proc. Nat Academy Sciences USA. 92: 4169-4174.
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24. Bronstein, J. 1994. Our current understanding of mutualism. Quart. Rev. Biol. 69: 31 - 49.
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29. Berenbaum, M. R. 1983. Coumarins and caterpillars: A case for coevolution. Evol 37: 163 - 179.
30. Edmunds, Jr G. F, Alstad, DN. 1978. Coevolution in insect herbivores and conifers. Science. 199:941-5
31. Kareiva, P. 1996. Developing a predictive ecology for non-indigenous species and ecological invasions. Ecology. 77: 1651-1652.
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