Insect Ecology - Plant Sci 9810 - Syllabus, Fall

Introductory Comments

UNIT 1: Plant-Herbivore Interactions [PWP Chapters 5 and 6]

Host Plants as Heterogeneous Resources for Herbivores (Lecture #1)
No class - DPS orientation
Labor Day
Ecol. Stoichiometry & the Role of N in Plant/Herbivore Interactions (Lecture #2)
Theory and Pattern of Plant Defense (Lecture #3)
DISCUSSION 1
Counterploys of Herbivores to Plant Defense (Lecture #4)
Diet Breadth and Host Plant Specialization (Lecture #5)
"Enemy-Free" Space and Herbivore Distribution and Abundance (Lecture #6)
Plant Pattern and Herbivores: Reciprocal Responses (Lecture #7)
Co-evolution between Herbivores and Host Plants (Lecture #8)
DISCUSSION 2

UNIT 2: Predator (Parasite)/Prey Interactions [PWP Chapters 7, 8, and 9]

Functional Responses (Lecture #9)
No class
Numerical Responses, Uncoupling Factors and Outbreaks (Lecture #10)
Insect Defense against Natural Enemies (Lecture #11)
Predator-Prey Population Dynamics (Lecture #12)
DISCUSSION 3
"Stability" and Persistence of Predator-Prey Interactions (Lecture #13)
Ecological Basis for Biological Control (Lecture #14)
Top-down Versus Bottom-up Control and Trophic Cascades (Lecture #15)
DISCUSSION 4

UNIT 3: Life History and Reproductive Strategies [PWP Chapter 14]
Life History Theory including Migration and Diapause (Lecture #16)
Constraints on Life History Evolution (Lecture #17)

MIDTERM EXAMINATION (Material from Units 1, 2, and 3)

UNIT 4: Population and Metapopulation Dynamics [PWP Chapters 17, 18, and 19]

Historical Perspectives on Insect Population Regulation (Lecture #18)
Current Controversies in Insect Population Regulation (Lecture #19)
Metapopulation Dynamics and Conservation Ecology (Lecture #20)

DISCUSSION 5

UNIT 5: Competition and Community Structure [PWP Chapters 20-24]

Coexistence, the Division of Resources and the Niche (Lecture #21)
Do Insects Compete? (Lecture #22)
Insect Community Structure and Development (Lecture #23)

DISCUSSION 6

Temporal Patterns of Diversity and Tropical Richness (Lecture #24)
Insect Diversity and the Functioning of Ecosystems (Lecture #25)

Entomological Society of America National Meetings (no class)

DISCUSSION 7

Recess


Sexual Selection (Lecture #26)
Mating Systems, Parental Investment and Sex Ratio (Lecture # 27)
Structure of Insect Societies (Lecture #28)
Evolution of Insect Societies (Competing Hypotheses) (Lecture #29)

DISCUSSION 8

TBA

FINAL EXAMINATION (Material from Units 4, 5, and 6)