Plant Sci 4730/7730 Insect Pest Management

		LABS	LECTURES
W	lecture		Course Introduction
F	lab	Lepidoptera I: European corn borer, Southwestern corn borer (p. 599)	
M	lecture		IPM History and Definition (Chapter 8)
W	lecture		IPM History and Definition (Chapter 8)
F	lab	Lepidoptera II: Corn earworm, Tobacco budworm (p. 596)	
M	lecture		Ecological Concepts (Chapter 5)
W	lecture		Ecological Concepts (Chapter 5)
F	lab	Lepidoptera III: Armyworm complex and Cutworms (pp. 198, 341, 265)	
M	lecture		Ecological Concepts (Chapter 5)
W	lecture		Ecological Concepts (Chapter 5)
F	lab	Lepidoptera IV: Cabbageworm complex (p. 524)	
M	lecture		Economic Concepts (Chapter 7)
W	lecture		Economic Concepts (Chapter 7)
F	lab	**LAB EXAM 1**	
M	lecture		Economic Concepts (Chapter 7)
W	lecture		Monitoring (Chapter 6)
F	lab	Coleoptera I: Corn rootworm complex, Colorado potato beetle, Bean leaf beetle (pp. 359, 191,364)	
M	lecture		Monitoring (Chapter 6)
W	lecture		**EXAM 1** (History- Economic concepts)
F	lab	Coleoptera II: White grubs, Weevils, Wireworms (pp. 322, 246, 343,360)	
M	lecture		Regulatory Control
W	lecture		Cultural/Physical/Mechanical Control (Chapter 10)
F	lab	Beneficial insects (pp. 331, 319, 117)	
M	lecture		Biological Control (Chapter 9)
W	lecture		Biological Control (Chapter 9)
F	lab	No class… Leap Year Celebration	
M		**Spring Break**	
W		**Spring Break**	
F		**Spring Break**	
M	lecture		Guest lecture - USDA BRS
W	lecture		Chemical Control (Chapter 11)
F	lab	Hemiptera part I: Aphids, Scales, Whiteflies (pp. 299, 550, 111, 437, 467, 312, 610, 551)	
M	lecture		Chemical Control (Chapter 11)
W	lecture		Chemical Control (Chapter 11)
F	lab	Hemiptera part II: Leafhoppers, Planthoppers, Froghoppers, Stink bugs, Plant bugs (pp. 275, 537, 152)	
M	lecture		**EXAM 2** (Monitoring - Chemical control)
W	lecture		Genetic manipulation of crop (Chapter 12)
F	lab	Mixed bag: Hessian and other flies, Grasshoppers, Mites, Thrips (pp. 510, 448, 520, 174, 579)	
M	lecture		* Preparation for the great debate *
W	lecture		Genetic manipulation of crop (Chapter 12)
F	lab	**LAB EXAM 2**	
M	lecture		Genetic manipulation of pest (Chapter 14)
W	lecture		Modifying insect development and behavior (Chapter 13)
F	lab	* The great debate: The optimal role of *Bt* crops *	
M	lecture		Implementation of IPM (Chapter 15)
W	lecture		Review for Final
F		**Reading Day**	
F		**Final exam 8-10 AM**	

Detailed Course Topics:

Fundamental Concepts
Introduction and History
Brief history of pest control, Definition of IPM, Components of IPM
Ecological Concepts
Why study ecology? Definitions, Comparison of natural and agroecosystems, The role of diversity, Why is the world green?, Stability in agroecosystems, Complex trophic interactions, Tri-trophic interactions, Life history approach, Island biogeography
Economic Concepts
Economic thresholds, Microeconomics, Societal Implications
Monitoring
What to monitor, Degree day models, Sampling methods, Sampling equipment

Pest Management Tactics
Regulatory Control
Quarantine, Eradication, Control districts, Crop-free periods
Cultural Control
Sanitation, Tillage, Crop rotation, Cropping systems
Biological Control
Strategies and methods, Agents of biological control
Chemical Control
Public perceptions, Legal aspects, Ecological considerations, Pesticide classification, Modes of action, Evolution of pesticide resistance
Genetic Manipulation of Crop (Plant Resistance)
Genetic resistance, Biotechnology and transgenics
Genetic Manipulation of Pest
Sterile insect release, Delayed sterility, Genetic displacement
Modifying Insect Development and Behavior

Implementation of IPM
"Integrated" Pest Management
Expert systems and Precision agriculture
Evaluation of IPM systems
The Future of IPM