PLP-M 691 Field plant pathology. (0-6) Cr. 2.

Goals of the course:
The goal of this course is to familiarize students with the Midwest agriculture production, the prevalent diseases that occur in each crop and management practices that are used to reduce yield and quality losses. Students will interact with industry and agribusiness personnel, farmers, university faculty and extension agronomists to gain experience in applied aspects of Plant Pathology.

Learning Objectives:
1. Become familiar with the variety of Iowa agriculture (field crops, vegetables, fruits, ornamentals) and the various cropping systems used.
2. Learn the various diseases of these crops that impact yield and quality, the role of production systems in disease development and management practices that farmers use to reduce their impact
3. Interact with stakeholders (farmers, extension personnel, agribusiness) to learn how to communicate professionally and share technical information
4. Become familiar with skills and resources required for applied plant pathology careers (extension educators, consultants, breeders, pesticide evaluation, regulatory personnel, etc).

Course Itinerary
The course will be during both Summer sessions either with once per week classes or during 2 separate 10-day periods of the summer semester. The first one is early to mid-June) and the second one is mid- to late July). Students will travel together in the same bus.

Course requirements
1. Attendance: Students are expected to attend the entire class.
2. Reading: Approximately 10 applied plant-pathology related papers will be shared with students at the beginning of the course. Students will be expected to discuss these papers.
3. Course journal: (40% of final grade). Students will be provided with a journal at the start of the course. Students will be expected to summarize each site visited. The summaries should include the site visited, the name of the guest speaker, the topic covered and a candid and reflective summary of what they learned. Drawings, photographs, pressed plant samples, are not required but are encouraged. Journal entries should be a reflection of the student’s intellectual curiosity.
Each student will submit their journal to the course instructor the Monday following the last day of class so a grade can be assigned. Journals will be returned to students at the start of the Fall semester.

4. Discussion and participation (30% Final grade): Students are expected to actively participate in constructive discussions at each site visit with their peers, the course instructor and guest speakers,

5. Creative component (Extension publications or videos/website/wiki/ppt ) (30% of Final grade): Students will select a crop and disease (that is not related to their M.S. or Ph.D. research project) and prepare a document that covers aspects of the crop and its production, information on the disease and management practices that can be used to protect yield and quality. The report may be in the form of an Extension publication, a PowerPoint presentation, a website, a wiki, video, etc. Students may use conventional resources (scientific literature, reference books, internet, etc.) and human resources (invited speakers) to prepare their reports. Selection of the crop and disease should be made by the 3rd class of the course and approved by the Course Instructor. The report must be submitted to the Course Instructor by Date (one week before the end of the summer semester).
**Schedule for Period 1 (early June)**

**Thursday 2 June**

**Topic:** Wheat production and diseases management in Nebraska, Dr Stephen Wegulo, University of Nebraska

- 7:00 am Leave from Bessey loading dock for NE
- 11:00 am Disease management in irrigated wheat in Lincoln, Nebraska
- 1:00 pm Lunch (*on your own*)
- 5:00 pm Arrive back at Bessey

**Friday 3 June**

**Topic:** Disease management at coop and elevators, how farmers work with coop to manage disease. Asmus Farm Supply

- 8:00 am Travel to Rake, IA
- 10:00 am visit Asmus Farm Supply
- 12:00 pm Lunch provided by AFS
- 3:00 pm Arrive back at Bessey

**Mon 6 June**

**Topics:**

1) seed treatments to manage row crop diseases by BASF, types of seedling diseases, product research at final stage by chemical companies at BASF; 2) manage disease from a farmer view.

- 8:00 am Meet at Bessey loading dock
- 8:30 am Visit a production farm at Story Co Farmer and Dr XB Yang
- 12:00 pm Lunch (*on your own*)
- 1:00 pm BASF – Research Facility at Story Co BASF Scientist and agronomist
- 5:00 pm Return to Bessey

**Tue 7-8 June**

**Topics:**

1) Aerial application for row crop disease management in modern farm production, concept, demonstration; 2) Beck Underwood-BASF, operation of an international seed treatment business

- 8:00 am Meet at Bessey loading dock
- 9:00 am Aerial Association field days, Algona airport By Aerial Applicator Association
- 12:00 pm Lunch (*on your own*)
- 1:00 pm visit Beck Underwood facility, seed treatments (TBD)
- 5:00 pm Return to Bessey

**Tues 14 June**

**Topics:**

1) Breeding resistance for Disease Management at Monsanto; 2) how farmer organization fight diseases – Iowa Soybean Association experience on disease management and research.
8:30 am  Meet at Bessey Loading Dock
9:00 am  visit Monsanto research facility at Huxley, Monsanto scientists
12:00 pm Lunch (on your own)
1:00 pm  Visit Iowa Soybean Association Head Quarter and On-Farm Research at Ankeny
4:30pm  Return to Bessey

Schedule for Period 2 (later July)

Fri 15 July  Topic  Disease diagnostic and management for Vegetables, fruit, turf and Ornamentals. Dr Mark Gleason
8:00 am  Meet at Bessey Loading Dock
8:00 am  Visit horticultural farm for vegetables, fruit, turf and ornamentals
5:00 pm  Return to Bessey

Mon 18 July  Topic  Forestry disease diagnostic and management. Dr Tom Harrington
8:00 am  Meet at Bessey Loading Dock
8:00 am  Forestry diseases
5:00 pm  Return to Bessey

Tue 19 July  Topic:  Grape production and disease management, Mike White, ISUEO (TBD)
8:00 am  Meet at Bessey Loading Dock
9:00 am  Visit Iowa vineyards for grape production and disease management
5:00 pm  Return to Bessey

Wen 20 July  Topics:  1) Corn & soybean disease diagnostic in summer; 2) university extension education for disease management,
8:00 am  Meet at Bessey Loading Dock
8:30 am  ISUEO Crop Management Clinic, FEEL, Boone Various ISUEO faculty
4:00pm  Return to Bessey

Thur 21 July  Topics:  1) Breeding resistance for later season diseases at Pioneer; 2) diseases in organic crop production and disease management by non chemical methods by organic farmer.
8:00am  Meet at Bessey Loading Dock
9:00 am  Visit DuPont-Pioneer facility at Johnston, IA Dr Scott Heuchlin
12:00 pm  Lunch (on your own)
1:00 pm  Commercial organic vegetable operation & CSA, Boone Andy Larson
5:00pm  Return to Bessey