

# **STUDY GUIDE**

## **DEPARTMENT OF PLANT PATHOLOGY**

### **DPM COMPREHENSIVE EXAMINATION**

The Plant Pathology Comprehensive Examination will have two sections, Disease Diagnosis (20%) and Disease Scenarios (80%). Students will be given 8 hours to complete both sections of the exam. The exam will be given in the UF Diagnostic Center.

**A. Diagnosis Section:**

Students will receive 4 unknown diseases for which they must identify the causal agent for each of the diseases. Unknowns will be selected from the list of diseases (Table 1). At least one unknown will come from each category of pathogens. Each unknown is worth 5%, for a total of 20%.

**B. Disease Scenario Section:**

Students will answer 8 to 10 questions on 3 diseases selected by the Plant Pathology Exam Committee from Table 1. Disease scenarios will be selected so that there will be one disease per pathogen category. Each scenario will be worth 26% of the total score. Each scenario will address one specific disease and will cover 8 of the 10 components. Questions will be selected to cover the Core Competency Areas.

**C. Core Concepts and Synthesis Section:**

Students will answer a final question which will cover an area of Plant Pathology that requires thought and demonstrates an understanding of one or more of the Core Competency Areas.

Resources of the library of the UF Diagnostic Center (including APS Compendia) will be available to students during the exam. Students will not have access to the internet or cell phones during the exam. Answers to test questions will be entered in a file on a laptop that will be provided in the exam room. There are 3 sections to the exam; all must be completed by the end of the examination period. Questions will stress critical thinking, synthesis, and comprehension of concepts rather than rote memorization.

### **CORE COMPETENCY AREAS FOR THE DOCTOR OF PLANT MEDICINE PROGRAM**

**1. Principles of Plant Pathology**

Disease cycles, disease triangle, resistance, environmental factors, microbial ecology

**2. Pathogen Biology**

General knowledge of the biology of bacteria, fungi, oomycetes, viruses and viroids  
Specific knowledge of selected diseases listed in Table 1.

**3. Epidemiology**

Sampling, disease assessment, epidemic components, epidemic development, forecasting

**4. Diagnostics**

Forming a hypothesis; sample triage; general diagnostic methods for viruses, bacteria, and fungi; confirming a hypothesis; identification vs. diagnosis; use of appropriate references; development of an appropriate course of management

**5. Plant Disease Control**

Cultural, chemical, biological, and integrated management; calculations for pesticide applications

**TABLE 1. SELECTED DISEASES AND THEIR CAUSAL AGENTS**

<b>Pathogen Category</b>	<b>Disease</b>	<b>Pathogen</b>
Fungi/Oomyctes	Anthracnose on pepper	<i>Colletotrichum</i> spp.
	Botryosphaeria of woody ornamentals	<i>Botryosphaeria</i> spp.
	Botrytis on strawberry	<i>Botrytis cinerea</i>
	Citrus black spot	<i>Guignardia citricarpa</i>
	Downy mildew of basil	<i>Peronospora belbahrii</i>
	Late blight	<i>Phytophthora infestans</i>
	Laurel Wilt	<i>Rafaellea lauricola</i>
	Panama disease of banana	<i>Fusarium oxysporum</i> f. sp. <i>cubense</i>
	Peanut early & late leaf spot	<i>Cercospora arachidicola</i> & <i>Cercosporidium personatum</i>
	Pythium blight in turf	<i>Pythium aphanidermatum</i> , <i>P. ultimum</i> (& other <i>Pythium</i> species)
	Powdery mildew on cucurbits	<i>Erysiphe cichoracearum</i>
	Rice blast	<i>Magnaporthe oryzae</i>
	Rhizoctonia crown/root rot on beans	<i>Rhizoctonia solani</i>
	Southern blight of vegetable crops	<i>Sclerotium rolfsii</i>
	Soybean Rust	<i>Phakopsora pachyrhizi</i>
	Verticillium wilt on potato	<i>Verticillium albo-atrum</i> and <i>V. dahliae</i>
	Wheat stem rust	<i>Puccinia graminis</i>
	White mold of vegetable crops	<i>Sclerotinia sclerotiorum</i>
Bacteria/BLO's	Bacterial canker on tomato and potato	<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i> and <i>sepdonicus</i>
	Bacterial soft rot on vegetable crops	<i>Pectobacterium carotovorum</i>
	Bacterial speck of tomato	<i>Pseudomonas syringae</i> pv. <i>tomato</i>
	Bacterial spot of tomato and pepper	<i>Xanthomonas euvesicatoria</i> , <i>X. perforans</i>
	Bacterial Wilt	<i>Ralstonia solanacearum</i>
	Citrus Canker	<i>Xanthomonas citri</i>
	Fire blight of pome fruits	<i>Erwinia amylovora</i>
	Huanglongbing	<i>Candidatus Liberibacter asiaticus</i>
	Lethal Yellowing of Palm	<i>Candidatus Phytoplasma palmae</i>
	Pierce's Disease of Grape	<i>Xylella fastidiosa</i>
	Potato Scab	<i>Streptomyces scabies</i>
Virus/Viroids	Brown streak of cassava	<i>Cassava brown streak virus</i>
	Maize streak	<i>Maize streak virus</i>
	Mosaic	<i>Cucumber mosaic virus</i>
	Mosaic	<i>Zucchini yellow mosaic virus</i>
	Mosaic	<i>Sugarcane mosaic virus</i>
	Necrotic spot on impatiens	<i>Impatiens necrotic spot virus</i>
	Red ringspot in blueberry	<i>Blueberry red ringspot virus</i>
	Spindle tuber of potato	<i>Potato spindle tuber viroid</i>
	Spotted wilt of tomato	<i>Tomato spotted wilt virus</i>
	Sunblotch in avocado	<i>Avocado sunblotch viroid</i>
	Tomato yellow leaf curl	<i>Tomato yellow leaf curl virus</i>
	Tristeza in citrus	<i>Citrus tristeza virus</i>