APPLICATION FOR NEW COURSE

1. Submitted by College of Agriculture Date November 4, 2004
   Department/Division offering course Plant Pathology Department

2. Proposed designation and Bulletin description of this course
   a. Prefix and Number PPA 672
   b. Title* Advanced Plant Mycology
      *NOTE: If the title is longer than 24 characters (including spaces), write
      A sensible title (not exceeding 24 characters) for use on transcripts
   c. Lecture/Discussion hours per week 1
   d. Laboratory hours per week 0
   e. Studio hours per week 0
   f. Credits 1
   g. Course description
      Advanced study of the fungal life cycle and life style (including metabolism, developmental biology,
      cell biology, ecology, and reproductive processes).
   h. Prerequisites (if any)
      PPA 400G, PPA 500, PPA 600, PPA 640 can be concurrent.
   i. May be repeated to a maximum of N/A

4. To be cross-listed as N/A
   Prefix and Number
   Signature, Chairman, cross-listing department

5. Effective Date Fall 2006
   (semester and year)

6. Course to be offered ☑ Fall ☐ Spring ☐ Summer

7. Will the course be offered each year? (Explain if not annually)
   ☑ Yes ☐ No
   N/A

8. Why is this course needed?
   Fungi are the most common causes of plant disease. Advanced study is necessary to fully prepare our students
   to investigate fungi as pathogens of plants

9. a. By whom will the course be taught? Lisa Vaillancourt
   b. Are facilities for teaching the course now available?
      If not, what plans have been made for providing them?
      ☑ Yes ☐ No
      N/A
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10. What enrollment may be reasonably anticipated? ________

11. Will this course serve students in the Department primarily? ☑ Yes ☐ No
Will it be of service to a significant number of students outside the Department? ☐ Yes ☑ No
If so, explain.
N/A

Will the course serve as a University Studies Program course? ☐ Yes ☑ No
If yes, under what Area? No

12. Check the category most applicable to this course
☑ traditional; offered in corresponding departments elsewhere;
☐ relatively new, now being widely established
☐ not yet to be found in many (or any) other universities

13. Is this course applicable to the requirements for at least one degree or certificate at the University of Kentucky? ☑ Yes ☐ No

14. Is this course part of a proposed new program?
If yes, which? ☑ Yes ☐ No

15. Will adding this course change the degree requirements in one or more programs?*
If yes, explain the change(s) below
N/A

16. Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.

17. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted. □

18. If the course is 400G or 500 level, include syllabi or course statement showing differentiation for undergraduate and graduate students in assignments, grading criteria, and grading scales. □

19. Within the Department, who should be contacted for further information about the proposed course?
Name: Lisa Vaillancourt
Phone Extension: 257-7445x80731

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.
APPLICATION FOR NEW COURSE

Signatures of Approval:

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<tr>
<td>David A. Smith</td>
<td>4/22/05</td>
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<td>Department Chair</td>
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<td>Dean of the College</td>
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<td>Senate Council (Chair)</td>
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*If applicable, as provided by the Rules of the University Senate

Date of Notice to the Faculty: 4/12/05
Date of Notice to University Senate: 4/12/05

ACTION OTHER THAN APPROVAL
PPA 672, ADVANCED PLANT MYCOLOGY

• **Semesters taught:** This class is an elective and as such will be taught on demand, but at least once every other year.
• **Credit hours:** 1
• **Prerequisite:** PPA 500, PPA 600. Prerequisite or concurrent: PPA 640, PPA 641
• **Instructor:** Lisa Vaillancourt
• **Text:** “Modern Mycology, 3rd edition, by Deacon
• **Teaching Objectives:** To provide a grounding in the mechanics of the fungal life cycle and life style (including metabolism, developmental biology, cell biology, ecology, and reproductive processes) necessary for understanding and investigating fungi as pathogens of plants.

• **Topics (14 lectures in all):**
  1. Overview of fungal groups/phylogenetic analysis/fungal evolution.
  2. Fungal structure and ultrastructure (focusing on secretory apparatus, cytoskeleton, and cell wall structure).
  3. Fungal growth (the origin and adaptive importance of the mycelial habit).
  4. Fungal development/differentiation (including sexual and asexual morphogenesis, production of resting structures, and dimorphism)
  5. Fungal metabolism (focusing on nitrogen/carbon)
  6. Fungal adaptation, environmental response (signaling, light response, gravitropism, etc.)
  7. Fungal genetics (focusing on Mendelian: all other lectures will focus on molecular approach: this may be the only lecture in which we discuss an OLD paper).
  8. Spore dormancy, spore dispersal
  9. Spore attachment and germination (including appressorial development and penetration)
  10. Fungal interactions (lichens, endophytes, mycorrhizae, etc.)
  11. Fungal nutrition (focused on plant interactions): senescence related: saprophytes, hemibiotrophs, and necrotrophs (including degradative enzymes and molecules promoting cell death).
  12. Fungal nutrition: nonsenescent-related; hemibiotrophs, biotrophs, and symbionts (including suppressors of resistance and structure and function of haustoria)
  13. Fungal toxins (focused on phytoxins and role in plant disease).
  14. Fungal secondary metabolites (including those of industrial, medical, and veterinary importance).

• **Assignments, Exams, and Grades:** Students will read one chapter each week in the textbook to obtain grounding in the topic; students will also read one current (last five years) research article that focuses on a molecular approach to one important aspect of the topic of the day. Class time will be devoted to a BRIEF recap of the topic of the day (in the form of a question/answer session), followed by discussion of the article (students will be called on randomly to share information about the article with their fellows), with the assumption that students will have obtained sufficient grounding in the topic from their textbook. Midterm will be a take home: assigned to develop and write up a research approach to test a hypothesis they will develop relevant to one of the topics covered. Final examination will be essay questions testing basic understanding of concepts and ability to relate material to actual problems in the discipline.
• **Assignments, Exams and Grades:**

  Participation: 40 pts  
  Midterm exam: 30 pts  
  Final exam: 30 pts

  Grades
  • 90-100%: A
  • 80-89%: B
  • 70-79%: C
  • <70%: E