Proposal Form For Addition And Revision Of Courses

1. Proposing College / School: Agriculture
   Department: Entomology & Plant Pathology

2. Course Prefix and Number: PLPA 5500/6500
   3. Effective Term: Fall 2012

4. Course Title:
   Plant Nematology
   Abbreviated Title (30 characters or less):
   Plant Nematology

5. Requested Action:
   - [ ] Revise a Course
   - [ ] Add a Course
   - [ ] Re-number a Course
   Current Course Number: 7500
   Proposed Course Number: 5500/6500
   Type of Revision:

6. Course Credit:

<table>
<thead>
<tr>
<th>Contact/Group Hours</th>
<th>Scheduled Type</th>
<th>Weekly or Per Term?</th>
<th>Credit Hours</th>
<th>Anticipated Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Lecture</td>
<td>Weekly</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>Lab</td>
<td>Weekly</td>
<td>2</td>
<td>25</td>
</tr>
</tbody>
</table>

Total Credit Hours: 4

7. Grading Type:
   - [ ] Regular (ABCDF)
   - [ ] Satisfactory/Unsatisfactory (S/U)
   - [ ] Audit

8. Prerequisites/Corequisites:
   BIOL 1030 or department approval

9. Restrictions: List specific restriction in space above.
   - [ ] College
   - [ ] Major
   - [ ] Standing
   - [ ] Degree

10. Course Description:
    Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology.

11. May Count Either:
    PLPA 5500 or PLPA 6500
    (Indicate if this particular course cannot be counted for credit in addition to another)

12. Affected Program(s):
    (Respond "N/A" if not included in any program; attach memorandum if more space is required)

13. Overlapping or Duplication of Other Units' Offerings:
    (If course is included in any other degree program, is used as an elective frequently by other unit(s), or is in an area similar to that covered by another college/school, attach correspondence with relevant unit)
    - [ ] Applicable
    - [ ] Not Applicable
14. Justification: A split level version of Nematology will expand the general Entomology & Plant Pathology classes, enhancing interactions between graduate and undergraduate students. The class will also provide educational opportunities for the non-traditional student.

(Include a concise, yet adequate rationale for the addition/revision of the course, citing accreditation, assessments (faculty, graduate, and/or external) where applicable)

15. Resources: The primary resource for the class will be the website Canvas.

(Indicate whether existing resources such as library materials, classroom/laboratory space, and faculty appointments are adequate to support the proposed addition/revision; if additional resources are required, indicate how such needs will be met, referencing the appropriate level of authorization — i.e., Dean — where necessary; if no additional resources or shifting of resources will be necessary, respond "Not Applicable")

16. Student Learning Outcomes: Students will be able to identify the common plant parasitic nematodes found in the southern US in agriculture and horticulture crops and turfgrass. They will be able to correctly collect, extract and quantify plant parasitic nematodes. Students will also have an understanding of what nematodes are associated with which crops and the IPM management options for disease control.

(State in measurable terms (reflective of course level) what students should be able to do when they have completed this course)

17. Course Content Outline:

Lecture schedule
Week 01 – Introduction to Nematology
Week 02 – Nematode extraction from soil and roots, extraction efficiency.
Week 03 – Morphology and Systematics
Week 04 – Soil type, soil properties, anabiosis.
Week 05 – Population dynamics, exponential growth, logistic growth.
Week 06 – Resistance and tolerance; antagonistic plants.
Week 07 – Thresholds and integrated pest management.
Week 08 – Soil food webs, nematodes and other soil organisms.
Week 09 – Biological control, natural enemies of nematodes; nematode-disease interactions.
Week 10 – Biodiversity, nematode community structure; bioindicators, maturity index.
Week 11 – Energy, biomass, respiration, production.
Week 12 – Mulches and organic amendments; solarization.
Week 13 – Cropping systems, cover crops, crop rotation.
Week 14 – Nematode management by nematicides; environmental fate of nematicides; conservation tillage.
Week 15 – Future outlook; sustainability and nematode management.
Week 16 – Final exam

Lab schedule
1. Introduction – use of the microscope and nematode preservation.
2. How to take a nematode sample.
3. General classification schemes for plant parasitic nematodes.
8. Pratylenchus spp. – Lesion nematode.
12. Tylenchorhynchus spp. – Stunt nematode.
14. Free living nematodes.
15. Lab practical.

(Provide a comprehensive, week-by-week breakdown of course content, including assignment due dates)
18. Assignments / Projects:

There will be a mid term and final exam given, each containing approximately 50% of the course material. The final exam will contain approximately 50% new course material and will be comprehensive covering the entire semester. Each exam will worth 100 points for a total of 200 points.

Laboratory consists of nematode identification and preservations. Nematode identification will be studied in the labs with weekly reports documenting the characteristics of each nematode genera covered. Each lab report will worth 10 point for a total of 130 points over the semester. There will be one lab practical on nematode identifications given at the end of the semester which will be 50 points.

The nematode collection project will be a digital or slide collection of 6 nematode genera for the undergraduates and 12 for the graduate students. For the digital collection four images of each species are necessary: head total nematode, head region, tail region, and identifying characteristics. Two of the images must contain a special identifying marker (colored paper chip for example) that indicates the picture was taken by the student. Students must record the date, place, and conditions in which the plants were digitally collected. This collection will count for 60 (out of 440) points for the undergraduates and 120 (out of 600) points for the graduates. Collections must be assembled into a single PowerPoint (or other acceptable program) document. Examples will be given of how collections can be assembled.

Oral presentation and paper: Graduate students will be required to prepare a PPT presentation on the plant parasitic nematode pests of a crop. Crops will be assigned by the professor. The presentation will be summarized in a 5-7 page paper with references. Presentation and paper are worth 100 points for the graduate students.

(List all quizzes, projects, reports, activities and other components of the course grade -- including a brief description of each assignment that clarifies its contribution to the course’s learning objectives)

19. Rubric and Grading Scale:

Grading System: Letter grades will be based on percentages of the total points for the semester.

A = 90% - 100%
B = 80% - 89%
C = 70% - 79%
D = 60% - 69%
F = 0 - 59%

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<td>50 points</td>
</tr>
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<td>120 points</td>
</tr>
<tr>
<td>Presentation and paper</td>
<td>0 points</td>
<td>100 points</td>
</tr>
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(List all components of the course grade -- including attendance and/or participation if relevant -- with point totals for each; indicate point totals and ranges or percentages for grading scale; for S/U grading, detail performance expectations for a passing grade)

20. Justification for Graduate Credit:

Graduate students will be required to collect twice as many nematode specimens as the under graduates. They will also be
required to prepare an oral presentation on an assigned crop and the plant parasitic nematodes of that crop. This presentation will be supplemented with a 5 to 7 page paper written by the graduate student and handout to the class. The presentation will enhance their public speaking abilities and the report will increase their writing skills.

(Include a brief statement explaining how the course meets graduate educational standards (i.e.: rigorous standards for evaluation, development of critical thinking and analytical skills, etc.).)

(Included below are standard statements regarding course policies. If necessary, a statement may be altered to reflect the academic policies of individual faculty members and/or the academic unit or department, provided that there is no conflict with the Student Policy eHandbook, Faculty Handbook, or any existing university policy.)

POLICY STATEMENTS

Attendance: Although attendance is not required, students are expected to attend all classes, and will be held responsible for any content covered in the event of an absence.

Excused Absences: Students are granted excused absences from class for the following reasons: illness of the student or serious illness of a member of the student’s immediate family, the death of a member of the student’s immediate family, trips for student organizations sponsored by an academic unit, trips for university classes, trips for participation in intercollegiate athletic events, subpoena for a court appearance, and religious holidays. Students who wish to have an excused absence from class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request, and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence. Appropriate documentation for all excused absences is required. Please consult the Student Policy eHandbook for more information on excused absences.

Make-Up Policy: Arrangement to make up a missed major examination (e.g., hour exams, mid-term exams) due to proper authorized excused absences must be initiated by the student within one week of the end of the period of the excused absence(s). Except in unusual circumstances, such as the continued absence of the student or the advent of university holidays, a make-up exam will take place within two weeks of the date that the student initiates arrangements for it. Except in extraordinary circumstances, no make-up exams will be arranged during the last three days before the final exam period begins.

Academic Honesty Policy: All portions of the Auburn University student academic honesty code (Title XII) found in the Student Policy eHandbook will apply to university courses. All academic honesty violations or alleged violations of the SAA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Disability Accommodations: Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2006 (V/TT).
Supplemental Information For Addition Of Distance Education (DE) Course

1. Proposing College / School: Agriculture
   Department: Entomology & Plant Pathology

2. Course Prefix and Number: PLPA 5503/6506

3. Effective Term: Fall 2012

4. Course Title: Plant Nematology
   Abbreviated Title (30 characters or less): Plant Nematology

5. On-Campus Pre/Corequisites:
   (Indicate any applicable pre/corequisites for the on-campus version of the course. Use the space provided below to indicate how they will be adjusted to accommodate DE students.)
   Prerequisite(s): BIOL 1030
   Corequisite(s):  
   Pre/Corequisite(s): 

   DE Adjustment: Departmental Approval

6. Affected Program(s):
   (Respond "N/A" if not included in any program; attach memorandum if more space is required)

7. Justification for DE Delivery:

   A split level version of Nematology will expand the general Entomology & Plant Pathology classes enhancing interactions between graduate and undergraduate students. The class will also provide educational opportunities for the non-traditional student in multiple programs in the COA.

   (Include a concise, yet adequate rationale for the addition of a distance education version of the course in question (e.g.: accreditation, as part of a proposed distance education program, expansion of opportunity for working professionals/students, etc.)

8. Access to Resources:

   The course will cover the general basis of nematode biology, systematics, and ecology. Specific information on the most important crop-nematode interactions will be discussed. Students are required to do the assigned readings from the textbook and supplemental books and refereed papers. Video, lecture recordings, and handouts with images will also be presented as resources. The LMS Canvas is the primary vehicle of communication.
9. Course Content Delivery:

Lectures will be in the form of power point presentations with questions intermingled throughout the lecture. Presentations will include all the information about each nematode as well as color photos of the nematode life stages and structures. Questions will be asked frequently to stimulate student understanding and retention through the use of discussion boards and self-quizzing. Videos from lectures and other teaching videos will also be made available to the student.

(Outline, in specific detail, what adjustments will be made to the existing course in order to accommodate learning via distance education. Include delivery of lecture material, discussion sessions, and submission of assignments/papers, as applicable.)

10. Course Interaction:

The instructors will communicate with students via e-mail and message board, and other methods utilizing a LMS. Appointments/phone calls may also be scheduled.

(Provide specific information regarding the adjustments that will be made to the course, in order to accommodate interaction between the student and instructor and peers via distance education. Include such aspects as office hours, class participation, and -- if applicable -- any time that the student would be required to be on-campus.)

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Approvals

Department Chair/Head

Date: 3-26-2012

College/School Curriculum Committee

Date: 4/5/2012

College/School Dean

Date: 4/16/2012

Dean of the Graduate School (for Graduate Courses)

Date:

Assoc. Provost for Undergraduate Studies (for Undergraduate Courses)

Date:

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Contact Person: __________________________ Telephone: __________________________
E-Mail Address: __________________________ Fax: __________________________
Nematology: PLPA 5503/6506                          FALL 2012

Instructor:       Dr. Kathy Lawrence
                  227 Life Sciences
                  844-1956
                  lawrekk@auburn.edu

Virtual Office Hours: 8:00 to 10:00 am M and W. Students are encouraged to email the instructor at any time.

1) Credit Hours: 4
2) Text and major resource materials: These are available in many on line book stores.


Course Rationale:

In this an undergraduate/graduate level course, that will broaden your knowledge about nematodes. This is a comprehensive survey of plant-parasitic nematode, their evolution, morphology and ontogeny of reproductive structures will be discussed. Consideration will be given to their physiology and role as plant pathogens.

3) Course Description:

   PLPA 5500/6500 Plant Nematology (4) Lec. 2 Lab 4. Pr., BIOL 1030. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. Fall even years.

4) Course Objectives:
   1) To gain a basic understanding of all types of nematodes and their importance in the environment and as animal, human, and plant parasites.
   2) To gain knowledge on morphology and identification of plant nematodes.
   3) To learn the management systems for plant parasitic nematodes.
5) Course Content:

The course will cover the general basis of nematode biology, systematics, and ecology. Specific information on the most important crop-nematode interactions will be discussed. Students are required to do the assigned readings from the textbook and supplemental books and refereed papers. Videos, lecture recordings and handouts with images will also be presented.

Course Topics:
The topics in this course provide a thorough knowledge of the following:

Unit – 1:

Topics to be covered

Week 01 – Introduction to Nematology
Week 02 -- Nematode extraction from soil and roots, extraction efficiency.
Week 03 – Morphology and Systematics
Week 04 -- Soil type, soil properties; anabiosis.
Week 05 -- Population dynamics, exponential growth, logistic growth.
Week 06 -- Resistance and tolerance; antagonistic plants.
Week 07 -- Thresholds and integrated pest management.
Week 08 -- Soil food webs, nematodes and other soil organisms. Midterm test

Unit – 2:

Week 09 -- Biological control, natural enemies of nematodes; nematode- disease interactions.
Week 10 -- Biodiversity, nematode community structure; bioindicators, maturity index;
Week 11 -- Energy, biomass, respiration, production;
Week 12 -- Mulches and organic amendments; solarization.
Week 13 -- Cropping systems, cover crops, crop rotation;
Week 14 -- Nematode management by nematicides; environmental fate of nematicides; conservation tillage
Week 15 – Future outlook; sustainability and nematode management;
Week 16 – Final exam
The lab assignments in this course provide thorough hands on experience of the following:

1. Introduction – use of the microscope and nematode preservation.
2. How to take a nematode sample
3. General classification schemes for plant parasitic nematodes.
4. *Meloidogyne* spp – Root knot nematodes
5. *Rotylenchulus reniformis* – Reniform nematode
6. *Heterodera glycines* – Soybean cyst nematode
7. *Hoplolaimus* spp. – Lance nematode
8. *Pratylenchus* spp. – Lesion nematode
9. *Mesocrictonema* spp. – Ring nematode
10. *Helicotylenchus* spp. – Spiral nematode
11. *Paratrichodorus* spp. – Stubby Root nematode
12. *Tylenchorhynchus* spp. – Stunt nematode
13. *Belonolaimus* spp. – Sting nematode
14. Free living nematodes
15. Lab practical

Distance students will be sent either preserved nematode samples to observe or pictures of each nematode species. They will have a set of measurements to take on each nematode to ensure they learn the structures of the body and the dimensions.

6) Course Requirements:

1. Lecture Presentations:

Lectures will be in the form of power point presentations with questions intermingled throughout the lecture and voiceovers. Presentations will include all the information about each nematode as well as color photos of the nematode life stages and structures. Questions will be asked frequently to stimulate student understanding and retention through the use of the discussion board, virtual office hours, and self-testing.

2. Lab Assignments:

The students will be required to build a lab notebook containing all the information they will need in the labs for the entire semester. Initial handouts will be available on Canvas. Successful learning in lab will require active participation by the students. The diversity of experiences with the lab assignments between the students will enhances the learning and brings a different perspective to the course. Students will be required to summarize their experiences from each lab in the form of weekly lab reports. These reports will be
turned in on Thursday evening by midnight. All reports will be email to the instructor whether the students are on campus or distance education students. These reports should be complied in a notebook with the initial handouts to all the students to build their nematology portfolio.

3. Nematode collection:

To truly learn nematodes you must make a collection of your own. The collection will be turned in with each exam keeping classifications in order.

<table>
<thead>
<tr>
<th>Due Date</th>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid term</td>
<td>1 Aphelenchida</td>
<td>2 Aphelenchida</td>
</tr>
<tr>
<td></td>
<td>1 Tylenchida</td>
<td>2 Tylenchida</td>
</tr>
<tr>
<td></td>
<td>1 Dorylaimida</td>
<td>2 Dorylaimida</td>
</tr>
<tr>
<td>Final exam</td>
<td>3 plant parasitic nematodes Identified to genus</td>
<td>6 plant parasitic nematodes identified to genus</td>
</tr>
</tbody>
</table>

4. Oral presentation and paper: Graduate students will be required to prepare a PPT presentation on the plant parasitic nematode pests of a crop. Crops will be assigned by the professor. The presentation will be summarized in a 5-7 page paper with references. Distance students will have access to the Panapto recording for their presentations.

5. Exams:

Throughout the semester, students will be given two exams, a mid term and a final, based on the lectures, laboratory materials and readings. Exams will be an essay form. Distance education students will take proctored exams to be arranged by their location.

6. Final Examination:

The final exam will be comprehensive and will be based on the material presented in lecture and lab.

Performance Evaluation:

The work in this course will be evaluated on the basis of the responses to exams, lab reports, the final exam, nematode collection and nematode presentations and papers. The final course average will be computed as follows although points may vary.
Lecture and Laboratory:

<table>
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<tr>
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<td>100 points</td>
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</tr>
<tr>
<td>Lab reports (approximately)</td>
<td>130 points</td>
<td>130 points</td>
</tr>
<tr>
<td>Lab practical</td>
<td>50 points</td>
<td>50 points</td>
</tr>
<tr>
<td>Nematode collection (approximately)</td>
<td>60 points</td>
<td>120 points</td>
</tr>
<tr>
<td>Oral presentation and paper</td>
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<td>100 points</td>
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Nematology: PLPA 5503/6506      FALL 2012

Instructor: Dr. Kathy Lawrence
227 Life Sciences
844-1956
lawrekk@auburn.edu

Virtual Office Hours: 8:00 to 10:00 am M and W. Students are encouraged to email the instructor at any time.

1) Credit Hours: 4
2) Text and major resource materials: These are available in many on line book stores.

Course Rationale:

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8. *Pratylenchus* spp. - Lesion nematode
9. *Mesocricotopus* spp. - Ring nematode
10. *Helicotylenchus* spp. - Spiral nematode
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| Final exam | 3 plant parasitic nematodes | 6 plant parasitic nematodes
|          | Identified to genus | identified to genus |

4. Oral presentation and paper: Graduate students will be required to prepare a PPT presentation on the plant parasitic nematode pests of a crop. Crops will be assigned by the professor. The presentation will be summarized in a 5-7 page paper with references. Distance students will have access to the Panapto recording for their presentations.

5. Exams:

Throughout the semester, students will be given two exams, a mid term and a final, based on the lectures, laboratory materials and readings. Exams will be an essay form. Distance education students will take proctored exams to be arranged by their location.

6. Final Examination:

The final exam will be comprehensive and will be based on the material presented in lecture and lab.

Performance Evaluation:

The work in this course will be evaluated on the basis of the responses to exams, lab reports, the final exam, nematode collection and nematode presentations and papers. The final course average will be computed as follows although points may vary.
Lecture and Laboratory:

<table>
<thead>
<tr>
<th></th>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid Term</td>
<td>100 points</td>
<td>100 points</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100 points</td>
<td>100 points</td>
</tr>
<tr>
<td>Lab reports (approximately)</td>
<td>130 points</td>
<td>130 points</td>
</tr>
<tr>
<td>Lab practical</td>
<td>50 points</td>
<td>50 points</td>
</tr>
<tr>
<td>Nematode collection (approximately)</td>
<td>60 points</td>
<td>120 points</td>
</tr>
<tr>
<td>Oral presentation and paper</td>
<td></td>
<td>100 points</td>
</tr>
<tr>
<td>Total points</td>
<td>440 points</td>
<td>600 points</td>
</tr>
</tbody>
</table>

Grading System: Letter grades will be based on percentages of the total points.

- A = 90% - 100%
- B = 80% - 89%
- C = 70% - 79%
- D = 60% - 69%
- F = 0 - 59%

POLICY STATEMENTS

Attendance: Although attendance is not required, students are expected to attend all classes, and will be held responsible for any content covered in the event of an absence.

Excused Absences: Students are granted excused absences from class for the following reasons: illness of the student or serious illness of a member of the student's immediate family, the death of a member of the student's immediate family, trips for student organizations sponsored by an academic unit, trips for university classes, trips for participation in intercollegiate athletic events, subpoena for a court appearance, and religious holidays. Students who wish to have an excused absence from class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request, and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence. Appropriate documentation for all excused absences is required. Please consult the Student Policy eHandbook for more information on excused absences.

Make-Up Policy: Arrangement to make up a missed major examination (e.g.: hour exams, mid-term exams) due to properly authorized excused absences must be initiated
by the student within one week of the end of the period of the excused absence(s). Except in unusual circumstances, such as the continued absence of the student or the advent of university holidays, a make-up exam will take place within two weeks of the date that the student initiates arrangements for it. Except in extraordinary circumstances, no make-up exams will be arranged during the last three days before the final exam period begins.

**Academic Honesty Policy:** All portions of the Auburn University student academic honesty code (Title XII) found in the Student Policy eHandbook will apply to university courses. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

**Disability Accommodations:** Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT)