

Cover Sheet: Request 9789

New course proposal: BOT4XXX Plant symbiosis

Info

Process	Course New Ugrad/Pro
Status	Pending
Submitter	Davis, Ellen C christine.davis@ufl.edu
Created	11/19/2014 8:40:02 PM
Updated	2/12/2015 10:18:11 AM
Description	The documents propose a new undergraduate course focusing on plant symbiosis, which will complement existing programs of study in biology.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CLAS - Biology 011690003	St Mary, Colette Marie		11/20/2014
College	Comment	CLAS - College of Liberal Arts and Sciences	Pharies, David A	You will need a completely separate submission for the graduate version of this course. The current syllabus is for both levels; it should be changed to undergraduate only. When you submit the graduate version in another entry, you will need to provide a rationale outlining the differences in the two levels. They must differ substantially in both readings and amount/type of work required.	12/4/2014
College	Recycled	CLAS - College of Liberal Arts and Sciences	Pharies, David A	The CCC is concerned that 90% of the grade is based on discussion, while only 10% is based on content. Please justify. Participation points are unclear: it appears that students can achieve a maximum of 4 points per class. How does this add up to 50% of the grade? How do you plan to handle grade disputes, with so little objective evaluative material? Please include a description of the content of the final exam.	1/15/2015
Department	Approved	CLAS - Biology 011690003	St Mary, Colette Marie		1/30/2015

Step	Status	Group	User	Comment	Updated
College	Approved	CLAS - College of Liberal Arts and Sciences	Pharies, David A		2/12/2015
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			2/12/2015
Statewide Course Numbering System					
Office of the Registrar					
Student Academic Support System					
Catalog					
College Notified					

Recommended SCNS Course Identification

1. Prefix BOT 2. Level 4 3. Number XXX 4. Lab Code Select

5. Course Title Plant Symbiosis

6. Transcript Title (21 character maximum) Plant Symbiosis

7. Effective Term Fall

8. Effective Year 2015

9. Rotating Topic? Select

10. Amount of Credit 3

11. If variable, # minimum and # maximum credits per semester.

12. Repeatable credit? No

13. If yes, total repeatable credit allowed #

14. S/U Only? No

15. Contact Type Regularly Scheduled [base hr]

16. Degree Type Baccalaureate

17. If other, please specify: [Click here to enter text.](#)

18. Category of Instruction Advanced

19. Course Description

Examines the crucial role of symbioses in shaping the diversity of life. Topics include generalities among symbioses, origins and establishment of symbioses, and coevolution and cospeciation, as well as specifics of well-studied exemplars of bacterial, fungal, animal, and plant symbioses with plants.

20. Prerequisites

BSC2010 (C) & BSC2010L (C) & BSC2011 (C) & BSC2011L (C)

21. Co-requisites

None.

22. Rationale and Placement in Curriculum

Symbioses are fundamental drivers of evolution, and study of their importance and mechanistic details synthesizes introductory material in organismal biology, molecular biology, physiology, diversity, ecology, and evolution in unique way. Placement at the upper level is appropriate for all majors in our department (i.e., biology, botany, and zoology). There is no existing course like this one currently offered at UF. I offered this in Spring 2013 as a special topics course.

23. Complete the syllabus checklist on the next page of this form.

Syllabus Requirements Checklist

The University's complete Syllabus Policy can be found at:

http://www.aa.ufl.edu/Data/Sites/18/media/policies/syllabi_policy.pdf

The syllabus of the proposed course **must** include the following:

- ☒ Course title
- ☒ Instructor contact information (if applicable, TA information may be listed as TBA)
- ☒ Office hours during which students may meet with the instructor and TA (if applicable)
- ☒ Course objectives and/or goals
- ☒ A weekly course schedule of topics and assignments.
- ☒ Methods by which students will be evaluated and their grades determined
- ☒ Information on current UF grading policies for assigning grade points. This may be achieved by including a link to the appropriate undergraduate catalog web page:
<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.
- ☒ List of all required and recommended textbooks
- ☒ Materials and Supplies Fees, if any
- ☒ A statement related to class attendance, make-up exams and other work such as: *"Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>."*
- ☒ A statement related to accommodations for students with disabilities such as: *"Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation."*
- ☒ A statement informing students of the online course evaluation process such as: *"Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>."*

It is **recommended** that the syllabus contain the following:

- ☒ Critical dates for exams or other work
- ☒ Class demeanor expected by the professor (e.g. tardiness, cell phone usage)
- ☒ The university's honesty policy regarding cheating, plagiarism, etc.

Suggested wording: UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

- ☒ Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies

Date: 2/02/2015
To: CLAS and University Curriculum Committees

From: Christine Davis, Lecturer and Undergraduate Coordinator, Department of Biology

RE: New course proposal- BOT4XXX Plant symbiosis

Dear Curriculum Committees,

Attached please find a proposal for BOT4XXX Plant symbiosis, a course that I hope to offer beginning in Fall, 2015. This course will complement biology, botany, and zoology curricula as well as CALS curricula in Plant Pathology and Plant Science.

Although the course subject matter is fundamental to multiple aspects of biology and agriculture, UF lacks a course that explores it. I offered the course in Spring 2013 as a special topics course, when it received good reviews and encouragement from students to offer it again in the future.

The Biology department Chair (Marta Wayne) and the curriculum committee (chaired by Colette St. Mary) support these proposals. I have communicated with the CALS departments of Plant Pathology and Plant Science to inquire about content overlap. The consultation form they provided is attached here. They support the course proposal and suggest it would be a useful elective course for students in their programs.

Attached please find:

- 1) UCC1 forms;
- 2) A syllabus;
- 3) External consultation form from Plant Pathology and Plant Science in CALS.

Justification of grade breakdown and percentage of grade based on content knowledge

As requested, in the syllabus I have clarified how points earned in the course correspond to the percentage of the final grade. I have also included a description of the final written exam.

This course promotes learning of content through active discussion in class, and thus, content knowledge is integrated in class discussions. I do not lead the discussions after the first two meetings, the students do. Content knowledge is part

of the participation points given: for full credit, a student “Makes exemplary contributions to discussion by integrating concepts, introducing novel perspectives, and drawing out additional contributions from classmates”. In order to make contributions at this level, student must have read the required readings *and* must understand them in a sophisticated way. Content knowledge is also integrated in leading discussion and preparing the synopsis; in order to effectively lead the discussion and write the questions for discussion at the level to receive full credit, students must know and understand the readings thoroughly. The rubric provided gives me a way to assess their knowledge of content.

Sincerely,

Christine Davis

External Consultation Results (departments with potential overlap or interest in proposed course, if any)

Department Plant Pathology	Name and Title Matthew E. Smith
Phone Number 352-273-2837	E-mail trufflesmith@ufl.edu
Comments BOT4XXX Plant symbiosis. This sounds like a very interesting class that I would have loved to take as a student. I do not see any major overlap with my course, Basic Fungal Biology/Fungal Biology (PLP 4653C/PLP 6656C). Although we do discuss some basic concepts in symbiosis, all of these are focused on plant-fungal symbioses and are primarily discussed from the perspective of fungal biology. Any coverage of the topic of plant-fungal symbioses in my course could be considered as complimentary to the approaches outlined in the syllabus for BOT4XXX Plant symbiosis.	

Department Plant Pathology and Plant Scien	Name and Title Brantlee Spakes Richter, Lecturer
Phone Number 352-273-2014	E-mail bsr@ufl.edu
Comments BOT4XXX Plant symbiosis. I have polled both the Plant Pathology Curriculum Committee and the Plant Science Steering Committee, and we see no conflicts with courses taught in either program. This course appears to be an excellent compliment to courses taught within our programs, and one which many of our students may find valuable as an elective course in their programs of study	

Department	Name and Title
Phone Number	E-mail
Comments	

BOT4XXX - Plant Symbiosis - 3 credits

Instructor:

Dr. Christine Davis
christine.davis@ufl.edu
Office: 614 Carr Hall
Phone: 846-1156
Office hours: TR period 5, or by appointment

Required texts:

The Symbiotic Habit, Angela E. Douglas. 2010.
Also, **book excerpts and journal articles** posted on the course web site.

Course description:

In this course, I hope to foster a deeper understanding of the crucial role symbioses play in shaping the diversity of life on the planet. The course will devote roughly equal time to discussing broad concepts – such as generalities among symbioses, origins and establishment of symbioses, coevolution and co-speciation – and learning the specifics of well-studied exemplars of plant-bacterial, plant-fungal, plant-animal, and plant-plant symbioses.

Our study will consist of instructor and student-led discussions of texts and primary literature, short written assignments, and observation and enjoyment of living examples of plant symbioses.

Learning outcomes: upon completion of this course, you will be able to:

- Define symbiosis in several ways
- Describe the evolutionary and ecological significance of symbioses
- Explain our current understanding of how symbioses form and how they are maintained
- Discuss how symbiosis can lead to diversification
- Summarize the specifics of some plant symbioses

You will also practice:

- Evaluating and synthesizing journal articles
- Leading a discussion with classmates

Course grading:

Participation in discussion (12 @ 4 pts each)	48%
Leading discussion (20 pts)	20%
Written discussion synopses (20 pts)	20%
Final written exam (12 pts)	12%

Grading scale:

90 – 100% = A; 80 – 89.9% = B; 70 – 79.9% C; 60 – 69.9% D; below 60 = E

See <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx> for a description of UF grading policies for assigning grade points.

Course attendance and make up policies:

Requirements for class attendance and work in this class are consistent with university policies that can be found in the catalog at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Attendance is required and essential for success in this course and is a component of your participation grade. I understand that absences happen, but if you make this a habit, you are guaranteed to perform poorly. If you have a valid documented excuse, you may be able to make up missed discussion assignments. I will determine this on an as-needed basis.

Grade curves and extra credit:

There will be NO curve applied to grades. There MAY be opportunities for extra credit – if so, such opportunities will be announced in class and offered to all students.

Policy on electronic devices:

Use them if you want, but if they become distracting to your classmates, you will be asked to leave. Also, please note that the use of devices for socializing during class is very obvious to your classmates and your instructors. We'll make a mental note of it as disrespectful, and it leaves a negative impression.

UF counseling services

Resources are available on campus for students having personal problems or lacking clear career and academic goals. The resources include:

UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.

Career Resource Center, Reitz Union, 392-1601, career and job search services.

Many students experience test anxiety and other stress – related problems. “A Self Help Guide for Students” is available through the Counseling Center (301 Peabody Hall; 392-1575) and at their web site:

<http://www.counseling.ufl.edu/cwc/>

Academic Honesty Policy

All students registered at the University of Florida have agreed to comply with the following statement:

“I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University.”

In addition, on all work submitted for credit the following pledge is either required or implied:

“On my honor I have neither given nor received unauthorized aid in doing this assignment.”

If you witness any instances of academic dishonesty in this class, please notify the instructor or contact the Student Honor Court (392-1631) or Cheating Hotline (392-6999). For additional information on Academic Honesty, please refer to the University of Florida Academic Honesty Guidelines at:

<https://catalog.ufl.edu/ugrad/current/advising/info/student-honor-code.aspx#honesty>.

Important – Plagiarism:

Plagiarism is also a violation of the Academic Honesty Policy. It will not be tolerated. Please review how to define plagiarism and how to avoid it: <http://web.uflib.ufl.edu/msl/07b/studentplagiarism.html>

Accommodations for students with disabilities:

Students who will require a classroom accommodation for a disability must contact the Dean of Students Office of Disability Resources, in Peabody 202 (phone: 352-392-1261). Please see the University of Florida Disability Resources website for more information at: <http://www.dso.ufl.edu/drc/>. Note that the student should provide documentation of a requirement for accommodation by the second week of classes. No accommodations are available to students who lack this documentation. It is the policy of the University of Florida that the student, not the instructor, is responsible for arranging accommodations when needed. Once notification is complete, the Dean of Students Office of Disability Resources will work with the instructor to accommodate the student.

Course evaluation:

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

Paper discussions:

Each student will work within a small group to lead class discussions of a research paper. Each leader group is required to prepare a discussion synopsis to facilitate the discussion. All students are responsible for reading the paper and contributing to discussion.

When you lead the discussion, you are the “expert” on the readings. It is your job to help the class meet the following goals:

- Clarify the main points of the readings.
- Clarify the basics of the methods used (if applicable).
- Reveal interesting topics and questions for further discussion or debate.
- Apply the readings to the course topics being considered.
- Involve contributions from all classmates.
- Avoid domination by any one speaker (including you, the discussion leaders).

Guidelines for writing the discussion synopsis

The discussion synopsis is a two-page document that will be handed out to all participants at the beginning of your discussion.

- 1) The first page of the discussion synopsis is a list of defined terms and/or clarification of methods crucial for understanding the reading. This should be covered as part of the discussion, too.
- 2) The second page of the synopsis should contain a series of discussion questions you’ll pose.

Before you write the discussion synopsis, start by thinking about 3 or 4 key concepts everyone should come away with from the discussion. Design 3 or 4 key questions that will assess understanding of these concepts.

- List and number your key questions in bold.
- Under the key question, indent and list questions that will “lead up” to your key question (3 – 4).
- Leave adequate space under each question for note-taking.

Guidelines for leading and facilitating discussion

- Start the discussion by discussing crucial terms, then, ask one of your “key questions.” (see Guidelines for writing the discussion synopsis.)
- Try not to answer your own questions.
- Minimize or eliminate rhetorical questions or “yes/no” and “agree/disagree” questions.
- It’s okay to wait a while in silence after you ask a question. Sometimes it takes a little while for people to think before answering – be patient.
- It’s okay to stray from the planned list of questions in your synopsis. Just steer the discussion back when you can.
- After the initial discussion about terms, minimize “recitation” type questions; that is, questions that ask your classmates to recall facts or knowledge about the subject matter.
- When possible, summarize portions of the discussion (for example, summarize what the class has learned about the methods used in a study, or the key components of the experiment in the paper).
- When appropriate, paraphrase your classmates’ comments, responses, and questions in order to clarify their meanings to the class. (This is called active listening.)
- Use eye contact, clear confident speaking, and positive body language. Avoid actions such as crossing your arms, looking at the clock, or deep sighs.

Final written exam

This exam, given during the final exam period, will consist of approximately five essay questions addressing the learning outcomes outlined for the course. The essay questions will require you to synthesize the major findings of the papers we have discussed throughout the course.

Rubric for discussion leading:

Grading Criteria	Descriptors	Points
Preparation	Demonstrates: Good preparation and familiarity with readings Cooperation and collaboration among leaders	___/4
Discussion Techniques	Discussion techniques: Engage students—motivating Encourage all students to contribute Guide but do not dominate discussion Promote discussion of different viewpoints	___/4
Content & Discussion Questions	Questions asked: Lead the class toward discussion goals Are clear Refer to readings	___/4
Facilitation Skills	Leaders demonstrate good facilitation skills: Active listening Summarizing	___/4
Communication skills	Facilitators engage class through their: Eye contact Clear and confident voice Gestures	___/4
	Total points	___/20

Rubric for discussion synopsis:

Descriptors	Points
Key questions match with major points of readings	___/4
Other questions adequately “lead up” to key questions	___/4
Crucial terms and methods described correctly and clearly	___/4
Format of synopsis follows guidelines	___/4
Writing free of spelling and grammatical errors	___/4
Total points	___/20

Rubric for participation points:

0 points = Absent
1 point = Present but does not contribute
2 points = Participates in discussion by adding an opinion or asking a question
3 points = Participates in discussion by adding an opinion, posing a thoughtful question, and answering questions
4 points = Makes exemplary contributions to discussion by integrating concepts, introducing novel perspectives, and drawing out additional contributions from classmates

Course schedule (subject to adjustment – primary literature may rotate)

Date	Topic	Reading	Discussion
Week 1	Introduction	Syllabus	Intro - Sign up for discussion leading
Week 2	How do we define "symbiosis" and how is symbiosis significant?	Papers from the Palmer lab	Example symbiosis 1 - <u>Ant plants</u>
Week 3		Margulis p. 5 - 12; Douglas p. 12 - 23	The significance of symbioses (Dr. Davis leads discussion)
Week 4		Paracer and Amadjian 117 - 122; Bonfante and Genre 2010	Example symbiosis 2 - <u>Mycorrhizae</u>
Week 5		Douglas p. 1 - 11; Paszkowski 2006	Defining symbiosis
Week 6		Clay and Schardl 2002	Example symbiosis 3 - <u>Grass endophytes</u>
Week 7	How do mutualistic symbioses evolve and how are they maintained?	Douglas p. 24 - 38; Heil et al. 2013	Symbiotic spectra from antagonist to mutualist
Week 8		Adams and Duggan 2012 (in Perroto and Baluska) 93-114	Example symbiosis 4 - <u>Cyanobacteria</u>
Week 9		Douglas p. 39 - 55; Brundrett 2002	Evolution and partner capture
Week 10	Cheaters and conflict resolution in mutualistic symbioses	Paracer and Amadjian 192 - 195, Jandér and Herre, 2010	Example symbioses 5 - Pollination symbioses - <u>Ficus and Yucca</u>
Week 11		Douglas p. 56 - 66; Althoff et al. 2006	Costs of symbiosis and cheating
Week 12		Douglas p. 66 - 90; Gilson 2001	Vertical transmission and assimilation
Week 13		Paracer and Amadjian 65 - 69; Olivares, Bedmar, and Sanjuán 2013	Example symbiosis 6 - <u>Legumes and rhizobia</u>
Week 14	Coevolution and mutualistic symbioses	Douglas 91 -105; Markmann et al. 2008	Establishment of symbioses
Week 15		Douglas 125 - 150; Picullel et al. 2008	Diversification and coevolution
Week 16		Course synthesis and evaluation	
Finals week	FINAL WRITTEN EXAM (time, date, location TBA)		