

Term Information

Effective Term Summer 2013

General Information

Course Bulletin Listing/Subject Area Evol, Ecology & Organismal Bio
Fiscal Unit/Academic Org Evolution, Ecology & Org Bio - D0390
College/Academic Group Arts and Sciences
Level/Career Graduate
Course Number/Catalog 7892
Course Title Soil Acarology
Transcript Abbreviation Soil Acarol
Course Description Taxonomy, ecology, and life-history of mites associated with soil and litter
Semester Credit Hours/Units Fixed: 6

Offering Information

Length Of Course 12 Week (May + Summer)
Flexibly Scheduled Course Always
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable Yes
Allow Multiple Enrollments in Term No
Max Credit Hours/Units Allowed 12
Max Completions Allowed 2
Course Components Workshop
Grade Roster Component Workshop
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites ENT 670/EEOB 5890 and BIOL 1114/BIOL 1114H/BIO 114, or permission of instructor
Exclusions

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 26.0701
Subsidy Level Doctoral Course
Intended Rank Masters, Doctoral, Professional

Quarters to Semesters

Quarters to Semesters

Modified or re-envisioned course that includes substantial parts of the content and learning goals of one or more quarter courses

List the current courses by number and title that are to be subsumed into proposed course

ENT 872

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Identify mites in soil and litter
- Understand the roles of mites in soil ecology
- Recognize and be able to interpret evolutionary patterns in soil mite diversification

Content Topic List

- Identification of soil and litter mites to major groups, knowing how to move on from that to more specific identification
- Correct identification of the role (or on occasion suspected role) of various mite lineages in soil food webs and nutrient cycling
- Identification and explanation of trends in soil mite diversification, e.g. the role of defense in oribatid evolution

Attachments

- EEOB 7892 Soil syllabus.docx

(Syllabus. Owner: Lanno, Roman P.)

Comments

- This course is part of the Summer Acarology Program that was part of the Entomology curriculum but has been transferred to EEOB since Dr. Hans Klompen is now in EEOB. Will be offered as a three-week workshop, Lecture – 3.5 h/day/18 days; Lab – 6.5 h/day/18 days.

I'm forced to select at least one course length, none of which is appropriate for this course. I selected May+summer since that's when it will be offered. *(by Lanno, Roman P. on 01/17/2013 01:59 PM)*

- Please provide a sample syllabus. The combination of 14, 7, 3.5 wk and flexibly scheduled seems excessive.

Please justify. *(by Hadad, Christopher Martin on 01/10/2013 10:47 PM)*

COURSE REQUEST
7892 - Status: PENDING

Last Updated: Vankeerbergen, Bernadette
Chantal
02/04/2013

Workflow Information

| Status | User(s) | Date/Time | Step |
|--------------------|--|---------------------|------------------------|
| Submitted | Lanno, Roman P. | 01/09/2013 03:37 PM | Submitted for Approval |
| Approved | Lanno, Roman P. | 01/09/2013 03:48 PM | Unit Approval |
| Revision Requested | Hadad, Christopher Martin | 01/10/2013 10:47 PM | College Approval |
| Submitted | Lanno, Roman P. | 01/17/2013 02:00 PM | Submitted for Approval |
| Approved | Lanno, Roman P. | 01/17/2013 02:01 PM | Unit Approval |
| Approved | Hadad, Christopher Martin | 01/18/2013 05:20 PM | College Approval |
| Pending Approval | Nolen, Dawn Jenkins, Mary Ellen Bigler Vankeerbergen, Bernadette Chantal Hogle, Danielle Nicole Hanlin, Deborah Kay | 01/18/2013 05:20 PM | ASCCAO Approval |

EEOB 7892
SOIL ACAROLGY
CREDIT HOURS: 6

NATURE OF PROGRAM AND FUNDING:

Soil Acarology is part of the Acarology Summer Program, which has been in continued existence since 1951. The program offers highly intensive 1-3 week courses aimed at teaching mite taxonomy and systematics with an emphasis on learning to identify the various groups of mites. Soil Acarology aims at soil and litter mites, while other, already recognized, courses concentrate on acarines of medical and veterinary importance (Medical Veterinary Acarology; EEOB 7891) or acarines of importance to agriculture (Agricultural Acarology; EEOB 7890). The three advanced level courses at the program are team taught by guest lecturers recognized as specialists in their fields, under supervision of OSU graduate faculty. Participants include professionals, postdocs, and graduate students coming from all over the world (foreign enrollment over 50%).

The summer program is designed to be largely funded by course fees paid by non-OSU participants (salary for OSU faculty during the Summer Program is not paid by the program). This covers basic materials and travel fees for the various lecturers. No new OSU funding is requested.

INSTRUCTIONAL STAFF:

Co-organizers:

Hans Klompen klompen.1@osu.edu 614 292 7180
Glen Needham needham.1@osu.edu

Guest lecturers (for 2012, composition varies over time)

Frederic Beaulieu Agriculture and Agri-Food Canada, Ottawa, Canada
Valerie Behan-Pelletier Agriculture and Agri-Food Canada, Ottawa, Canada
Roy Norton State University of New York, Syracuse, NY
Ronald Ochoa SEL, USDA, Beltsville, MD
Barry OConnor University of Michigan, Ann Arbor, MI
David Walter Royal Alberta Museum, Edmonton, Canada
Cal Welbourn Florida State Collection of Arthropods, Gainesville, FL

GRA

MEETING TIMES: MTWRF 8:30am - 8:00pm, Sa 8:30am - 5pm, Su 1:00pm - 8:00pm

FORMAT: Three 1-1.5 hr lectures/day (morning, afternoon, evening [evening lecture occasionally shortened]) all followed by 2-3 hr lab periods. Saturday evening and Sunday morning: no classes. Starting on Monday, continuing for 19 days ending on Friday (5:00pm). Courses continue through any holidays (e.g. July 4th).

GOALS AND OBJECTIVES: Primarily, students will learn to identify mites associated with soils. In addition students will gain a good understanding of the role of various lineages of mites in soil ecology. They will be able to recognize and interpret evolutionary patterns in soil mite diversity, e.g. the role of defense in evolution of Oribatida.

GRADING AND EXAMS: Based on participation, results of quizzes during the week, and results for a comprehensive final exam (optional for non-OSU participants). Total 150 points, 5 unscheduled quizzes (10 points each), final exam (60 points), participation 40 points. Quizzes and the final exam will consist of unknown specimens (requiring identification to family and/or instar), with one or more follow-up questions. The exam will be scheduled about a week after the workshop. Final letter grades will be assigned according to OSU norm (A: 93-100%, A-: 90-92.9 %, B+: 87-89.9 %, etc.).

COURSE MATERIALS: Specific references (for different subsections of the course) will be provided. This includes most taxonomic keys used (printed) and pdf's of supporting material. All this is part of the course pack.

General references (not required, available in classroom):

Alberti, G. & Coons, L. B. (1999) Volume 8C. Acari: Mites. *In: F. W. Harrison & R. F. Foelix (Eds), Microscopic anatomy of invertebrates. Vol. 8. Chelicerate Arthropoda.* John Wiley & Sons, Inc., New York, NY, pp. 515-1215.

Krantz, G. W. & Walter, D. E. (2009) A manual of acarology. *In. Texas Tech University Press, Lubbock, TX.*

Walter, D. E. & Proctor, H. C. (1999) *Mites: Ecology, Evolution and Behaviour.* New York: CABI Publishing, p. 322.

ABSENCE POLICY: The tight schedule of these workshops does not leave time for make-up quizzes etc. Cases will be handled on an individual basis.

RESOURCES AND EXPECTATIONS: Students are encouraged to ask questions during lecture and lab, as well as outside of class. Resources, including outlines of PowerPoint lecture presentations will be posted on EEOB Media. Nearly all the specimen and literature resources of the OSU Acarology Collection will be available. Bringing your own material for examination / identification is encouraged, although the expectation is to work primarily with material provided. Microscope equipment provided and specimens used are valuable. Those abusing equipment or specimens will be removed from the course.

DISABILITIES STATEMENT: In accordance with University policy and the Americans with Disability Act, academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that the student take the initiative to bring such needs to the instructor's attention, as the instructor is not legally permitted to inquire about such particular needs of students. Students who may require special assistance in emergency evaluations should contact the instructor as to the most appropriate procedures to follow in such situations. Contact Disability Support Services at 292-3307 for additional services.

Students are expected to adhere to the Code of Student Conduct (http://studentaffairs.osu.edu/resource_csc.asp). According to University policy, your instructors are obligated to report any instance of academic misconduct, and the potential consequences include loss of credit for an assignment or exam and a failing grade for the course.

STATEMENT OF DIVERSITY: The instructors of this course are committed to promoting a welcoming climate for all students. For more information on diversity see the OSU website (<http://www.osu.edu/diversity/>). The instructors welcome suggestions, questions, and comments. Any exchange of ideas will be conducted with confidentiality, safety, and respect as guiding principles.

OUTLINE OF THE COURSE (specific topics for lectures may vary depending on the lecturers involved, and the composition and interests of the participants)

OUTLINE OF THE COURSE (based on current lecturers; content and organization will vary with different lecturers):

Week 1: Parasitiformes (guest lecturers Walter & Beaulieu)

Lecture 1. Introduction to Mites & other chelicerate Arthropods

Lab 1. Key to Orders (Superorders) of Acari

Lecture 2. Opilioacarida & Introduction to the Parasitiformes

Lab 2. Introduction to Parasitiformes (Ixodida, Holothyrida & Mesostigmata)

Lecture 3. Introduction to Mesostigmata

Lab 3. Morphology of Mesostigmata

Lecture 4. Trigynaspida

Lab 4. Soil Trigynaspida; Key to Genera of Cercomegistina

Lecture 5. The Uropodine Lineage - Sejina, Microgyniina & Uropodina

Lab 5. Key to Sejina & Microgyniina

Lecture 6. Uropodina

Lab 6. Keys to Uropodina

Lecture 7. Zerconina, Epicriina & Arctacarina

Lab 7. Zerconina, Epicriina & Arctacarina; Review of Early Derivative Mesostigmata

Lecture 8. Parasitina

Lab 8. Key to genera of Pergamasinae

Lecture 9. Introduction to Dermanyssina

Lab 9. Key to genera of Veigaiidae

Lecture 10. Sperm Transfer in Soil Mites: Evolutionary & Ecological Perspectives

Lab 10. Muster of Males

Lecture 11. Rhodacaroidea

Lab 11. Keys to Rhodacaridae, Ologamasidae, Digamasellidae; Review of early Dermanyssina

Lecture 12. Introduction to Ascoidea

Lab 12. Key to Genera of Ascidae

Lecture 13. Feeding and Reproduction in Dermanyssina

Lab 14. Keys to Halolaelapidae and Ameroseiidae

- Lecture 14. Microhabitats & Biodiversity
 - Lab 14. Phytoseiidae in soils
- Lecture 15. Eviphidoidea
 - Lab 15. Keys to Parholaspididae, Eviphididae, Macrochelidae & Pachylaelapidae from Soils
- Lecture 16. Dermanyssoidea
 - Lab 16. Keys to Genera (Subgenera) of Soil Dermanyssoidea
- Quizzes after 3, 6, 7, 11, 14, plus final quiz (15 unknowns)
- week 1B: Introduction Acariformes: Endeostigmata (guest lecturer Walter)
 - Lecture 17. Endeostigmata
 - Lab 17. Keys to Families and Genera of Endeostigmata

- Week 2A: Astigmata (guest lecturer OConnor)
 - Lecture 18. Astigmata
 - Lab 18 (abbreviated): keys to families of soil inhabiting Astigmata
- Week 2B: Oribatida (guest lecturers Norton & Behan-Pelletier)
 - Lecture 19. Introduction to oribatid mites; introduction macropyline groups
 - Lab 19. Morphology and identification of Palaeosomata and Enarthronota
 - Lecture 20. Introduction to macropylines
 - Lab 20. Morphology and identification of Palaeosomata and Enarthronota
 - Lecture 21. Feeding biology
 - Lab 21. Morphology and identification of Palaeosomata and Enarthronota
 - Lecture 22. Introduction to glandulate groups
 - Lab 22. Morphology and identification of glandulate macropyline groups
 - Lecture 23. Morphology 1: gnathosoma and GI tract
 - Lab 23. Morphology and identification of glandulate macropyline groups
 - Lecture 24. Ecology
 - Lab 24. Morphology and identification of glandulate macropyline groups
 - Lecture 25. Introduction to Brachypylyna; morphology 2: notogastral setation
 - Lab 25. Morphology and identification of pycnonotic brachypylyne groups
 - Lecture 26. Morphology 3: legs
 - Lab 26. Morphology and identification of pycnonotic brachypylyne groups
 - Lecture 27. Predators and defense
 - Lab 27. Morphology and identification of pycnonotic brachypylyne groups
 - Lecture 28. Introduction to Poronota
 - Lab 28. Morphology and identification of Poronota
 - Lecture 29. Reproductive biology
 - Lab 29. Morphology and identification of Poronota
 - Lecture 30. Parasites and commensals
 - Lab 30. Morphology and identification of Poronota
 - Lecture 31. Introduction to immatures
 - Lab 31. Morphology and identification of immatures
 - Lecture 32. Collection, culturing and study techniques
 - Lab 32. Study of living material and sorting of unknowns
 - Lecture 33. Microhabitats

Lab 33. Study of living material and sorting of unknowns

Lecture 34-35. Catch-up

Lab 34-35. Identification of unknowns

Quizzes: Labs 34 and 35 serve as evaluation tools

Week 3: Prostigmata (guest lecturers Welbourn & Ochoa)

Lecture 36. Introduction : developmental morphology

Lab 36. Anatomy of selected Prostigmata

Lecture 37. Introduction: solenidia and sensory structures

Lab 37. Anatomy of selected Prostigmata

Lecture 38. Collection methods for soil arthropods

Lab 38. Morphology and identification of Anystina

Lecture 39. Anystina

Lab 39. Morphology and identification of Anystina

Lecture 40. Setal homologies, identification immatures

Lab 40. Morphology and identification of Anystina

Lecture 41. Eupodina, slide mounting techniques

Lab 41. Morphology and identification of Eupodina

Lecture 42. Tydeoidea

Lab 42. Morphology and identification of Eupodina

Lecture 43. Bdelloidea

Lab 43. Morphology and identification of Eupodina

Lecture 44. Eleutherengona, introduction

Lab 44. Morphology and identification of Eleutherengona

Lecture 45. Eleutherengona, Raphignatoidea

Lab 45. Morphology and identification of Eleutherengon

Lecture 46. Eleutherengona, Cheyletoidea

Lab 46. Morphology and identification of Eleutherengon

Lecture 47. Parasitengona, introduction, Erythraeina

Lab 47. Morphology and identification of Erythraeina

Lecture 48. Trombidiina

Lab 48. Morphology and identification to families or genera in Trombidiina

Lecture 49. Comparative morphology, diagnostic characters; collecting, preservation techniques, rearing

Lab 49. Morphology and identification to families or genera in Trombidiina

Lecture 50. Tarsonemida

Lab 50. Identification to family, some genera, in Tarsonemida

Lab 51. Identification of unknowns

Quizzes: Some mixed in earlier, mostly Lab 51