

Term Information

Effective Term Autumn 2013
Previous Value Summer 2012

Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

We are adding the option for distance education component.

What is the rationale for the proposed change(s)?

The course will be presented by Dr. Abedon, a faculty member on the Mansfield campus, using web-based materials and an on-line text he has authored.

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

None

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

General Information

Course Bulletin Listing/Subject Area	Microbiology
Fiscal Unit/Academic Org	Microbiology - D0350
College/Academic Group	Arts and Sciences
Level/Career	Graduate, Undergraduate
Course Number/Catalog	5169H
Course Title	Microbial Evolution
Transcript Abbreviation	Micro Evolution
Course Description	Evolution and evolutionary ecology of bacteria, viruses, and other microorganisms: mutation, selection, gene exchange, macroevolution, social interactions, coevolution, endosymbioses, emerging virulence, and increasing complexity.
Semester Credit Hours/Units	Fixed: 3

Offering Information

Length Of Course	14 Week, 7 Week, 12 Week (May + Summer)
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	Yes
Is any section of the course offered	100% at a distance Greater or equal to 50% at a distance
<i>Previous Value</i>	<i>No</i>
Grading Basis	Letter Grade
Repeatable	No
Course Components	Lecture
Grade Roster Component	Lecture
Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites

Prereq: Honors standing, and 6 cr hrs of Biology; or permission of instructor.

Exclusions

Not open to students with credit for Micrbiol 5169 (669) or 699H.

[Previous Value](#)

Not open to students with credit for Micrbiol 669H.

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code

26.0502

Subsidy Level

Doctoral Course

Intended Rank

Junior, Senior, Masters, Doctoral

Quarters to Semesters

Quarters to Semesters

Semester equivalent of a quarter course (e.g., a 5 credit hour course under quarters which becomes a 3 credit hour course under semesters)

List the number and title of current course being converted

Micrbiol 669H: Microbial Evolution.

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

Content Topic List

- Evolution, evolutionary ecology, population biology
- Microbiology, overview of basic concepts
- Non-Darwinian forces (migration, drift, mutation)
- Natural selection
- Experimental evolution, serial passage, continuous culture
- Horizontal gene exchange among organisms
- How genomes evolve given horizontal gene exchange
- Evolution of cooperation in microorganisms
- Symbioses involving microorganisms, including endosymbioses
- Evolution of parasite virulence
- Evolution of larger and more complex organisms

COURSE CHANGE REQUEST
5169H - Status: PENDING

Last Updated: Vankeerbergen, Bernadette
Chantal
03/22/2013

Attachments

- Micro 5169H Syllabus (003).docx: Syllabus
(Syllabus. Owner: Daniels, Charles John)
- Abedon_appeal_5169.pdf: appeal for effective term date
(Appeal. Owner: Daniels, Charles John)

Comments

- The Department of Microbiology will provide a room for on-campus exams as needed.

Revised exclusions to include 5169 (669); honors course is new under semesters, no need for 669H exclusion.

An appeal letter is attached. *(by Daniels, Charles John on 03/19/2013 03:29 PM)*

- 1) Exclusion should also list 5619.
- 2) Please attach appeal or change effective term. See deadlines here: <http://ascas.osu.edu/curriculum/important-deadlines> *(by Vankeerbergen, Bernadette Chantal on 03/18/2013 04:53 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Daniels, Charles John	03/15/2013 10:33 AM	Submitted for Approval
Approved	Daniels, Charles John	03/15/2013 11:09 AM	Unit Approval
Approved	Hadad, Christopher Martin	03/16/2013 08:19 AM	College Approval
Revision Requested	Vankeerbergen, Bernadette Chantal	03/18/2013 04:53 PM	ASCCAO Approval
Submitted	Daniels, Charles John	03/19/2013 03:29 PM	Submitted for Approval
Approved	Daniels, Charles John	03/19/2013 03:30 PM	Unit Approval
Approved	Hadad, Christopher Martin	03/21/2013 11:17 AM	College Approval
Approved	Vankeerbergen, Bernadette Chantal	03/22/2013 10:56 AM	ASCCAO Approval
Pending Approval	Fink, Steven Scott Eyerly, Gloria A Hogle, Danielle Nicole Vankeerbergen, Bernadette Chantal	03/22/2013 10:56 AM	ASC Approval
Pending Approval	Vanderheijden, Merijntje Karin	03/22/2013 10:57 AM	Ad-Hoc Approval

COURSE SYLLABUS FOR MICROBIOLOGY 5169H: FALL, 2013
MICROBIAL EVOLUTION (HONORS)

(The Ohio State University)

Micro 5169H:

Evolution and evolutionary ecology of bacteria, viruses, and other microorganisms: mutation, selection, gene exchange, macroevolution, social interactions, coevolution, endosymbioses, emerging virulence, and increasing complexity.

Prereq: Honors standing, and 6 cr hrs of Biology; or permission of instructor. Not open to students with credit for Micrbiol 669H.

We will consider the above mandate (as pasted directly from the OSU Course Catalog) by covering the following chapters/units, more or less in order, as provided by a to-be-available online textbook, *Microbes and Evolution* (Abedon, 2013):

0. Introduction to Course
1. Introduction to Microbiology
2. Introduction to Evolutionary Biology/Microbial Population Biology
3. Non-Darwinian Forces as Viewed from a Microbial Perspective
4. Natural Selection as Viewed from a Microbial Perspective
5. Pre-Biotic Evolution & Microbial Phylogenetics
6. Evolution of Resistance to Antibiotics
7. Passage of Microorganisms Through Time
8. Experimental Evolution
9. Review(s) and Midterm Exam
10. Sex and Horizontal Gene Transfer
11. Evolution of Microbial Genomes
12. Cooperation and Defection among Microorganisms
13. Symbioses Involving Microorganisms
14. Evolution of Pathogen Virulence
15. Evolution of Greater Size and Complexity

Carmen is used extensively. Materials will be provided as PDFs, websites, and online videos. The standard OSU grading scheme is employed to convert percentage grades to letter grades (see http://elearning.osu.edu/carmen-help/instructors/grade_select_a_grade_scheme.htm).

Expected Learning Outcomes:

Students will understand the principles of microbial evolution and related microbial population biology, allowing informed access to the field's literature. Students also will improve their ability to read that literature as well as how their technical writing skills may be improved.

These outcomes will be achieved through a combination of reading of your textbook (particularly those chapters as listed above), viewing of lectures, writing assignments, reading of assigned article, participation in discussions, and leading of those discussions.

Approximate Schedule:

Fall semester spans 70 classroom days (total) over an approximately 16-week period. Week 1 starts on a Wednesday (August 21), Week 3 excludes Labor Day (September 2), Week 13 excludes Veteran's Day (November 11), Week 15 excludes Thanksgiving (November 27, 28, and 29), and Week 16 consists of only two days (December 1 and 2). With dates indicated for Mondays, we will be doing the following over the course of those 16 weeks. Individual passwords will be supplied to allow access to chapters, with your Carmen ID serving as your username.

Wk	Monday	To be covered	Chapter name (in italics) or comment
1	Aug. 19	Chapters 0, 1, and 2 ^a	Intro to course, microbiology, evolutionary biology, etc.
2	Aug. 26	Chapter 3	<i>Non-Darwinian Forces as Viewed from a Microbial Perspective</i>
3	Aug. 26	Chapter 4	<i>Natural Selection as Viewed from a Microbial Perspective</i>
4	Sept. 9	Chapter 5	<i>Pre-Biotic Evolution & Microbial Phylogenetics</i>
5	Sept. 16	Chapter 6	<i>Evolution of Resistance to Antibiotics</i>
6	Sept. 23	Chapter 7	<i>Passage of Microorganisms Through Time</i>
7	Sept. 30	Chapter 8	<i>Experimental Evolution</i>
8	Oct. 7	Review and Midterm ^b	Exam covers chapters 3, 4, 5, 6, 7, and 8.
9	Oct. 14	Chapter 9	<i>Sex and Horizontal Gene Transfer</i>
10	Oct. 21	Chapter 10	<i>Evolution of Microbial Genomes</i>
11	Oct. 28	Chapter 11	<i>Cooperation and Defection among Microorganisms</i>
12	Nov. 4	Chapter 12	<i>Symbioses Involving Microorganisms</i>
13	Nov. 11	Chapter 13	<i>Evolution of Pathogen Virulence</i>
14	Nov. 18	Chapter 14	<i>Evolution of Greater Size...</i>

^a These all represent background reading, none of which you will be responsible for explicitly on exams.

^b These will take place on different days, in person, at a locations and times to be determined.

15	Nov. 25	Chapter 14 (cont.)	<i>Evolution of Greater ... Complexity</i>
16	Dec. 1	Review and Final ^c	Exam covers chapters 9, 10, 11, 12, 13, and 14.

Interaction with Instructor (Carmen discussions):

I am hopeful that substantial discussions may take place using the Carmen discussion feature.

Interaction with Instructor (pre-exam reviews):

During weeks 8 and 16 I will be available for one or more discussions one or a few days prior to exams. Ideally these discussions will take place after some studying has taken place so that I can provide clarifications about meanings, etc. I will provide a Doodle or equivalent poll for identifying a time or times when we can all be in the same place and the location for these interactions will announced based on availability. I will also be available for one-on-one interactions one the same day(s) as these reviews and additionally will do my best to make myself available similarly on the day of exams.

Interaction with Instructor (contact information):

This is an online course that is provided from a remote, that is, non-Columbus-based locations. Nevertheless, the instructor hopes to be able to provide as much interaction as is necessary to achieve success in the course. As such, the following means of contacting the instructor may be employed (with appointments if real-time interaction is required and otherwise not readily achieved):

Means	ID	Comment
Email (OSU)	Abedon.1@osu.edu	This should be the primary means of interaction, though feel free to proceed to the following if this does not work in a timely manner for you.
Email (other)	Stephen.Abedon@gmail.com	This email address I check more from my phone so at times may reach me faster than my OSU address.
IMing	Stephen.Abedon@gmail.com	This is probably the best way to reach me for IMing.
Texting	419-564-5538 (cell)	Feel free to text if you need to reach me quickly.
Phone	419-564-5538 (cell)	I'll turn my ring off if I don't want to be reached (e.g., while sleeping). If I'm insufficiently available then we

^c These will take place on different days, in person, at a locations and times to be determined.

can make an appointment.

If the above are not sufficient then we can also try AIM or Skype, with the latter perhaps particularly use if visuals will be helpful. These we can arrange on an as need basis. Don't forget to check Carmen regularly for "News".

Scheduling exams:

During weeks 8 and 16 I will provide a Doodle or equivalent poll for identifying a time or times when we can all be in the same place. Exams ideally will not involve substantial time pressure so we should strive to schedule them over at least two-hour blocks. Exam locations will announced based on availability and note that finding locations may be easier given later-in-the-day scheduling of exams.

Course instructor:

Dr. Stephen T. ("Steve") Abedon is your instructor (Ph.D., University of Arizona, 1990).

Homepage: <http://www.archaealviruses.org/abedon/>.

Email: abedon.1@osu.edu (place "Micro 5169" in header!).

Note that my office is located in Columbus.

Grading:

To earn an A, a student will be expected to demonstrate outstanding mastery, synthesis, and "original" development of material covered, and to do so within the context of essay-type examination, formal writing, classroom participation, and oral presentation. In other words, consistently do a good job.

We will have five gradable components to the course, each worth 20% of your grade:

- A midterm
- A quasi-cumulative final
- Two papers (each worth 20%)
- Various paper presentations and class participation (together will be worth 20%)

Exams will be time limited and cover all material covered in class and "journal club".

Exams also will be open text, articles, and notes, but electronic devices may not be used.

Lecture Exam and Quiz Policy:

Exams and quizzes will be time limited and will not be group efforts. Students with excusable conflicts need

to contact Dr. Abedon at least one week ahead of the exams. Should you miss an exam and have a valid excuse, then you must contact Dr. Abedon and provide written documentation for your absence in order to be eligible to take a make-up exam. Also note that the format of the make-up exam may be different than the regular exams. Electronic equipment may *not* be used during exams or quizzes except as directed by the Office for Disability Services.

There will be no make-up quizzes. Online quizzes will represent an individually random sort of terms and thus quizzes likely will differ between offerings in terms of their randomized sort. Exams, too, will consist in part of randomized sorts of quiz-like questions.

You are expected to *not* consult others during the taking of online quizzes. See the academic misconduct statement, below.

Questions Concerning Grading of Course Materials:

If you have any questions or concerns regarding grading of any of the lecture exams or quizzes offered in this course, you must submit them to Dr. Abedon within one week from the date the grade for the exam is posted on Carmen. You must address all the concerns regarding the final exam before the final grade is posted on Carmen. Once the final grade is posted, no questions from the final will be addressed.

Writing Assignments (Papers):

There will be two five-page papers that will be derived from the assigned readings plus which will cite no less than four articles from the primary literature (see http://en.wikipedia.org/wiki/Primary_literature).

- Papers will be 1,000-1,250 words long, main text (i.e., excluding figure legends, tables, references).
- At least 5 references that are peer or editor reviewed, at least 4 from the primary literature.
- Place references at the end of the document, using, for example, ASM- or *Genetics*-type referencing conventions (e.g., http://jb.asm.org/misc/journal-ita_org.dtl#02) ← don't blow off this part!!!!)
- Supply me with PDFs (preferred) or scanned copies of papers so that I don't have to look them up
- Please try to do a good, professional-looking job, including with the references—spell check, grammar check, get somebody to read it for you, are your URLs working, etc. before handing it in
- Please delete all comments and all tracked changes from documents before (re)submitting
- Please submit as MS Word documents, by email to Abedon.1@osu.edu.
- The better your draft, and the sooner you get it to me, the better off you are, time- & my input-wise
- “draft” ≠ “first draft” but instead is a well-polished document!

In these writing assignments I hope to inspire inductive reasoning in the sense of the gathering of observations and hypotheses into a unifying whole. Inductive reasoning results, ideally, in a synthesis of ideas, where synthesis may be defined as an integration of two or more pre-existing elements, resulting in a new creation.

Synthesis thus involves more than just reviewing articles, and certainly represents more than just linear and otherwise unconnected expositions on a series of ideas or observations. Thus, be accurate, be precise, write well, be creative, think at least moderately deeply about your subject, attempt to be inductive in your reasoning, and do strive toward some moderate semblance of combining the ideas that you present into something at least slightly grander than the sum of the presented parts! Note: For the ultimate biological

synthesis, see, of course, Darwin (1859).

In other words, play a little!

Paper-Writing Schedule:

- Week 4: I need to know the topic of your first paper
 - The topic is based on material in your readings; do not stray far from what the course covers!
- Week 7: A well-written draft of paper #1 is due
 - The draft should be substantially polished!
- Week 9: Final version of paper #1 is due
- Week 10: The topic of your second paper is due
- Week 13: A well-written draft of paper #2 is due
- Week 15: Final version of paper #2 is due

Reading Assignments (Journal Club):

We will be reading a number of journal articles which we will discuss and which you will be responsible for on exams. Each of you will lead the discussions on two of these “journal club” articles, one in pairs and one solo. We will be covering approximately two articles per chapters 3 through 14 of your text, or roughly 20 overall. It is ok to base papers (see immediately above) on the same subjects as your “jc” articles (and even count toward your total). I need volunteers, starting week 3, to present papers singly or in pairs, and then singly. We should shoot for getting all first presentations done prior to the first midterm.

Disability Service Statement

Any student who feels s/he may need an accommodation based on the impact of a disability should contact Dr. Abedon privately to discuss your specific needs. Please contact the Office for Disability Services to coordinate reasonable accommodations for students with documented disabilities.

Academic Misconduct Statement

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct (studentlife.osu.edu/pdfs/csc_12-31-07.pdf), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute "Academic Misconduct."

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an "excuse" for academic misconduct, so we recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If we suspect that a student has committed academic misconduct in this course, we are obligated by University Rules to report our suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could

include a failing grade in this course and suspension or dismissal from the University. If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact Dr. Abedon.

Ten Suggestions for Preserving Academic Integrity (<http://oaa.osu.edu/coamtensuggestions.html>): (1) Acknowledge the sources that you use when completing assignment, (2) Avoid suspicious behavior, (3) Do not fabricate information, (4) Do not falsify any type of record, (5) Do not give in to peer pressure, (6) Do not submit the same work for credit in two courses, (7) Do your own work, (8) Manage your time, (9) Protect your work and the work of others, and (10) Read the course syllabus and ask questions.

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee. For additional information, see the Code of Student Conduct (http://studentaffairs.osu.edu/resource_csc.asp)

Drop/Withdrawal Statement

It is the **student's responsibility** to know the deadlines for dropping a course or withdrawing from the University. **Term drop & withdrawal deadlines can be found at:** <http://registrar.osu.edu/> (click on the current term under "Important Dates" and scroll down to ADD/DROP/WITHDRAW DEADLINES). **If you receive financial aid, you should always talk with a financial aid specialist prior to adjusting your schedule.** If you stop attending a course but do not drop it, you risk receiving a failing grade which could negatively affect your GPA and your financial aid status. You can call 419-755-4317 to set up an appointment with an academic advisor or a financial aid specialist in 104 Riedl Hall.

Student Conduct

The code of student conduct is established to foster and protect the core missions of the university, to foster the scholarly and civic development of the university's students in a safe and secure learning environment, and to protect the people, properties and processes that support the university and its missions (http://studentaffairs.osu.edu/resource_csc.asp). Students who violate faculty expectations may be subject to the code of conduct.



Department of Microbiology

484 West 12th Avenue
Columbus, OH 43210-1292

Phone (614) 292-2301
Fax (614) 292-8120

March 19, 2013

Dear Colleague,

The Department of Microbiology is requesting a waiver in the "effective term" to allow the distance learning versions of MICRBIOL 5169 and MICRBIOL5169H to be offered in the autumn term of 2013.

Dr. Abedon, a Microbiology faculty member at the Marion campus, has recently developed on-line versions of these classes. The timing of these developments dictated the timing of our request, and unfortunately we were past the January 1 deadline. We feel the distance learning versions of these courses are a great opportunity for our students and a significant convenience for our faculty. This format provides flexibility for our students and an opportunity to interact with our faculty at the branch campuses. The ability of our branch campus faculty to remain at their campus will also create an environment where we can better utilize their teaching expertise here on the main campus. Dr. Abedon is well qualified for this task, he has extensive experience in web-based writing and he has written a text in this area that he will provide to the students in an on-line form. We are excited to have Dr. Abedon take the lead in developing these new teaching approaches and we anticipate that these courses will serve as examples for the development of other on-line classes.

Dr. Abedon's teaching schedule will only allow these classes to be offered in the autumn term and postponing these classes until autumn of 2014 would be a detriment to our program. We hope that you will consider these circumstances in your review.

We look forward to your response.

Sincerely,

A handwritten signature in blue ink that reads "Charles J. Daniels".

Charles J. Daniels, Ph.D.
Professor
Lead for Semester Conversion