

**Integrative Biology 483 - Insect Pathology**  
**3 Credit Hours**  
**(<https://learn.illinois.edu/>)**  
**Spring 2017 Syllabus**

**Teaching Team**

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**Course Description**

This fully **ONLINE**, 8-week, non-laboratory course examines the general principles of pathology as they apply to insects and other invertebrate animals. Because they are the best-known models, the focus is primarily on insect hosts. The course material briefly covers non-infectious disease but focuses primarily on infectious diseases caused by viruses, bacteria, fungi, protozoa, and nematodes. The epizootiology of naturally occurring insect pathogens, use of pathogens as microbial control agents, and control of pathogens in insect colonies is also addressed.

Same as CPSC 475. 3 undergraduate hours. 3 graduate hours. Offered in alternate years.  
Prerequisite: IB 150 and MCB 150 or consent of instructor.

**Class Meeting Times and Location**

This is an online course taught in the Moodle course management system with no classroom sessions. Although there are no scheduled meeting times, there are weekly assignment and project due dates, including during the first week and during Spring Break. Most assessments will be conducted online but for the midterm and final exams there will be both online and on-campus (proctored) option.

**Required Materials and Services**

There are no formal textbooks for this course. Rather, please refer to the optional books of interest, websites, and e-Reserve information listed in the overview of each weekly module.

**Learning Outcomes**

Disease organisms, as part of a natural enemy complex, are integral components of the ecology of invertebrate animals. Upon completing this course, students will have been introduced to and will understand:

- The factors, both biotic and abiotic that disable and/or cause mortality in insects and other invertebrate animals
- The lifecycles and pathobiology (pathology, transmission, effects) of the major groups of invertebrate pathogens (viruses, bacteria, fungi, protozoa, and nematodes)
- The physiology and ecology of disease in insects, including the role of disease in the population dynamics of the hosts
- The effects of chronic and acute disease on research efforts and insect colonies, including in beneficial insects such as pollinators
- The use of pathogens in the biological control of pest insects and integrated pest management, and mitigation of infectious disease in mass-reared biological control agents, research colonies and beneficial insects

### **Course Organization**

This is a 3-credit hour 8-week ONLINE course that consists of eight content modules. This course is accelerated; 16 weeks' content will be covered in the 8-week time span. This means that **we will also cover content over Spring Break!** But due dates will adjusted somewhat. Students should dedicate approximately 12–16 hours per week to working on the course itself, but actual time commitments will vary depending on input, needs, and personal study habits. Students are required to log on to the course website a minimum of 2 days per week but as discussions develop, will probably need to do so more frequently.

This course is designed with the principles of collaborative learning, constructivism, and active participation in mind. Students are encouraged to share their thoughts and engage in problem solving. The course has a consistent and predictable structure that is organized around the modules, and includes a course website that is straightforward and easy to navigate. Instructions and due dates for activities and assignments are clearly outlined so that students can anticipate what is expected, and will be able to easily stay on track.

We realize that students have a life beyond the scope of this course. However, if unable to complete an assignment because of professional obligations, students should notify the instructor or, better yet, prepare the assignment ahead of time and post it early. This will give classmates a head-start in reading and responding to each participants work. Most assignments are due by 11:55 PM of their respective due dates as listed on the course calendar, giving all class members time to read and comment on each other's work before the next module begins.

Assigned readings and responses to discussion questions should be read and submitted during the module for which they are assigned. Turning in late assignments will result in reduction of points earned.

### **Topic Schedule**

*(for up to date information make sure to check the calendar on the course's Moodle site <https://learn.illinois.edu/>):*

Week 1: Insects Get Sick, Too: An Introduction to Insect Diseases

Week 2: Insect Immunity: Resisting Parasites and Pathogens

Week 3: Characteristics of Pathogens; Bacterial Disease Agents and Opportunists

Week 4: Viva la Viruses!

Week 5: Microsporidian Misfits and other Protists

Week 6: Fungal Pathogens: Mortality from Mycelia

Week 7: Entomopathogenic Nematodes: Disease-Causing Worms

Week 8: Dealing with Disease: Ecology, Epizootiology and Elimination

## Course Activities & Grading

You are expected to complete your work independently, in accordance with University policy. Failure to do so will result in strict disciplinary action, including loss of all credit for the assignment, notification of a dean, and possible dismissal from the University. You may work with others on homework, but the final product must be your own.

Assignments	Introduction	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6	Module 7	Module 8
Introductory Activities	6								
Lesson Questions		5	5	5	5	5	5	5	5
Insect Pathology History		10							
Terms		10							
Dissection Activity			10						
My Favorite Insect's Immune System Activity			10						
Weekly Essay				20	20	20	20	20	20
Quizzes		10	10	10	10	10	10	10	10
Reflections		2	2	2	2	2	2	2	2
Exams					40				50
Total Points	6	37	37	37	77	37	37	37	87

## Module Overviews

Each module will begin with an overview and explanation, provide learning goals, estimated time required, and activities list. Modules are designed with similar structure and activities unless otherwise specified. The module activities are explained in greater detail in the Module overviews.

## Readings and Resources

No textbook is required. Each module has required readings that will allow students to gain more insight into the topic while extending and supporting the lecture material. Readings will come from primary literature, secondary literature, or current high-quality science writing on the web. Videos, podcasts and audio recordings will also be included in the modules. They

may include interviews with scientists conducting cutting-edge research in the field of insect pathology.

### **Lessons**

Two or more lessons will cover the topics in each module. These lectures are delivered as Moodle lessons. They will include text, pictures, graphs, video and audio. The lectures are designed specifically for the on-line environment. All content will be made accessible to all students. In addition, the students will be asked questions throughout the lesson so that feedback can be given.

### **Weekly Activities**

Each week, students will complete one or two assignments. Usually the activities are submitted for grading in essay form. It is expected that students will contribute constructive feedback to other course members' posts (when posts are required) and facilitate the discussion in a dedicated thread.

### **Quizzes**

At the end of each module, students will take a self-paced quiz to evaluate new knowledge attained from lecture, readings, videos, synchronous discussion, and provide new information on the project insect. This will be a mixture of multiple choice, true/false, matching, and short answer questions.

### **Reflections**

Every week take a moment for reflection when you are (almost) done with the Module. Consider the topic or topics addressed during the module (readings, lessons, activities, etc.). What was your initial knowledge about the topics and expound on how your thinking has or has not changed based on your current understanding of the topic or topics discussed. Your reflection should include insights gained from interactions with your peers, your own self-reflections about the importance of this topic, insights gained from the additional readings provided in this module, etc.

### **Exams**

There will be a Midterm Exam after Module 4 and a Final Exam after Module 8. The Midterm Exam will cover content covered in Modules 1 through 4. The Final Exam will cover content covered in Module 5 through 8, the final exam will also ask some general questions about the field of insect pathology. Both exams will include Multiple Choice, True/False, Short answer and Essay questions. The midterm will be an hour exam, the final will be a 90-minute exam.

Both exams will be proctored. You have multiple options for where you want to take the exam. Please see the Proctored Exam Options under the Exam tab on Moodle for more information.

### **Weekly Live Sessions**

The instructors will be available for virtual office hours. Please make an appointment ahead of time. Even if you do not have specific questions we are always happy to talk about insects and their pathogens.

To enter the virtual office click the link at the top right of the course home page titled "Virtual Office". If it is your first time using Blackboard Collaborate please make sure to take an extra 10 minutes to log on and set up your computer.

### **Course Grading Scale**

<b>Grade</b>	<b>Percent</b>
<b>A+</b>	98–100
<b>A</b>	93–97.99
<b>A–</b>	90–92.99
<b>B+</b>	88–89.99
<b>B</b>	83–87.99
<b>B–</b>	80–82.99
<b>C+</b>	78–79.99
<b>C</b>	73–77.99
<b>C–</b>	70–72.99
<b>D+</b>	68–69.99
<b>D</b>	63–67.99
<b>D–</b>	60–62.99
<b>F–</b>	0–59.99

### **If you need help:**

- Contact your instructor directly if you have a personal question. (*Instructor email*)

- For all other questions about course content, activities, deadlines, technical problems, etc., please check the General Q & A forum on Moodle to see if someone else has already asked your same question and received a response.
- If your question isn't there yet, post your question to the General Q & A forum. Feel free to help your peers out if you know the answer!
- If you have technical problems, please fill out this form (*link to ATLAS-plt*).

### **Definition of a Course Week**

In this course, a Module starts on SATURDAY at 12:00 AM Central Time and ends on SUNDAY (+1 week & 1 day) at 11:59 PM Central Time. Assignments are due by 11:55 PM Central Time, unless otherwise specified (Quizzes open at 6AM Central Time on Friday, close at Noon Central Time on Monday).

For more information, see the University's Academic Calendar.

### **Student Commitment**

By registering for this online course, you commit to self-motivated study, participation in online course activities, and timely submission of all assignments. Furthermore, you commit to accessing the course website and checking e-mail at least 4 days per week, as well as to devoting at least 12–16 hours weekly to preparing for each module and completing the required assignments and readings.

### **Late Submissions of Assignments**

Assignments, case studies, reflective essays, and other written work (collectively referred to as assignments) are due by **11:55 PM** Central Time on the dates specified in the course calendar, unless otherwise noted. Unless permission from the instructor is obtained **at least 1 day before a due date**, projects later than 24 hours past the due date will not receive a grade. Quizzes are open to students for more than 72 hours (Friday 6 AM – Monday noon). Quizzes will not be accessible after the noon deadline.

### **Being Excused from Assignments**

If you wish to be excused from participation in class discussions or from submitting projects on time because of medical reasons or personal emergencies, you must address the issue with the course instructor. Because of this course's fast pace and the potential effect that such excusals may have on your ability to complete it successfully, such accommodation will be made on a case-by-case basis.

### **Instructor Feedback Turnaround Time**

Questions posted to the **Course Q & A** forum generally will be answered within 48 hours. If possible, students are encouraged to answer questions posted by other students to the Course Q & A forum, rather than waiting for an instructor's response.

Assignments submitted online will be reviewed and graded by the course instructor within 3 business days. Exams, essays, and term papers will be graded within 5 business days.

### **Responding to E-mails**

The instructor will respond to e-mail messages within 48 hours of receiving them unless the instructor notifies you ahead of time of an inability to do so. **When sending e-mail, include a subject line that identifies the course number and nature of your question.** The instructor may not respond to questions sent to him or her that should be posted in the Course Q & A forum. Please don't be offended if you are asked to forward your question to this location.

### **Responding to the Discussion Forums**

The role of the instructor within the discussion forums is to help facilitate discussion by providing probing questions, asking for clarification, and helping solve conflicts, as necessary. The instructor will not respond to every post; you are encouraged to share your thoughts, experiences, and ideas with each other as well.

### **Expectations**

According to the Student Code, 'It is the responsibility of each student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions.' Please know that it is my responsibility as an instructor to uphold the academic integrity policy of the University, which can be found here: [http://studentcode.illinois.edu/article1\\_part4\\_1-401.html](http://studentcode.illinois.edu/article1_part4_1-401.html)

Academic dishonesty will not be tolerated. Examples of academic dishonesty include the following:

- Cheating
- Fabrication
- Facilitating infractions of academic integrity
- Plagiarism
- Bribes, favors, and threats
- Academic interference
- Examination by proxy
- Grade tampering
- Non-original works

### **Guidelines**

Should an incident arise in which a student is thought to have violated academic integrity, the student will be processed under the disciplinary policy set forth in the Illinois Academic Integrity Policy.

If you do not understand relevant definitions of academic infractions, contact the instructor for an explanation within the first week of class.

### **Student Content**

Participants in University of Illinois courses retain copyright of all assignments and posts they complete; however, all materials may be used for educational purposes within the given course. In group projects, only the portion of the work completed by a particular individual is copyrighted by that individual. The University of Illinois may request that students' materials be shared with future courses, but such sharing will only be done with the students' consent. The information that students submit during a course may, however, be used for the purposes of administrative data collection and research. No personal information is retained without the students' consent.

### **Non-Student Content**

Everything on this site and within University of Illinois courses is copyrighted. The copyrights of all non-student work are owned by the University of Illinois Board of Trustees, except in approved cases where the original creator retains copyright of the material. Copyrights to external links are owned by or are the responsibility of those external sites. Students are free to view and print material from this site so long as

- the material is used for informational purposes only;
- the material is used for noncommercial purposes only; and
- copies of any material include the respective copyright notice.

These materials may not be mirrored or reproduced on non–University of Illinois websites without the express written permission of the University of Illinois Board of Trustees. To request permission, please contact the academic unit for the program.

### **Student Conduct**

Students are expected to behave in accordance with the penal and civil statutes of all applicable local, state, and federal governments, with the rules and regulations of the Board of Regents, and with University regulations and administrative rules.

For more information about the student code and handbook, log in to SOURCE.

### **Netiquette**

In any social interaction, certain rules of etiquette are expected and contribute to more enjoyable and productive communication. The following are tips for interacting online via e-mail or discussion board messages, adapted from guidelines originally compiled by Chuq Von Rospach and Gene Spafford:

- Remember that the person receiving your message is someone like you, deserving and appreciating courtesy and respect.
- Be brief; succinct, thoughtful messages have the greatest effect.
- Your messages reflect on you personally; take time to make sure that you are proud of their form and content.
- Use descriptive subject headings in your e-mails.
- Think about your audience and the relevance of your messages.
- Be careful when you use humor and sarcasm; absent the voice inflections and body language that aid face-to-face communication, Internet messages are easy to misinterpret.
- When making follow-up comments, summarize the parts of the message to which you are responding.
- Avoid repeating what has already been said; needless repetition is ineffective communication.
- Cite appropriate references whenever using someone else's ideas, thoughts, or words.

### **Disability Accommodations**

To ensure that disability-related concerns are properly addressed from the beginning of the course, students with disabilities who require assistance to participate in this class are asked to see the instructor as soon as possible. Also, to obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TTY), or e-mail a message to [disability@illinois.edu](mailto:disability@illinois.edu).

### **Technology Requirements**

Please review the general <hardware and software requirements> established for all online courses. Additionally, you can view the <video playback guidelines> for help with video content.

Please review the <tutorials> to better equip you to use the educational technologies required in your course.

### **Moodle**

Moodle is the Learning Management System (LMS) in which your course is housed. It is where your course syllabus is kept, where readings and other content can be found, and where you submit your assignments and participate in discussions.

- <General Moodle help>
- <How to update your profile in Moodle>

### **Software Plug-Ins**

Some elements of this course may require certain freely downloadable plug-ins in order to function properly. Please visit this link to ensure you have the latest version of these plug-ins installed.

- <Flash Player>

### **Blackboard Collaborate Ultra (formerly Elluminate Live!)**

*Blackboard Collaborate Ultra* is a Web conferencing tool that allows multiple people to meet synchronously to text chat, voice chat, and even video chat with one another.

- <Participant Orientation>

### **Communications**

This section describes how you will be expected to communicate during this course.

Your daily contact should be via the discussion forums in our Learning Management System (Moodle) and via e-mail.

Questions pertaining to the course should be posted in our **Course Q & A** discussion forum. You can get to this forum from the course home page. Posting questions here allows everyone to benefit from the answers. If you have a question, someone else is probably wondering the same thing. Anyone submitting a question via e-mail will be directed to resubmit the question to the Q & A discussion forum. Also, participants should not hesitate to answer questions posed by peers if they know the answers and the instructor has not yet responded. This not only expedites the process, but also encourages peer interaction and support.

Questions of a personal nature should first sent to the instructor's e-mail address (instructor email). **When sending e-mail, include a subject that identifies the course number and nature of your question.**

If you have an **emergency** that will keep you from participating in the course, please notify your instructor by using the instructor's e-mail address (instructor email). Provide callback information in your e-mail (if necessary). You should also notify your program director of any emergencies.

*Blackboard collaborate ultra* is a tool that allows multiple people to join together simultaneously via a computer to text chat, audio chat, video chat, collaborate on a digital whiteboard, and even share your computer's desktop with one another. The Instructor's <Virtual Office> and the Student Lounge (when available) make use of *Blackboard Collaborate*.

### **Instructor's Virtual Office Hours**

Another way to communicate with the instructor is to make use of the virtual office hours. The instructor will be available on the dates and during the times listed on the <Virtual Office> page

under **Syllabus** for office hours, via Blackboard Collaborate. You will be prompted to provide your name in order to enter the Student Lounge. Learn more about *Blackboard Collaborate* on the <Virtual Office> page at the left.

### **Student Lounge**

Participants may also want an alternative way to meet synchronously with each other for studying together, group projects, problem solving, and so on. Students may enter the **Student Lounge** virtual *Blackboard Collaborate* classroom. The Student Lounge is available 24 hours a day, 7 days a week (except when *Blackboard Collaborate* is down for maintenance). Each session is recorded for the safety of the students who enter the Student Lounge.

See the **Student Lounge** page at the left for more information and a link to the Student Lounge.

### **Course Announcements**

The <**Course Announcements**> forum serves as a way for your instructor and University of Illinois administrators to make <announcements> within our virtual learning environment. Announcements posted here will also be sent to your Illinois e-mail address, so be sure to check your e-mail or the Course Announcements forum at least once a day to see whether any new announcements have been made.

### **Email**

Course participants can also use the internal e-mail tool inside Moodle to communicate privately with the instructor, group members, and each other. Make sure your e-mail address is current and activated within your Moodle Profile so that messages sent to you from within Moodle are automatically forwarded to your regular e-mail address as well.