

This information covers the Ecology half of the semester as well as general course policies

### IB 372 Honors Ecology and Evolution

Credit Hours: 5

Lecture: M,W,F 10-10:50 AM; Lab: T 1-5 PM

Pre-requisite: IB271 organismal biology; good standing in the IB Honors program

#### Section 1: First half of the semester -- Ecology

Instructor: Prof. James Dalling, 149 Morrill Hall, Department of Plant Biology

Office phone: (217) 244 8914

Email: [dalling@illinois.edu](mailto:dalling@illinois.edu)

Here is the grade breakdown for the Ecology (left) and the Evolution (right) sections of the class.

Activity	Ecology credit	Evolution credit
Mid-term exam	15%	25%
Final exam essay question	5%	5%
Independent project paper	25%	n/a
Independent project early deadlines	n/a	20%
Independent project presentation	10%	15%
Lab reports	15%	15%
Quizzes	20%	10%
In class group presentation	5%	
Homework	5%	10%

Note: Ecology is the first 8 weeks of the class; Evolution is the second 8 weeks

For Ecology there is one exam (the mid term) that covers the ecology material, plus a final exam essay that integrates ecology and evolution

#### Ecology Section description

During the first seven weeks of the semester this course explores concepts in each of the sub-disciplines of ecology from the individual, population, community, and ecosystem levels. Additional consideration is given to the fields of microbial ecology and paleo-ecology. Through lecture, lab and homework assignments, students are introduced to the principles of experimental design and basic data analysis. These tools are used in a series of weekly labs and culminates with a three-week, independent project in which groups of 1-3 students collect and analyze data to test a hypothesis of their own choosing and write-up a paper in journal format.

Course topics, assignments and due dates (by week)

Week	Class Topic	Assignments and Labs	Week assignment due
1	Introduction to Ecology	Ecological Statistics lab	-
	Environmental constraints	Statistics Homework 1	Week 3
	Life History Traits	Statistics Homework 2	Week 4
2	Species Diversity	Stream lab	Week 4
	Population Structure		
	Competition		
3	Mechanisms of competition	Independent project orientation	
	Predation	Scientific writing Homework	Week 6
4	Predation dynamics	Southern Illinois data analysis	Week 10 for project write-up
	Mutualisms		
	Trophic cascades		
5	Biodiversity	Independent project data collection	
	Ecosystem Ecology		
	Trophic cascade presentation		
6	Paleoecology	Independent project data collection	
	Biogeography		
	Global change presentation		
7	Microbial ecology	Fossil lab	
	Mid-term review		
	Mid-term exam		

## Course Overview

Ecology:

During the first eight weeks of the semester this course explores concepts in each of the sub-disciplines of ecology from the individual, population, community, and ecosystem levels. Additional consideration is given to the fields of microbial ecology and paleo-ecology. Through lecture, lab and homework assignments, students are introduced to the principles of experimental design and basic data analysis. These tools are used in a series of weekly labs held in university natural areas and a weekend field trip to southern Illinois. The ecology portion of the class includes a three-week, independent project in which groups of 1-3 students collect and analyze data to test a hypothesis, present the results of the project to the class, and write-up the paper in journal format.

#### Evolution:

The second eight weeks of the semester will focus on topics within evolution spanning scales from genomes to communities, with a particular emphasis on population and quantitative genetics, and phylogenetics. Lectures will introduce the key concepts, while lab sessions will build on the first half of the course and feature an independent group experiment, analysis, and presentation. Students will explore different types of datasets and test evolutionary-based hypotheses in the R environment. Homework will consist of weekly reading questions designed to teach students how to read and synthesize primary research articles, as well as lab assignments. Weekly paper discussions will be based on the research articles assigned for homework and will be led by students after the initial session.

#### Course Goals and Objectives

This course provides a foundation of major concepts in ecology and evolution that provide a basis of understanding for 400 level classes in Integrative Biology

By the end of this course, you will be able to:

- Be able to explain core ecological concepts and describe characteristics of populations, communities, ecosystems, and identify the questions that ecologists address at each level of organization.
- Understand the role of the physical environment, species interactions, dispersal and evolutionary history in determining the spatial distribution of organisms
- Be able to describe and interpret different metrics central to both ecology and evolution, and be able to apply them to sample datasets.
- Understand when it is appropriate to use different statistical tests on both ecological and evolutionary data (e.g., correlation, regression, contingency tables, analysis of variance, model comparison), be able to apply them using the program R (R

studio), and understand how to interpret the results of statistical tests presented in both ecological and evolutionary literatures.

- Be able to distinguish between an observation, a hypothesis and a prediction, and have gained experience formulating hypotheses based on observations of the natural world.
- Understand how to read and organize scientific papers, and be able to write a report and present the main findings of an independent study with appropriately structured format and content.

## Academic Calendar

For more information, see the [university's academic calendar](#).

This is a **5-credit hour** course. The course is **16 weeks long**. Please be aware that this course is **accelerated in nature**; the course covers the material that would normally be covered in two semesters in the IB major. You should dedicate approximately **10 hours per week** to working on the course itself, but actual time commitments will vary depending on your input, needs, and personal study habits. You are required to log on to the course website and check your email a minimum of 4 days per week, but as discussions develop, you will probably need to do so more frequently. It has been well established on twitter that students rarely read course syllabi. It would be interesting to know whether the person receiving this pdf of the syllabus via the webform actually reads it too.

## Required Texts

For the ecology section of the class we recommend

Ricklefs "Economy of Nature" 6<sup>th</sup> or subsequent edition. Freeman Publishers.

We recommend that you purchase a used copy - available for \$10-\$15. The introductory material in the course will be available for you to download from this moodle site. More advanced material will come directly from the primary literature. The Ricklefs book provides a reference to support the introductory material.

For the evolution section of the class, we will mostly be drawing material from:

Emlen & Zimmer, "[Evolution: Making Sense of Life](#)" 2<sup>nd</sup> or subsequent edition. Freeman Publishers

## Course Components

### Assignments

This course will also include homework assignments. These are designed to reinforce concepts presented in the lectures and readings and give you an opportunity to explore these concepts in greater depth.

### Quizzes

Our online classes consist of short videos interspersed with quizzes - often with just one or two questions. These help you reflect on and learn the material, connect it to other concepts you have covered in this or other classes... and earn some credit! We also have one in-class quiz each week at the beginning of lecture. Quizzes review material we covered in the previous lecture and could be on a M, W or F. Make sure you review previous lecture material before each class so you are ready for quizzes. Students will not be allowed to take a quiz if they have an unexcused absence.

### Exams

This course includes both mid-term and final exams. The first mid-term covers the material from the Ecology component of the class. Since basic concepts (definitions, terms etc) are covered in quizzes the exam instead focuses on data interpretation. We will give you some data that you have not seen previously and ask you to interpret the results, suggest a hypothesis or design an experiment. This is a timed exam. You will receive access to the exam paper via moodle at the specified time and will need to upload your exam paper at the end of the specified period.

### Course Projects

This course includes two independent projects (one for ecology, one for evolution). These are a substantial proportion of your grade and should therefore also occupy a substantial amount of the time you dedicate to the course. More details are provided on the orientation page.

### Accommodations

To obtain disability-related academic adjustments and/or auxiliary aids, students should contact both the instructor and the Disability Resources and Educational Services (DRES) as soon as possible. You can contact DRES at 1207 S. Oak Street, Champaign, (217) 333-1970, or via email at [disability@illinois.edu](mailto:disability@illinois.edu).

## Grading Scale

Your percentage over the semester will guarantee the following letter grade assignment. However, after reviewing student performance of the class overall, and relative to previous years, we may adjust the grade scale downwards.

Percentage	Letter Grade
97-100	A+
94-96.5	A
90-93.5	A-
87-89.5	B+
84-86.5	B
80-83.5	B-
77-79.5	C+
74-76.5	C
70-73.5	C-
67-69.5	D+
64-66.5	D
60-63.5	D-
Below 59.5	F

From course policies tab on moodle site:

## Course Policies

- [Inclusivity Statement](#)
- [Accommodations](#)
- [Instructor Responses](#)
- [Academic Integrity](#)
- [Copyright](#)
- [Student Behavior](#)
- [Communications](#)
- [Sexual Misconduct Policy](#)
- [Student Wellness Resources](#)

### Course attendance policy

**This is a 100% in-person class. We expect students to attend all lectures and labs. Students should contact Prof. Dalling or Prof. Heath with as much lead time as possible if they are unable to attend lecture or lab with appropriate documentation excusing attendance. This is especially important for labs as unexcused failure to attend lab may result in the loss of credit from graded lab reports. Late work may be accepted if appropriate justification can be provided to course instructors prior to the deadline. In the case of conflict with midterm or final exams please contact your instructors for rescheduling.**

### Inclusivity Statement

For students to get the most out of this course, we are committed to providing a safe and encouraging learning environment. We will not tolerate offensive and hateful speech, including racism, sexism, homophobia, transphobia, et c. We ask all students to assist us with creating a positive and supportive environment, so that we can hold productive conversations without fear of ridicule or harassment.

### Accommodations

To obtain disability-related academic adjustments and/or auxiliary aids, students should contact both the instructor and the Disability Resources and Educational Services (DRES) as soon as possible. You can contact DRES at 1207 S. Oak Street, Champaign, (217) 333-1970, or via email at [disability@illinois.edu](mailto:disability@illinois.edu).

### Deadlines

If you are unable to meet a particular deadline, it is your responsibility to make prior arrangements with the instructor for that given week. Otherwise, work submitted later than 12 hours after the deadline will receive 10% penalty, and work submitted later than 5 days will not be considered for grading unless consent has been given by the instructor.

## Instructor Responses

### Instructor Feedback Turnaround Time

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

Assignments submitted online will be reviewed and graded by the course instructor within 5 business days. Exams, essays, and term papers will be graded within 10 business days. If your instructor is unable to meet this timeline, students will be notified.

### Responding to Emails and Phone Calls

The instructor will respond to email messages and phone calls within 24 hours of receiving them unless the instructor notifies you ahead of time of an inability to do so. **When sending email, 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 Help Discussion Forum. Please don't be offended if you are asked to forward your question to this location. If you leave a voicemail message with the instructor, please check your email for a response.

### 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.

## Academic Integrity

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

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 your instructor for an explanation within the first week of class.

## Copyright

### 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.
- 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 Behavior

### 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, see the [CITL course policies page](#).

### 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 email or discussion board messages, adapted from guidelines originally compiled by Chuq Von Rospach and Gene Spafford (1995):

- 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 emails.
- 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.

## Communications

### Daily Contact

Your daily contact should be via the discussion forums in our Learning Management System and via email.

## Course Questions

Questions pertaining to the course should be posted in our [Course Q & A 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 email will be directed to resubmit the question to the [Course Q & A 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.

## Personal and Grade-Related Questions

Questions of a personal nature should first be sent to the appropriate instructor's email address (dalling@illinois.edu or kheath@illinois.edu)

## Emergencies

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

## Announcements

The [Important Course announcements](#) forum serves as a way for your instructor and University of Illinois administrators to make announcements within Moodle. Announcements posted here will also be sent to your Illinois email address, so be sure to check your email or the **Important Course announcements** forum at least once a day to see whether any new announcements have been made.

## Sexual Misconduct Policy and Reporting

The University of Illinois is committed to combating sexual misconduct. Faculty and staff members are required to report any instances of sexual misconduct to the university's Title IX and Disability Office. In turn, an individual with the Title IX and Disability Office will provide information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options.

A list of the designated university employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain

confidentiality, can be found in the [Confidential Resources](#) section. Other information about resources and reporting is available at [wecare.illinois.edu](http://wecare.illinois.edu).

## Student Wellness Resources

The University of Illinois strives to promote student success through the support of student psychological and emotional well-being. Please take advantage of the resources listed on the [Student Affairs](#) website.