

Biocore 381: Evolution, Ecology, and Genetics

University of Wisconsin-Madison

Course Information

Fall 2019

Overview of the Biology Core Curriculum

The Biology Core Curriculum (Biocore) is a four-semester honors sequence that provides a solid foundation for any biologically oriented field of study. Biocore faculty come from all across campus and are eager to work with you! They are scientists and instructors with diverse expertise—from human genetics to plant pathology, from ecological restoration and evolutionary biology to cellular, developmental and neurological biology. The courses offer an *integrated, research-focused* approach to biology with rich opportunities to practice *scientific communication, problem solving, critical thinking* and *group learning*.

Biocore consists of seven Honors courses (4 lectures, 3 labs) taken over four semesters:

Lecture courses (3 credits)	Lab courses (2 credits)
Biocore 381: Evolution, Ecology and Genetics	Biocore 382: Evolution, Ecology & Genetics Lab
Biocore 383: Cellular Biology	Biocore 384: Cellular Biology Lab
Biocore 485: Organismal Biology	Biocore 486: Organismal Biology Lab
Biocore 587: Biological Interactions	

The lecture courses must be taken in sequence since they integrate and build on one another. There is more flexibility to take lab courses out of sequence, however we recommend taking either 382 or 384 prior to taking Biocore 486. For students who choose to study abroad or take a break in the middle of Biocore, it is possible to return to complete the program prior to graduation.

Fulfilling Major Requirements

Biocore is not a major but it fulfills many of the requirements for most biological science majors including Biology, Biochemistry, Zoology and Genetics. Biocore courses fulfill introductory biology requirements, upper level genetics (Genetics 466 equiv), and physiology for some majors (Phys 335 equiv). In addition, students earn Comm-B credit and can fulfill intermediate/advanced laboratory requirement by taking Biocore 486 lab.

Recognition for taking Biocore

All Biocore courses are recognized on your transcript with an ‘H’ designation.

You will be eligible to earn a certificate in the Biology Core Curriculum that will be printed on your transcript as “*Certificate in Biology Core Curriculum Honors*”. To earn this recognition, you must

- Complete all four Biocore lecture courses (Biocore 381, 383, 485, 587) and TWO of three Biocore lab courses (Biocore 382, 384, 486)
- Earn a ‘B’ grade or better in all Biocore courses
- Complete your degree with a cumulative GPA of 3.3 or higher

We realize the hard work and dedication you commit to complete four semesters of challenging Biocore courses. Regardless of whether your goals include earning the official certificate or not, we look forward to working with you ~ and celebrating with a *cupcake* at Biocore graduation!

Welcome to Biocore!





Honors Learning Outcomes

By the end of your Biocore Honors experience, you will

Be able to

- Reach for and achieve high standards in the quality of your learning
- Actively engage in and practice group learning, collaboration and team work
- Demonstrate a learning mindset and intellectual curiosity for biology that transcends grades
- Demonstrate sophistication in your ability to reason scientifically and integrate your understanding of biology- from molecules to ecosystems and different life forms
- Demonstrate the process of science including development of novel scientific questions, formulate hypotheses, carry out experiments, and make logical conclusions based on evidence
- Demonstrate advanced scientific communication skills, oral and written, and the ability to translate their understanding to the broader community
- Articulate the value of your *Biocore Honors experience*

Gain

- Advanced level biology content knowledge, critical thinking, scientific reasoning, and process of science skills
- A supportive community of academically engaged peers
- A dedicated group of Biocore instructors who will support you in your learning and professional development
- A portfolio of materials demonstrating your research, communication and collaboration skills
- Certificate of Biology Core Curriculum Honors

Biocore 381: Evolution, Ecology, and Genetics

Biocore 381 is the first course in the four-semester Biology Core Curriculum. The requisite for Biocore 381 is being 'Declared in the Biology Core Curriculum' through the application process. Students with questions concerning prerequisites should check with Biocore Assoc. Interim Director Janet Batzli, 363 Noland Hall, 263-1594.

Course Description

Basic principles of ecology and interrelations between individuals, populations, communities, ecosystems and their environment; transmission genetics and introduction to population genetics; origin of life, evolutionary mechanisms, ancestral relationships among species, and the diversity of life.

Course Designations, Instructional Mode, and Attributes

Biocore 381 is a 3-credit Honors, face-to face, intermediate level lecture course that includes three 50-minute in-class lectures per week. Lectures are led by Dr. Evelyn Howell (*course leader/chair) who teaches ecology and diversity; Dr. Amy Moser who teaches transmission genetics and basic models for inheritance; and Dr. Irwin Goldman who introduces evidence and mechanisms for evolution. The lectures are complimented by one 50-minute required discussion section per week led by graduate Teaching Assistants (TAs). Discussion sections enroll 15-16 students and are a significant component of the course that are separate from lecture yet guided by the learning objectives introduced in lecture. During discussion sections, you will work together with guidance from a TA to clarify and extend concepts introduced in lecture through activities and problems, peer review papers, and work through feedback on writing assignments. You will also have time to ask and discuss questions about lecture concepts, problem sets, exams, and written assignments.

You should plan to spend a minimum of 6 hours each week outside of regular class time doing the following combination of learning activities: lecture readings, online lectures, problem sets, writing and peer reviewing written work associated with the writing assignments, doing a field activity, and preparing for exams. Given many opportunities to participate, communicate and actively engage with the materials, you will learn to reason scientifically and solve problems in ecology, genetics and evolution. You will practice writing and communication and work regularly in class in small groups of 3-4 students to apply concepts and work through problems with the guidance of instructors. Credit for this course counts toward Communication B requirement, Biological Science (which also meets the Natural Science) breath requirements, and Honors credit that can be applied toward Honors in an array of majors. Biocore courses are Honors courses with no additional work required for Honors credit.

Learning Outcomes (Goals)

By the end of Biocore 381, you should be able to:

1. Understand what we know, how we know, and what we don't know in ecology, transmission genetics and evolution at the intermediate level
2. Apply scientific theory, concepts, reasoning, and quantitative and qualitative approaches to understand and solve problems
3. Use terminology accurately and effectively within appropriate conventions of the discipline
4. Find, evaluate and relate scientific information found in primary scientific literature
5. Build a logical argument based on evidence and scientific reasoning
6. Analyze a problem using a systems approach, recognizing levels of biological scale and organization
7. Work as a member of a productive, collaborative group
8. Demonstrate scientific communication skills and the ability to translate scientific concepts to a broader community

Assignments

We have built a number of different types of assignments into *Biocore 381*. All of them are designed to help you achieve the course learning goals; each has a different purpose.

Exams: There are three exams, the purpose of which is for you and the staff to assess what you are learning. The questions (“Biocore Questions”) are short answer format (single or multi-part questions) and often require you to use data and/or a scenario to explain an outcome, make a prediction, develop a hypothesis, or design an experiment. Most often, you are asked to articulate the assumptions you make and the reasoning behind your answers. The first two exams are scheduled for 2 hours in the evening to give you ample opportunity to write. The third is during the final exam period. Each exam will emphasize material from the sets of lectures listed on page 6; however, given the integrative nature of the course, material from earlier parts may be included as part of an integrative question.

Problem Sets: The nine problem sets contain previews of the kinds of information and skills you will need to acquire to meet the course learning goals. They help you assess how well you really understand the material that we are discussing in lecture in time to ask questions if something is not clear. This is an individual assignment, meaning that you need to answer in your own words and demonstrate that you understand the material. Problem sets can also include essay questions that will require 1-2 pages for written response. See Writing Assignments below for more on the weekly essay question.

In Class Activities: We often include a series of activities during the lecture periods to help you work with the ideas we have just presented, or we have asked you to look at (posted videos or readings) ahead of time. Once again, these are a way for you to assess your understanding, and also a means by which we can identify misunderstandings, or concepts that need more explanation.

Writing Assignments: One of the important learning goals of the Biocore program is to help you develop scientific communication skills. In Biocore 381 we are particularly focused on writing. We provide many opportunities for you to write and receive feedback in Biocore, not only because writing will be important in your future career, but also because writing is one of the best ways to learn. Writing sharpens your thinking and reasoning skills. To write clearly you must think clearly. To think clearly, you must understand the topic you are trying to write about. As you reason your way through a paper, you find out what you know, and what you don’t know. If you need any further motivation, note that graduate and medical school admissions tests now include a section for assessing your writing ability.

In Biocore 381, you will be assigned 2 short (1-2 page) papers and one larger term paper (5-7 pages) that allow you the opportunity to peer review, gather feedback, revise and build your writing skills over the semester. The first short paper centers around your participation in a field activity. The second short paper concerns evolution and diversity. The one larger term paper assignment focused on a topical and timely question regarding ecology and/or genetics (e.g. rare and endangered species, personalized medicine) is designed to give you an opportunity to explore a course-related topic in more depth, to explore primary research articles, and to practice translating technical information to an informed lay audience. We introduce the term paper in October (due date in mid- November). In between these dates, there will be several assignments associated with peer review and writing conferences with your TA.

In addition, five of the problem sets will include extended response "essay" questions that each require a response of 1-2 pages to meet both content expectations (80%) as well as writing components (20%) including appropriate use of vocabulary, logical organization, scientific reasoning, and use of evidence to formulate appropriate conclusions. The writing conventions used in the essay questions are meant to help you practice, with feedback from your instructors, the type of scientific reasoning you will be using throughout the course and in your paper assignments.

Together the papers and problem set essay questions help to fulfill your Comm-B requirement.

Field Activity: One of the best ways to engage in learning ecology is to experience a conservation or research project in the field. There will be several opportunities to join projects sponsored by Biocore including seed collecting at the Goose Pond Sanctuary in Arlington, WI and work at the Biocore Prairie. The UW Arboretum and the Lakeshore Nature Preserve will also sponsor projects; most of these are on the weekends. These opportunities will be available in September or October, so be sure to plan accordingly. If you would like to do an activity but it is not on the list, please ask your Biocore 381 instructor if it would count for credit (it must take you into the field for at least 2 hours and be related to concepts covered in 381). Your experience then becomes the topic for your first paper, due no later than October 21st.

GET INVOLVED and HAVE FUN!!

Please look for opportunities in the Biocore 381 weekly email and sign up at <http://tinyurl.com/fieldactivities>.

Scheduling and Enrollment

Biocore 381 meets at 8:50 MWF in Room 168 Noland. Associated 50 min. discussion sections are listed below. It is very important that you attend the section for which you are registered. Part of your grade will be based on your participation and assignments in discussion section.

Section	Time	Place	TA
301	8:50 R	371 Noland	Alex Elias
303	9:55 R	371 Noland	Alex Elias
304	11:00 R	371 Noland	Megan Benoy
306	12:05 R	371 Noland	Megan Benoy
307	1:20 R	371 Noland	Kristina Garcia
308	2:25 R	371 Noland	Kristina Garcia

Canvas – On-line Course Management System

We will be using Canvas to deliver our course materials over the internet. Canvas is a course management system that provides access only to students enrolled in a course and thus enables us to provide course materials in a secure environment. You will be able to use our Canvas site to download copies of course materials. You can log-on at the following web address <http://canvas.wisc.edu>.

Online Materials available through Canvas:

1. Course Information and Syllabus
2. Lecture notes or slides
3. Online-lectures
4. Problem sets and model answers

5. In-class group worksheets
6. Biocore Writing Manual*

*required for lab courses but we will refer to it in Biocore 381 as it is associated with the writing and Comm-B emphasis in the course. The manual is also available for purchase at StudentPrint, located at Suite 3301, 333 East Campus Mall.

7. Biocore Textbooks

Texts and Other Materials for the Lecture Course

As noted in the Course Guide, Biocore 381 is participating in the UW-Madison Engage eText Pilot. Your eTexts are available from the Engage tool in your Canvas course page. We will be using excerpts from three texts:

Ecology Concepts and Applications 8th edition by Molles and Sher (McGraw Hill 2019),

Biology, 5th edition by Brooker et. Al (McGraw Hill, 2020), and

Genetics Analysis & Principles, 6th edition by Brooker (McGraw Hill, 2018).

To access your eText(s) and learn more about Engage, follow these steps:

1. In the menu at the left of the screen, click on “Unizin Engage” to open the Engage reading platform.
2. In the top right corner of Engage, click on your initials/photo.
3. Click on the Help link.
4. Click on “Students” to access quick overviews of how to navigate the platform and all the general studying/learning features – reading, note-taking, highlighting, questioning, printing, bookmarking, searching, and collaborating.

Please familiarize yourself with the Engage platform before the first day of class. A short demo of Engage can be found [here](#). Additional resources can be found in the [Engage](#) and the [UW-Madison KnowledgeBase](#). You will be able to print up to 50 pages at a time, for free (not including the cost of printing), via the Engage tool. If needed, printed loose leaf copies of some courses’ texts will also be available for an additional charge at the UW Bookstore as long as you have not opted out of the pilot. Check the [UW Bookstore’s website](#) to see which texts are available to purchase. If you wish to [opt-out](#) of using the Engage eText, please contact me at **[instructor e-mail]** before doing so. Opting out of using Engage could significantly impact your grade in the course.

If you wish to request an accessible version of the eText, please contact the McBurney Disability Resource Center as soon as possible. More information is available [here](#).

Note: Engage works best when viewed online in Firefox or Chrome.

Biocore 381 Assignments, Exams, and Grades

Course Component	Date	Time	Emphasis	% Grade	Component %
Mid-term Exam I	Tuesday Oct. 8	7:15-9:15 pm	Sept. 4 – Oct. 4	25%	51%
Mid-term Exam II	Monday Nov. 4	7:15-9:15 pm	Oct. 7 – Oct 28 and comprehensive	33%	
Final Exam	Thursday, Dec. 19	7:45-9:45am	Oct 30 – Dec. 11 and comprehensive	42%	
Problem Sets	Sept 13, Sept 20, Sept. 30, Oct 18, Oct. 25, Nov. 1, Nov. 15, Nov. 22, Dec. 6	Due before Lecture starts		*	10%
Field Activity	Oct 21	Due <u>before</u> Lecture starts		12.5%	32%
Ecology / Genetics Paper	Nov 13	Due before lecture starts		75%	
Evolution Project	Dec 4	Due before lecture starts		12.5%	
In-class Activities (ICAs)	Weekly	In lecture, varies	10 pts. / lecture unit (Ecology, Genetics, Evolution/Diversity)		7%
Participation					
Total					100

*There are nine problem sets worth 10 points each. At the end of the semester, we will drop the lowest score.

%	Letter Grade
90	A
80	B
70	C
60	D

You are not in competition with anyone for a grade since neither the course as a whole nor the individual exams are curved. Intermediate grades (AB and BC) will be used at the end of the semester at the discretion of the teaching staff for scores on the borderlines. No one would be more delighted than the staff of this course if everyone earned an A!

Tips for doing well in Biocore 381

- ✓ **Take Notes and Ask Questions During Class.** Lecture materials (i.e. lecture notes or Powerpoint slides) will be available on Canvas. Each instructor will announce what type of materials will be available and when they will be posted (usually at least 24h before each lecture period). No matter what type of materials are available, make it a habit to take notes! It has been shown that taking notes is a very effective learning strategy, especially when you use the following steps as you write:

1. Summarize (Do not take verbatim notes of everything the instructor says.)
2. Contextualize, and
3. Organize

This process is important for memory and to question what you know and what you don't know. Whether you chose to take notes electronically or long hand (old fashion pen and paper has been found to be more effective... [see research article – “The Pen is Mightier than the Keyboard”](#)) – Make it a practice to take notes!

Asking questions is also a key part of learning. It helps you to frame your understanding, and uncover and discuss inconsistencies. Questions also help your instructors know what is or isn't clear about the concepts they are presenting. We want to help you learn!

Learning how to take good notes and ask questions is a skill. Start practicing now!

- ✓ **Time management** Time is a resource that few of us manage well naturally. Learning how to estimate how long it will take to accomplish a task assumes that you know the magnitude of the task. In learning something new, you actually do not know the magnitude of the task until you get started, and therefore the best practices for time management are:
 - Look way ahead (in the syllabus), break down tasks into small chunks, make 'to do' lists, organize and prioritize your 'to do' list tasks using a daily/ monthly planner, and do a little bit of work everyday.
 - Identify and do a 'recharge activity' that relieves pressure and refocuses. Even a short 'recharge activity' (30 min) can release tension and help you refocus energy so you can be productive.
 - Attending a peer mentored study group on a weekly basis will keep you on task and caught up.
- ✓ **Study Differently.** Biocore focuses on problem solving, making predictions, and explaining ideas based on evidence and logical assumptions. These types of thinking skills require different types of study skills than you may be used to (e.g. flash cards or memorization activities). In order to prepare, you need to study differently.
 - **Participate in a peer mentored study group** to keep you up-to-date with studying and help hone your study skills given guidance from peer mentors who have taken the course and done well. Group study is an excellent way to learn, support, and challenge yourself and each other. Be aware that group study can also give you a false sense of security that you know material, when it is really your group that knows. Make sure to always do the problem sets and other assignments on your own.
 - **Use the Learning Goals** as your guide for reading and for studying. The instructors use the learning goals to create the assessments, the readings and the classroom activities. Use the learning goals to make your own problem sets and questions; generate diagrams and concept maps; create tables and charts to organize notes and summarize topics.
 - **Do Problem Sets Individually.** Problem sets are lower stakes opportunities to apply concepts and practice the kinds of reasoning and problem-solving skills you will need for the exams. In fact, many problem set questions come from old exams. Although you may discuss topics

covered in problem sets with your peer mentored (PM) study groups, you should not do problem sets during PM study group time. Rather, go away from your group and answer the questions individually. Doing problem sets individually will help you avoid a false sense of security thinking you know the material when you may not; and will help you identify knowledge gaps, questions you have, and areas for improvement before the higher stakes exams.

- **Invest in In-class Activities (ICAs)**- short activities and worksheets done individually or in groups during lecture. You will be assigned to a 4-person learning team, made up of students who share the same lecture discussion section. During ICA days, please sit with your team and pick up your team folder containing information you will need. We will ask your team to work together on the activity for 5-20 min after which time we will have a group discussion. Each of the 3 course units will have 10 points for ICAs (not all are graded). ICAs give you practice in applying concepts with the benefit of guidance & immediate feedback from instructors. Research on learning indicates that students who actively engage in learning during class improve their overall achievement. See evidence here: <http://www.pnas.org/content/111/23/8319.full.pdf> (“Large-Scale Comparison of Science Teaching Methods Sends Clear Message”)

Your participation in ICAs is important to you and your team member’s learning therefore, **please notify Professor Howell** before class via email, if you are ill, or if you will be absent for some other valid reason. **Note:** Be sure to **sign** your name to the master worksheet, but **do not sign** the names of your team members. **Doing so is considered a form of academic misconduct.**

- **Do (and redo) the Practice Problems and Answer the Study Questions.** Do not make the mistake of simply looking at an answer sheet and thinking you understand how the solution was derived.
 - **Watch On-line Lectures** before (and after) lecture. These are short animated and narrated slide sets delivered via Canvas course page. You should view and take notes(!) on these before the lecture indicated in the syllabus in order to be prepared for the ICA on those days.
- ✓ **Be Responsible - Don’t Cheat.** In this high stress world, where time and quality of work sometimes seem at odds, there are many temptations to take short cuts. Unfortunately, short cuts and cheating undermine the very reason you are here – to learn concepts and develop skills. Learning is challenging (especially in an honors course). Learning takes time and often requires bouts of hard work and sometimes ‘failure’ before achieving success. If you find yourself running out of time, contact your instructors and let them know what’s happening and discuss consequences of late work (usually 1 grade/day). We will handle illness and personal emergencies by allowing you to drop your lowest problem set score. In addition, if you choose to work together with other students (collaborate) on problem sets, you must list the names of your collaborators on your assignment. Each student must write her/his **own answers**, in his/her **own words**, after working with the group. Assignments containing identical answers **will be investigated** as plagiarism with potential consequences outlined on the Biocore statement of academic integrity. Don’t let these times of challenge lead you to cheat or in any way compromise the Biocore Honor Code (last page of this handout).

Course Administration

Dr. Howell serves as the chair of Biocore 381. Grading questions can be taken up with Dr. Howell (eahowell@wisc.edu). Carol Borcharding (carol.borcharding@wisc.edu) is the Program Manager and is the first person to contact for questions regarding course enrollment, section changes, signing up for early make-up exams (allowed only for valid reasons), and any special needs. Carol Borcharding is in the Biocore main office, 345 Noland Hall.

To minimize the amount of class time taken up with administrative details, all announcements and information of general interest will be sent to you on Wednesday afternoon by email. It will be your responsibility to read this email routinely, since most announcements posted there will *not* be reiterated in class.

Biocore Peer Mentoring Program

This year we will be offering a Peer Mentoring program in Biocore 381. In this program, second year Biocore students or alums of the program (juniors & seniors) will be leading study sessions for groups of 5-6 Biocore 381 students. Checkout this video to learn more about Peer Mentoring in Biocore <http://www.youtube.com/watch?v=Z9vTwijMvNA>. If you decide to participate (participation is VOLUNTARY), we ask that you commit to come to at least the first 5 weeks of the semester. After that, you may switch groups or stop attending if you do not find it helpful. Guidelines for participation and sign up sheets will be available during the second week of classes.

Peer mentors facilitate weekly study sessions (1-2h) to study material related to the material you will be covering in Biocore 381. As a participant in these groups, it is important to note that peer mentors will NOT be expected to have the answers, rather they will serve as peer learning guides. The peer mentors will help you think about how to approach problems, develop study skills, and navigate through the material most effectively. As a result, we not only hope that you become more confident in your learning and understanding of the material, but that you establish a relationship with the larger Biocore learning community.

Dr. Janet Batzli coordinates the program together with experienced Biocore alums and Peer Mentor Leaders Abbey Stoltenburg (astoltenburg@wisc.edu), Stella Ma (sma86@wisc.edu), Hunter Gage (hgage@wisc.edu), and McKayla Miller (mmiller59@wisc.edu) who will be the undergraduate program assistants this fall. If you have any questions please contact these program assistants or Janet Batzli (jcbatzli@wisc.edu). Look for details about this exciting program coming soon in your weekly email announcements and sign up!

Creating an Inclusive Classroom

In Biocore, we strive for the utmost equity for all students, TAs, and faculty/ staff. Our community and our science depend on engaging and embracing different perspectives and this starts with each of us understanding and recognizing our own biases. It takes a great deal of awareness and self-work to recognize bias. Most of us stumble at times, so we all need to practice.

If you experience or notice bias

Share when you first experience or notice bias. If you are further offended and continue to experience bias, do not hesitate to bring this to your instructor's attention and/or report the case through UW Madison's [Bias Incident Reporting system](#)

If you mistakenly say or do something you wish you hadn't—apologize, say 'I'm sorry' and take ownership when you have offended someone, even if it was unintentional. Discrimination and bias are not OK. Saying nothing perpetuates inequality. Speaking up reminds us of our inclusive classroom goal. It takes everyone to create a safe, supportive and productive learning environment. If even one of us feels stifled or unaccepted, we all lose out.

Special Needs and Religious Holidays

Please let Carol Borcharding (carol.borcharding@wisc.edu) know by September 12 if you have any special needs that we should accommodate, scheduled absences, a potential exam conflict, or a religious holiday that conflicts with a course activity.

Accommodations for Students with Disabilities

The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students should contact the McBurney Disability Resource Center at <http://mcburney.wisc.edu>. Students are expected to inform Carol Borcharding of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Carol will work either directly with you or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations.

Student Job Listings & Finding Research Lab Opportunities

We try to provide a liaison service between students looking for lab or field jobs and jobs looking for students. Look for postings that appear regularly in our weekly announcements. Also see the "Finding Faculty with Whom to Work" section listed under the Links button on the Biocore web site <http://biocore.wisc.edu> (this will be updated soon so keep checking). The following website site is a great guide finding undergraduate research experience in biology labs on campus: <http://biology.wisc.edu>. In addition, there is a list of biology jobs available to undergraduates in Steenbock Memorial Library (across from the circulation desk) and electronically on the UW-Madison Student Job Center's web site under UW (SC) Science <https://jobcenter.wisc.edu>. Other research opportunities are listed on the Undergraduate Research Scholars Program web site <https://urs.ls.wisc.edu>.

Students' Questions and Feedback

The staff of this course, lecturers and TAs alike, welcome your questions, suggestions, and comments. We want to get to know you, and we appreciate your feedback. Our phone numbers and addresses are on listed on page 14. Dr. Janet Batzli serves as Biocore's Director and would be happy to talk with you about any aspect of the program.

Preventing and Reporting Illness

All university departments are being asked to monitor and keep track of student illness in accordance with the UW-Madison Influenza Response Plan. If you need to miss class due to illness please contact your TA and for Biocore 381 Dr. Evelyn Howell (eahowell@wisc.edu), especially if your absence is for more than one week. Under extenuating circumstances, we will work with you to complete course work within a reasonable time.

Other Helpful Information:

1. **Bias Incident Reporting system** Report an incident if you experience or witness bias, prejudice, or discrimination in class or out; in any setting on the UW Madison campus
<https://doso.students.wisc.edu/services/bias-reporting-process/>
2. **Sexual Assault, Dating Violence, Domestic Violence, and Stalking - Options for Victims of Sexual Assault, Dating Violence, Domestic Violence, and Stalking (May 2014)**
<http://www.uhs.wisc.edu/assault/documents/evocabrochure.pdf>
<https://www.youtube.com/watch?v=pz2qR8gw25I>

Biocore 381: Evolution, Ecology & Genetics
Schedule for Fall 2019

Week	Date	Lecturer	Title
1	Sept. 4	Howell	The Big Picture: Evolution, Ecology, and Genetics
	Sept. 6	Howell	Introduction to Ecology; Adaptation of Organisms to the Physical Environment

2	Sept. 9	Howell	Adaptation of Organisms to the Physical Environment; Prairies *online-lecture 1
	Sept. 11	Howell	Adaptations of Organisms to Biota: Populations: Size, Pattern, Demography
	Sept. 13	Howell	Population Dynamics: Growth Models*online-lecture 2
Assignments due:		1. Online-lecture #1 before class on Sept. 9 2. Read about Natural Systems of Wisconsin <u>before</u> class Sept 9 3. Online-lecture #2 before class on Sept. 13 4. Problem Set 1 due Friday, September 13 before lecture	

3	Sept. 16	Howell	Populations and Conservation – Rare Species, Exotic Species, Metapopulations. Managing Populations
	Sept. 18	Howell	Adaptations of Organisms to Biota; Communities: Organization and Diversity. Competition
	Sept. 20	Howell	Communities: Predator-Prey Interactions. Mutualisms
Assignments due:		1. Problem Set 2 due on Friday, September 20 BEFORE class	

4	Sept. 23	Howell	Disturbance, Succession, "Stability"
	Sept. 25	Howell	Community Conservation: Restoration and Landscape Ecology
	Sept. 27	Howell	Ecosystems: Food Webs and Energy Flow
Assignments due:		1	

5	Sept. 30	Howell	Ecosystems: Nutrient Cycles*online-lecture 3
	Oct. 2	Howell	Ecosystems: Nutrient Cycles
	Oct. 4	Howell	Global Ecology
Assignments due:		1. Online-lecture #3 on September 30 BEFORE class 2. Problem Set 3 due Monday, September 30 <u>before</u> lecture	

Exam Review: Sunday, October 6 – 4:30 – 5:30 pm Exam I: Tuesday, October 8 – 7:15 – 9:15 pm			
6	Oct. 7	Moser	Genetics Overview
	Oct. 9	Moser	Mendel's Principles
	Oct. 11	Moser	Probability
Assignments due:		Watch the Probability video before class on October 11	

Week	Date	Lecturer	Title
7	Oct. 14	Moser	Mitosis and Meiosis
	Oct. 16	Moser	Chromosomal Basis of Inheritance and Sex Determination
	Oct. 18	Moser	Linkage and Pedigree Analysis I
Assignments due:		1. Watch the Mitosis and Meiosis videos BEFORE the Oct 14 lecture 2. Watch the linkage video BEFORE the Oct 18 lecture 3. Problem Set 4 due Friday, Oct. 18 BEFORE lecture	

8	Oct. 21	Moser	Non-Mendelian Inheritance: Mitochondrial Inheritance, Imprinting, Penetrance, Expressivity
	Oct. 23	Moser	Non-Mendelian Inheritance: Multiple alleles, Epistasis
	Oct. 25	Moser	Mutations and Chromosomal Structural Alterations I
Assignments due:		1. Problem Set 5 due Friday, October 25 BEFORE lecture 2. Field Activity write up, due Monday October 21 <u>before</u> lecture	

9	Oct. 28	Moser	Mutations and Chromosomal Structural Alterations II
	Oct. 30	Moser	Pedigree Analysis II and Intro to Human Genetics
	Nov. 1	Moser	Polygenic Inheritance I: Human Genome Project, GWAS
Assignments due:		1. Problem Set 6 due Friday, November 1 <u>before</u> lecture	

<i>Exam Review: To Be Announced</i>			
Exam II: Monday, November 4 -- 7:15-9:15 pm			
10	Nov. 4	Moser	Polygenic Inheritance II: Quantitative Traits, QTL
	Nov. 6	Goldman	Charles Darwin, Man of Curiosity
	Nov. 8	Goldman	Charles Darwin, Reluctant Prophet
Assignments due:		Paper Peer Review during discussion November 7	

11	Nov. 11	Goldman	Forces of Evolution: Mutation, Gene Flow, Selection, and Drift in Populations
	Nov. 13	Goldman	Absence of the Forces and the Hardy-Weinberg Equilibrium
	Nov. 15	Goldman	Selection and its impact on Allele Frequency in Populations
Assignments due:		1. Problem Set 7 due Friday, November 15 <u>before</u> lecture 2. Ecology/Genetics Paper due Wednesday, November 13 before lecture	

12	Nov. 18	Goldman	Species Concepts and Speciation
	Nov. 20	Goldman	Molecular Evolution and Tree Thinking
	Nov. 22	Goldman	Phylogeny
Assignments due:		1. Problem Set 8 due Friday November 22 before lecture	

Lecture	Date	Lecturer	Title
13	Nov. 25	Howell	Diversity Overview: History; Modern Prokaryotes and Eukaryotes: Introduction to Major Clades
	Nov. 27	Howell	Bacteria, Archaea, and Protists

Thanksgiving Recess, Nov. 28 – December 1

Assignments due:

14	Dec. 2	Howell	Plants
	Dec. 4	Howell	Fungi
	Dec. 6	Howell	Animals 1

Assignments due:

1. Problem Set 9 due Friday, Dec. 6 before lecture
2. Evolution Paper due Wednesday, Dec 4, before lecture

15	Dec. 9	Howell	Animals 2
	Dec. 11	Howell	Animals 3

Exam Review to be announced
Final Exam Thursday, December 19th 7:45 – 9:45 AM

Biocore 381 Staff Directory Fall 2019

Lecturing Staff

Professor Evelyn Howell, Chair	eahowell@wisc.edu	25E Ag Hall	263-6964
Professor Irwin Goldman	ilgoldma@wisc.edu	377 Moore Ag Hall	262-1624
Professor Amy Moser	armoser@wisc.edu	6107 WIMR	265-6520

Laboratory Staff

Janet Batzli, Chair	jcbatzli@wisc.edu	363 Noland Hall	263-1594
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Lecture TAs

Megan Benoy	mebenoy@wisc.edu	361 Noland Hall
Alex Elias	anelias@wisc.edu	361 Noland Hall
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Biocore Administration

Janet Batzli, Interim Director	jcbatzli@wisc.edu	363 Noland Hall	263-1594
Carol Borcharding, Program Manager	carol.borcharding@wisc.edu	345 Noland Hall	265-2870
Baila Khan High Impact Practice Facilitator	bkhan2@wisc.edu	361 Noland Hall

Office Hours

Name	Location	Day/Time
Dr. Evelyn Howell	25 E. Ag Hall	Wednesday, 1:15-2:15 pm
Dr. Amy Moser	6107 WIMR	Wednesday, 1:30-2:30 pm
Dr. Irwin Goldman	377 Moore Hall	By Appointment
Megan Benoy	521 Noland	Thursday, 10:00-11:00am, 1:00-2:00pm
Alex Elias	521 Noland	Thursday 11:00am-1:00pm
Kristina Garcia	521 Noland	Friday 9:40 – 11:40am

BIOCORE STATEMENT OF ACADEMIC INTEGRITY

What is academic integrity and why are we promoting it? Academic integrity means being honest about your intellectual work which is fundamental to the pursuit of knowledge. We ask you to sign this honor code as a pact between you and the Biocore Program faculty/staff to abide by the academic rules of conduct laid out by the University. Without these rules of conduct our institution would be severely limited in its capacity to function as community of higher learning. We encourage you to visit the following web sites and get familiar with the University policy concerning Student Conduct and Disciplinary Rules (<https://conduct.students.wisc.edu/academic-integrity/>). As a student of the University of Wisconsin it is your responsibility to become familiar with, understand, and abide by the general Statement of Principles and Disciplinary Guidelines outlined by the Dean of Students and the UW Board of Regents. These guidelines protect both you and the university if an infraction has occurred. Ignorance of these regulations is not a defense in cases of infringement. So.. Just DON'T Do It!

DEFINITION OF ACADEMIC DISHONESTY

from UW Academic code 14.03 . <https://conduct.students.wisc.edu/academic-integrity/>

"Academic misconduct is an act in which a student:

1. Seeks to claim credit for the work or efforts of another without authorization or citation;
2. Uses unauthorized materials or fabricated data in any academic exercise;
3. Forges or falsifies academic documents or records;
4. Intentionally impedes or damages the academic work of others;
5. Engages in conduct aimed at making false representation of a student's academic performance;
6. Assists other students in any of these acts

“Examples of academic misconduct include, but are not limited to: cheating on an examination; collaborating with others in work to be presented, contrary to the stated rules of the course; submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another; submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas; stealing examinations or course materials; submitting, if contrary to the rules of a course, work previously presented in another course; tampering with the laboratory experiment or computer program of another student; knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed”

CONSEQUENCES FOR ACADEMIC DISHONESTY

To determine whether academic dishonesty has occurred, the instructor and Biocore administrators will meet with the student. In Biocore, students who commit acts of academic misconduct will write letter describing what they did and, if appropriate, apologize to individuals who were involved in the incident. In alignment with the penalties listed in the University's UWS14, Student Academic Disciplinary Procedures we recognize three levels of consequences (1) An oral reprimand; and (depending on the severity of the case) written reprimand presented only to the student; or an appropriate assignment to be evaluated by the instructor or Biocore administrative staff, (2) a lower or failing grade on the assignment, exam, or course; removal of the student from the course or program; and a written reprimand included in the student's university disciplinary file, (3) recommendation for disciplinary probation for up to 2 years, suspension, or expulsion from the University. See misconduct process chart (<https://conduct.students.wisc.edu/documents/academic-misconduct-flow-chart/>)

BIOCORE HONOR CODE

You will be asked to sign a statement upon entering the Biocore program during the first week of class in Biocore 301. In order to participate in the Biocore Program you must agree to the following principles:

1. I will report laboratory data honestly and accurately. Under no circumstances will I fabricate data or change data to fit what I think it should be.
2. All work that I submit under my name to a peer for peer review or to an instructor for final grading will be my own. I will not copy or paraphrase from another student presently or previously enrolled in this course. For projects where collaboration is explicitly permitted, I will list the names of students with whom I worked.
3. I will not allow another student to copy or "borrow" my laboratory reports or other assignments.
4. I will not forge or falsify academic documents including graded assignments and examinations
5. I will not copy from fellow students nor share contents or answers associated with current semester exam or quizzes.
6. I will strive to make Biocore a community that is based on honesty and integrity.