



## **Biocore 382: Evolution, Ecology, and Genetics Laboratory**

### **Course Designation and Attributes:**

Biocore 382 is a 2-credit Honors intermediate level lab course.

**Canvas Course URL:** <https://canvas.wisc.edu/courses/308810>

### **Course description:**

Writing-intensive course with opportunities for students to make observations and generate and test their own questions. Includes field trips to the Biocore Prairie and research projects that focus on genetics and evolution. Enroll Info: Completion of or concurrent registration in Biocore 381.

**Requisites:** Declared in the Biology Core Curriculum program

**Class Meeting Location:** All Discussion sections and labs meet in 341 Noland Hall or at the Biocore Prairie

**Instructional Modality:** This is an in-person, synchronous course with weekly 3h lab meetings led by the course chair Dr. Janet Batzli or Postdoctoral Teaching Fellow, Dr. Robert (Rob Mooney). Discussion sections are required and will meet in-person, once weekly for 50 min led by graduate teaching assistants.

### **Required Resources**

1. [Biocore 382 Custom Lab Manual](#) [download](#) (this is only Ch 1, 2 & 3- stay tuned for Ch 4&5 once the semester gets rolling)- Janet Batzli editor
2. [Biocore Writing Manual](#)- Janet Batzli and Michelle Harris editors available through Pressbooks
3. **Computer resources** We will be using Canvas course website for instructional resources, access to and handing in assignments, and, if pandemic requires us to shift to remote instruction, for remote synchronous class meetings on Zoom embedded in Canvas. Therefore, you will need reliable internet access and a computer or tablet with a working camera and microphone. The University has prepared some suggestions regarding what you will need to get started: <https://it.wisc.edu/learn/guides/learning-online-technology-tips-tools/#internetLinks> to an external site.[Links to an external site.](#)

### **Credit and Instruction:**

Biocore 382 is a 2-credit Honors laboratory course that includes a 3-hour in-class lab and a required 50-minute discussion section. You should plan to spend a minimum of 6 h outside of regular class hours each week to do lab readings (READ Lab Manual!), work on literature searches, project development, some data collection, data analysis, PowerPoint and poster preparation, paper writing, and peer review.

### **Regular and Substantive Student-Instructor Interaction**

We have a BIG teaching team! That means there is always someone available to help support your learning. As the course chair, Interim Director and Undergraduate Advisor for Biocore, Janet is available by appointment to

talk about the course, the Biocore program, and your undergraduate experience more generally. In addition, Janet will hold office hours during particularly busy weeks for consultation on lab projects, writing, data analysis and interpretation. Anna Kowalkowski, postdoctoral teaching fellow, and Seth McGee, Biocore Lab Manager, are available by appointment and during office hours to support your development of projects and provide essential feedback as you gather materials, schedule experiments, learn techniques, and collect data. Graduate TAs will assist you during lab, facilitate discussion sections, send out timely information in weekly emails, and will grade and provide feedback on your written work. Our course instructional team also includes five undergraduate TAs (one for each lab section) who will provide extra support during lab and discussion time, will be particularly helpful with data analysis, use of Excel and Powerpoint, and for help in drafting papers and practicing oral presentations.

During lab and discussion section, you will work together with your peers and the instructors to develop and carry out your research projects, communicate your research via presentations, do peer review, consult with instructors on experimental design and data analysis, do statistics workshops and other activities that enhance your knowledge of the process of science and your study system.

We are eager to support your learning in Biocore 382!

<b>Instructors</b>				
		<p><b>Janet Batzli (she/her) (Course Chair and Biocore Associate Director)</b></p> <p><a href="mailto:jbatzli@wisc.edu">jbatzli@wisc.edu</a></p> <p><a href="#">website</a></p> <p><i>Make and appointment to meet me in 363 Noland - happy to meet in-person or via Zoom!</i></p>		
		<p><b>Rob Mooney (Postdoctoral Teaching Fellow)</b></p> <p><a href="mailto:rjmooney@wisc.edu">rjmooney@wisc.edu</a></p> <p><a href="#">website</a></p> <p><i>Make an appointment - happy to meet online or outside at a distance!</i></p>		
		<p><b>Seth McGee (he/him) (Lab Manager)</b></p> <p><a href="mailto:seth.mcgee@wisc.edu">seth.mcgee@wisc.edu</a></p> <p><i>Make an appointment - happy to meet online or outside at a distance!</i></p>		
Lab	Disc Time	Lab Time	Teaching Assistants / uTAs	

1	Mon 12:05	TUES AM (8:50-11:50)	<b>Jade Kochanski</b> - <a href="mailto:jkochanski@wisc.edu">jkochanski@wisc.edu</a> uTA - Amelia Moser <a href="mailto:tpmoser@wisc.edu">tpmoser@wisc.edu</a>	
2	Mon 4:35	TUES PM (1:20-4:20)	<b>Zheng Yao</b> - <a href="mailto:zyao78@wisc.edu">zyao78@wisc.edu</a> uTA - TJ Turinske - <a href="mailto:tturinske@wisc.edu">tturinske@wisc.edu</a>	
3	Tues 4:35	WED PM (1:20-4:20)	<b>Ella Schmidt</b> - <a href="mailto:eschmidt9@wisc.edu">eschmidt9@wisc.edu</a> uTA - Molly Hardwick - <a href="mailto:mhardwick@wisc.edu">mhardwick@wisc.edu</a>	
4	Wed 12:05	THURS AM (8:50-11:50)	<b>Elliot Magnuson</b> - <a href="mailto:ecmagnuson@wisc.edu">ecmagnuson@wisc.edu</a> uTA- Lydia Ragainis - <a href="mailto:ragainis@wisc.edu">ragainis@wisc.edu</a>	

5	Wed 4:35	THURS PM (1:20-4:20)	<p><b>Michelle Homann -</b>  <a href="mailto:mhomann@wisc.edu">mhomann@wisc.edu</a></p> <p>uTA- Kurt Borcharding  <a href="mailto:kborcharding@wisc.edu">kborcharding@wisc.edu</a></p>	
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## Course Learning Outcomes

As instructors, we are here to help you and to facilitate your learning of biology and your development as a scientist in an active way, but ultimately you bear the responsibility for learning the material, developing skills and taking ownership of your education. We will challenge you to go beyond simple memorization of details, to interconnect concepts, applications and problems; to ask meaningful questions; to test well-developed hypotheses; and to communicate your findings to your instructors and peers within the realm of science. These are lofty goals! We set high standards for you because we expect that you can reach them!

*Our overall goals in this course are to:*

1. Give you experience applying and expanding upon the concepts discussed in Biocore 381
2. Engage you in the process of science as described above
3. Give you experience working with the tools and procedures of ecology, genetics, and evolutionary biology
4. Improve your scientific communication skills and your capacity to give and receive feedback on your ideas.
5. Improve your capacity to work as a member of a productive, collaborative research team.
6. Give and receive constructive feedback using professional communication and effective interpersonal skills\
7. Contribute to an inclusive, safe, socially and ethically responsible research and learning environment

## *Learning Outcomes*

*At the end of two (three)\* semesters of Biocore labs, students should be able to:*

\*Students are only required to take two of the three Biocore labs. Many choose to take all three!

1. Make careful, systematic observations
2. Ask testable, relevant, creative scientific questions
3. Search, sort and gather relevant background information from texts and primary literature
4. Make predictions and formulate clear, testable hypotheses
5. Develop protocols that test hypotheses
6. Evaluate assumptions associated with experimental design and the biological system
7. Analyze data and make logical conclusions utilizing statistical reasoning
8. Communicate effectively about science through writing and oral presentations
9. Do productive group work

In the process, we hope you will begin to see your instructors as people who bring special skills and a vast array of experiences to complement the class rather than as authorities who know all the answers. In addition, we hope you can hone your group work skills given that science is not a solitary process but one that relies heavily on collaboration and teamwork.

### **Grading: Opportunities to Demonstrate the Learning Outcomes**

<b>Graded Assignments</b>	<b>Due Dates</b>	<b>Weight (%)</b>
<b>all individual assignments except where noted</b>	<b>Week &amp; Time</b>	
Testable Question PRE lab	Week 2- before lab	2
Testable Question POST lab	Week 2- 48h after lab	2
Ecology Experimental Design Worksheet Parts B	Week 3- 48h after lab	2
Ecology Research Proposal Worksheet	Week 4- 48h after lab	8
Paper Review Worksheet ( <b>1/pair</b> )	Week 6- before discussion	2
Data Analysis PRE lab	Week 6- before lab	2
Ecology Peer Review	Week 8- 72 h after discussion	5
Ecology Final Paper	Week 8- 72 h after discussion	15
Fast Plant Genetics PRE lab	Week 9- before disc	5
Fast Plant Poster-Parts Proposal Peer Review	Week 12- 72h after discussion	5
Fast Plant Poster-Parts Proposal	Week 12- 72h after discussion	15
Fast Plant Final Poster ( <b>1/team</b> )	Week 14- 72h after discussion	20
Fast Plant Evolution Rationale and Hypothesis Oral Presentation ( <b>1/team</b> )	Week 15- last lab	8
Fast Plant Evolution Response to Reviewers	Week 15- last lab	4
Team work, class participation, check assignments	Cumulative	5
	<b>Total</b>	<b>100%</b>

### **Papers & Posters, Feedback and Formal Presentations**

As a Writing Intensive/ ComB course, Biocore 382 provides a number of opportunities for you to improve your written and oral communication skills about your science. Written assignments will be done in the form of a scientific research proposal, final paper, or poster and are graded using the rubric criteria described in the *Biocore Writing Manual*. You and your research teams will prepare and present two informal ‘feedback’ presentations in the format of a research proposal when you are planning your research projects (similar to what graduate students do in their research labs). These presentations are not graded, but will allow you to receive

essential and valuable feedback from your instructors and peers prior to you doing your experiment AND prior to writing a research proposal. Although not graded, feedback presentations are where a great deal of learning happens- for both the presenters and the audience. (See Biocore Writing Manual for our expectations.)

**Peer review** You will have 2 formal opportunities to be a peer reviewer (as well as to have your work reviewed) this semester. Formal peer reviews (listed in the syllabus) are done in discussion and require partners to exchange drafts at least 24h before discussion to allow time for thorough review. You will turn in a copy of the review you received with each assignment, along with an *author's response form* that briefly explains major revisions as well as what advice you took and did not take from your reviewer, and why. Your peer review grades will be based on the rubric on p. 40 of the Biocore Writing Manual. Even when not required, we strongly encourage you to use the peer review process before turning in papers or posters.

**Late Assignment Policy** Papers & assignments must be handed in at the specified/ place time unless you have contacted Janet, Anna, and/or your TA *ahead of time* to request an extension due to emergency, illness, or other extenuating circumstances (see Covid19 illness and quarantine policy at the end of this page). Otherwise, we will deduct one grade per day it is late from the grade you would have received (*e.g.*, A->AB for one day late). Note that even an F paper (one week late) counts more than 0 (not handed in at all) when we total the final grades at the end of the semester. If you know of a religious observance or other commitment this semester that will keep you from attending class, let your TA and Instructor know as soon as possible.

### Check Assignments

Regular check (✓) assignments are ungraded, and are scored simply adequate or inadequate. These include written reflections, worksheets, materials & schedule sheets for your research, data sheets, and conferences/ consultations with instructors/ TAs/ uTAs. Completion of check assignments will be taken into account as part of your Participation grade.

### How your final grade is earned

We use an absolute grading scale in 382 (**no curves!**). You will be participating in both individual assignments (70%) and group assignments (30%). Assignments, due dates, and assignment weight in percent are detailed in the schedule below. Pre-lab assignments are graded on a point percentage basis. Papers and posters are graded using rubric criteria described in the *Biocore Writing Manual* and reported to you as a letter grade (A+, A, A-, AB, B+, B, B-, BC, C+...). Paper letter grades are converted to numeric values when final grades are tallied at the end of the semester. Your Participation grade will be determined by a variety of inputs such as your attendance, participation in class discussions (*e.g.*, the Q&A following feedback and formal presentations), participation in research with teammates, completion of check assignments, and feedback from your GEA (Group Effort Analysis) forms as well as the GEA form feedback from research team members. Your Participation grade will be weighted as 5% of your final semester grade.

Use the [tutorial on calculating your grade](#) found in the [Resources menu](#) to calculate your mid-term grade, and ask your TA/ uTA if you have any questions.

Each assignment is weighted as stated in the table above and converted to a percentage score. Your final grade will be determined from the sum of your letter grade assignments. Your final percentage score is converted to a final letter grade as follows:

<u>Final Assignment %</u>	<u>Letter Grade</u>
90-100	A
80-89.9	B
70-79.9	C
60-69.9	D
<60	F

For those few individuals that are on the borderline at the end of the semester, we will assign intermediate grades (AB and BC) based on graded assignments and our evaluation for your participation (in both lab AND discussion).

## How to Succeed in This Course

### **Tips for doing well in Biocore 382**

- **Attendance and participation** in class is extremely important for your learning and the establishment of a positive, effective learning community for everyone (students and instructors). With this in mind, we ask that you engage in listening and participate in class discussion, ask questions, take notes, and **DO NOT** study for other courses during our class meeting time.
- **Take Notes During Class.** We ask you to bring a lab notebook (carbonless hardcopy or electronic) to class each week and to take notes. Why? The process of notetaking, cartooning, recording observations and data collection, and even doodling is important for memory, formulating ideas, 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](#)”) – We will sometimes ask you to turn in your observations, questions, data, ideas at the end of class or as a check assignment. Make it a practice to take notes!
- **Asking questions** is an essential aspect of learning. Asking questions is **NOT** a sign of weakness but rather an active part of learning, curiosity, and doing science! The act of formulating a question helps you to frame your understanding, and uncover and discuss inconsistencies. Being curious and asking questions help you engage, motivate, and maintain interest by connecting the material to your own mental models. Your questions also help your instructors know what is or isn't clear about the concepts, ideas, questions they are introducing. We want to help you learn! Learning how to 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 'learning calendar' within your daily/ monthly planner, and do a little bit of work every day.
  - **Do a wellness 'recharge' activity** that relieves pressure and refocuses. Even a short 'recharge activity' (15-30 min) can release tension and help you refocus energy so you can be productive.
  - **Studying with classmates and visiting your instructor's/ TA's office hours** on a regular basis will keep you on task and caught up.
  - **Organization and keeping track of grades** Make it part of your daily routine to organize and file your course materials, your notes, update your to do list, review returned assignments and the feedback you received, and record the grades you earned. All of these activities will help you focus on your growth in the process of learning. Note: In Biocore 382, we will not post course grades on Canvas during the semester; however, Canvas calculates a course grade with each assignment done through the Canvas portal. It's your responsibility to calculate your progress and keep track of your scores on assignments. Use the [tutorial on calculating your grade](#) found in the [Resources menu](#) to calculate your mid-term grade, and ask your TA/ uTA if you have any questions.
- **Breathing Exercises-** At the beginning of each class meeting, we will be taking a minute (literally, 1 minute) to do a breathing exercise as a class. We will practice breathing, deeply and mindfully, to help gain focus, heighten awareness and concentration, and to ready our minds for learning. Researchers at the [Center for Healthy Minds](#) right here on the UW Madison campus, are leaders in the neuroscience of breathing and meditation as beneficial for overall well-being. Additionally, as scientists ourselves, it is logical to reason that deep breathing and focus aids in making careful observations, being curious, thinking critically, making judgement, taking wise action, and doing science more generally (perhaps there is a testable question in there J). With that, we ask that you try these guided breathing exercises –

be curious! Participation in breathing exercises is completely voluntary, NOT part of your participation grade. If you choose not to participate, please respect and support others interests to do so.

### **In person class meetings:**

We plan to meet outside at the Biocore Prairie and also indoors in 341 Noland. When we meet in-person, we will be following the Covid19 recommendations. When we do come in-person, please prepare to:

1. **MASK UP and SANITIZE!** When in Noland Hall or in close proximity (within 6 feet) outdoors, wear a tight-fitting mask that covers both nose and mouth completely. We will have hand sanitizer and you should too. Use it! See [UW Guidelines on mask usage](#) and [how to wear masks correctly](#).
2. **PHYSICALLY DISTANCE** If you can physically distance, do it! Imagine that everyone had their arms outstretched at all times, and were flapping like eagles (yes, we see bald eagles at the prairie occasionally), we ask that you do not overlap wing span or get any closer than your outstretched wings would allow. That should be more than 6 feet! If you can not physically distance outside, then you must wear a mask.
3. **WATER, CLOTHING, WEATHER, & INSECTS** Meeting outside means that we will encounter hot/ cold weather, rain, and insects. Although we usually have water available for emergency purposes, we ask that all students bring a water bottle to keep themselves hydrated. Wear long sleeves, long pants, and closed toed shoes to protect yourself from scratchy vegetation. Mosquitos can be thick in September. We will have some repellent for emergency, but again, bring your own and have it on you. Make sure you have rain coat and pants or are comfortable in a nice retrofitted garbage bag to keep yourself dry when it rains—and it will rain.
4. **LISTEN CAREFULLY** Given the masks and physical distancing we will be practicing outside, with the occasional helicopter, airplane, or mower, it may be more challenging to hear one another. Instructors will have voice amplifying microphones when meeting with groups of students. When you are working in small groups, make sure to listen carefully and take turns speaking. Pay careful attention to physical cues for communication and the whereabouts of your team members.

### **Diversity & Inclusion**

Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals. The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world. <https://diversity.wisc.edu/>

Biocore defines diversity broadly as it applies to the ways in which individuals in our community vary in physical appearance, in race, ethnicity and culture, gender, national origin, religion, (dis)ability, sexual orientation, socioeconomic status, education, learning styles, language, age and life history. This broad definition incorporates how individuals approach learning and working together in groups; and the different ideas, perspectives, and values individuals bring to the community.

### **Creating an inclusive community and classroom**

In Biocore, we strive for the utmost equity for all students, TAs, and faculty/ staff, regardless of race, ethnicity, gender, sexual orientation, (dis)ability, socioeconomic status, country of origin, or religious affiliation. We are a community of students and instructors committed to and in full support of students who identify as black, brown, indigenous, students of color; students with racial, ethnic, gender, LGBTQ+ diverse identities. Your perspective, your learning, your interests, and your contributions matter within our engaged learning



community. 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. We are committed to saying and doing something- silence is not an option. 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. We all make mistakes. Taking responsibility for our mistakes allows us to learn from them. 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, inclusive, and productive learning community. If even one of us feels stifled or unaccepted, we all lose out.

**Group work, participation, and inclusive mindsets** Learning to work as an *inclusive, productive, and collaborative* member of a team is an essential skill for all professionals and is an important learning goal for Biocore 382. Learning to have an inclusive mindset includes being aware / proactively engaging with diverse perspectives among individuals in our learning community, and aims to decrease the barriers to hear and exchange diverse perspectives- especially for those who are traditionally marginalized. Inclusive behaviors include inviting and valuing other's ideas, listening and learning before making judgements, taking personal responsibility and being accountable, and creating a welcoming, connective, and affirming attitude towards others. Collaborative, inclusive team work increases the number of perspectives focused on a complex problem, and it increases creativity and capacity for productive work! Unfortunately, group work can sometimes be challenging and unproductive if team members do not value or invest in the team or shared goal or if one or two students dominate over others. We consider collaboration a skill that needs practice, patience, and intention to become competent.

Throughout the semester you will be assigned to different groups by your instructors so that you have an opportunity to practice working with different personalities and diverse perspectives. Part of your work as a good team member is your *independent accountability* for the knowledge you gain & the work you do while respecting and encouraging the work of others. Although we expect you to discuss ideas and work through problems and analyses with your teammates, you need to demonstrate your accountability for the project by writing proposals and your first final paper individually- on your own. Note that the first assignment (paper review), the *Fast Plant genetics* final poster, and Fast Plant evolution presentation are group grades, and so **30%** of your final semester grade results from either "Pair" or "Team" efforts. Your team & class participation grade will be based on the quality of your check assignments, attendance and participation in class discussions and research team efforts. This grade is determined by input from both your instructors and from your teammates' with a '[Group Effort Analysis](#)' (GEA) form and weighted as **5%** of your final semester grade.

### **Accommodations for Students with Disabilities Statement**

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy ([UW-855](#)) require the university to provide reasonable accommodations to students with disabilities to access and participate in its academic programs and educational services. Faculty and students share responsibility in the accommodation process. Students are expected to inform faculty [me] of their need for instructional accommodations during the beginning of the semester, or as soon as possible after being approved for accommodations. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to provide reasonable instructional and course-related accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. (See: [McBurney Disability Resource Center](#))

## **Academic Calendar & Religious Observances**

Use [this link](#) to find information about the current and future academic calendars, along with the university's religious observance policy.

## **Academic Integrity**

By virtue of enrollment, each student agrees to uphold the high academic standards of the University of Wisconsin-Madison; academic misconduct is behavior that negatively impacts the integrity of the institution. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these previously listed acts are examples of misconduct which may result in disciplinary action. Examples of disciplinary action include, but is not limited to, failure on the assignment/course, written reprimand, disciplinary probation, suspension, or expulsion. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to [studentconduct.wiscweb.wisc.edu/academic-integrity/](http://studentconduct.wiscweb.wisc.edu/academic-integrity/)

## **Biocore Statement of Academic Integrity**

We trust you to do your own, best work on all individual assignments, and that all team members will equivalently contribute to all group assignments. Remember, you formally agreed to this when you signed the Biocore Honor Code last fall (the six principles of the Biocore Honor Code are below). If you have exceptional circumstances that prohibit you from doing your own, best work, please see us to talk about it.

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.

As a UW-Madison student, it is your responsibility to be informed about what constitutes academic misconduct, how to avoid it and what happens if you decide to engage in it. For more information, see <https://conduct.students.wisc.edu/academic-integrity/>

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**

Misconduct includes the following, but is not limited to this list:

- Seeks to claim credit for the work or efforts of another without authorization or citation (plagiarism)
- Uses unauthorized materials or fabricated data in any academic exercise (using notes for a closed-book online exam)
- Forges or falsifies academic documents or records (having a friend sign you in for attendance when you're absent)
- Intentionally impedes or damages the academic work of others (tampering with another student's experiment)
- Engages in conduct aimed at making false representation of a student's academic performance (altering test answers and submitting the test for regrading)
- Assists other students in any of these acts

Examples include but are not limited to: cutting and pasting text from the web without quotation marks or proper citation; paraphrasing from the web without crediting the source; using notes or a programmable calculator in an exam when such use is not allowed; using another person's ideas, words, or research and

presenting it as one's own by not properly crediting the originator; stealing examinations or course materials; changing or creating data in a lab experiment; altering a transcript; signing another person's name to an attendance sheet; hiding a book knowing that another student needs it to prepare an assignment; collaboration that is contrary to the stated rules of the course, or tampering with a lab experiment or computer program of another student.”

### **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 a 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.

### **Biocore Honor Code**

You will be asked to sign a statement upon entering the Biocore program during the first week of class in Biocore 381. 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 will be my own. I will not copy or paraphrase from another student presently or previously enrolled in this course.
3. For projects where collaboration is explicitly permitted, I will list the names of students with whom I worked.
4. I will not allow another student to copy or "borrow" my laboratory reports or other assignments.
5. I will not forge or falsify academic documents including graded assignments and examinations
6. I will strive to make Biocore a community that is based on honesty and integrity.

### **Course Evaluations**

Students will be provided with an opportunity to evaluate this course and your learning experience via mid-semester and final course evaluations. Student participation is an integral component of this course, and your confidential feedback is important to instructors. You are strongly encouraged to participate in the course evaluation.

### **Students' Rules, Rights & Responsibilities**

Please use [this link](#) above to access information about UW-student privacy rights (FERPA).

### **Teaching & Learning Data Transparency Statement**

*The privacy and security of faculty, staff and students' personal information is a top priority for UW-Madison. The university carefully evaluates and vets all campus-supported digital tools used to support teaching and learning, to help support success through [learning analytics](#), and to enable proctoring capabilities. View the university's full [teaching and learning data transparency statement](#).*

### **Privacy of Student Records & the Use of Audio Recorded Lectures Statement**

*See more information about [privacy of student records and the usage of audio-recorded lectures](#).*

Course materials and recordings for this course are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a class meeting is not already recorded, you are not

authorized to record class meetings without Michelle Harris' permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or have course materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted course materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

# Biocore 382 Fall 2022 Schedule

Activities, meeting locations, assignments, and due dates will be assessed regularly and revised as necessary.

<u>Week &amp; Date</u>	<u>Topic / Activity</u>	<u>Meeting Location/ Assignments</u>
<p><i>Note: Activities, meeting locations, assignments, and due dates will be assessed regularly and revised as necessary.</i></p> <p style="background-color: yellow;">Yellow highlights= graded work</p>		
<p><b>1</b></p> <p>Sept 7 - 9</p>	<p><b>Ecology I:</b></p> <p>Intro to Biocore Community and the Biocore Prairie</p>	<p><b>Disc:</b> None this week- Labor Day</p> <p><b>Lab:</b> <b>Meet at Biocore Prairie</b></p> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Syllabus Explore and Pre-semester questions (check)</a> due 48h after you have met your instructors at the Biocore Prairie</li> <li>• <a href="#">Biocore Prairie Self- Guided Tour (check)</a> due 48h after lab</li> <li>• Read Lab Manual <a href="#">Chap 1</a> &amp; <a href="#">Chap 2</a></li> </ul>
<p><b>2</b></p> <p>Sept 12 - 16</p>	<p><b>Ecology II:</b></p> <p>Process of Science - Meet research team &amp; Intro to Testable Questions</p>	<p><b>Disc:</b> <b>Meet in 341 Noland Hall</b></p> <ul style="list-style-type: none"> <li>• Learning community agreements</li> <li>• Course orientation, goals, expectations, schedules</li> </ul> <p><b>Lab:</b> <b>Meet at Biocore Prairie</b></p> <p><a href="#">Prairie Observations &amp; Questions Stations</a></p> <p><a href="#">Biocore Prairie Resources</a></p> <p><b>Assignments</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Testable Questions PRE-lab (2%)</a> due before lab</li> <li>• <a href="#">Testable Questions POST-lab (2%)</a> due 48h after lab</li> </ul>
<p><b>3</b></p> <p>Sept 19 - 23</p>	<p><b>Ecology III:</b></p> <p>Meet Team &amp; Develop Research Question</p>	<p><b>Disc:</b> <b>Meet in 341 Noland Hall</b></p> <p>Intro to research team, group effort analysis (GEA), and project development</p> <ul style="list-style-type: none"> <li>• <a href="#">Group Effort Analysis form</a></li> <li>• <a href="#">Constructive &amp; Destructive group behaviors</a></li> <li>• <a href="#">Figure Facts- Workshop on Reading Primary Literature</a></li> </ul> <p><b>Lab:</b> <b>Meet in 341 Noland Hall</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Ice cream cup recycling sample BR</a></li> </ul>

		<ul style="list-style-type: none"> <li>• <a href="#">Sample BR diagrams</a></li> <li>• <a href="#">BioRender</a></li> <li>• Research project development</li> </ul> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Equity and Inclusion in STEM</a> (check)- due before discussion</li> <li>• <a href="#">Experimental Design Worksheet Part A.</a>- Your Question (Check) <b>1/team</b> due 48h after lab</li> <li>• <a href="#">Experimental Design Worksheet Part B. (2%)</a> Figure Facts INDIVIDUAL due 48h after lab</li> <li>• Team work on research proposal for feedback presentation</li> </ul>
<p>4</p> <p>Sept 26 - 30</p>	<p><b>Ecology IV:</b></p> <p>Experimental Design &amp; Solicit Feedback</p>	<p><b>Disc: Meet in 341 Noland Hall</b></p> <p>Generating Research Proposal slides- for feedback</p> <p><b>Lab: Meet in 341 Noland Hall</b></p> <p>Propose research and solicit feedback</p> <p>Informal Feedback Presentations (check) and consult with instructors</p> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Materials &amp; Schedule Sheet</a> (Check) due 24h after lab</li> <li>• <a href="#">Ecology Research Proposal</a> (8%) due 48h after lab</li> </ul>
<p>5</p> <p>Oct 3-7</p> <p><i>Biocore 381 exam Mon Oct 3</i></p>	<p><b>Ecology V:</b></p> <p>Representing &amp; Explaining Variation</p>	<p><b>Disc: Meet in 341 Noland Hall</b></p> <p>Scientific writing workshop-expectations for writing and peer review</p> <p><b>Lab: Meet at Biocore Prairie</b> - Data Collection</p> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Group Effort Analysis (GEA) form 1</a> (check) due before discussion</li> </ul>

<p style="text-align: center;"><b>6</b></p> <p style="text-align: center;">Oct 10 - 14</p> <p style="text-align: center;"><i>Biocore 381 final paper due Wed Oct 12</i></p>	<p style="text-align: center;"><b>Ecology VI:</b></p> <p style="text-align: center;">Excel basics &amp; Complete data collection</p>	<p><b>Disc: Meet in 341 Noland Hall</b></p> <p>Excel basics, descriptive statistics, &amp; making graphs</p> <p><b>Lab: Meet at the Biocore Prairie</b>- Complete Data Collection</p> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Paper Review Assignment (1/pair) (2%)</a> due before discussion</li> <li>• Read <a href="#">Ch3 382 Lab Manual</a></li> <li>• <a href="#">Data Analysis Prelab (2%)</a> due before lab</li> </ul>
<p style="text-align: center;"><b>7</b></p> <p style="text-align: center;">Oct 17 - 21</p>	<p style="text-align: center;"><b>Ecology VII:</b></p> <p style="text-align: center;">Data Analysis &amp; Scientific Writing</p>	<p><b>Disc: Meet in-person at 341 Noland Hall</b></p> <p><a href="#">Slide template for Data Analysis Feedback Presentation</a></p> <p>Writing workshop: research proposal vs final paper discussion/conclusions</p> <p><b>Lab: Meet in-person at 341 Noland Hall for remainder of semester</b></p> <p><a href="#">Data analysis slides</a></p> <p>Data Analysis feedback presentations and final paper outline</p> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Raw Data sheet and figures (check)</a>- see raw data template here</li> </ul>
<p style="text-align: center;"><b>8</b></p> <p style="text-align: center;">Oct 24 - 28</p>	<p style="text-align: center;"><b>Ecology to Genetics:</b></p> <p style="text-align: center;">Life Cycles, Reproduction and Genetic Variation</p>	<p><b>Disc:</b> Formal <a href="#">Peer Review form</a></p> <ul style="list-style-type: none"> <li>• Exchange paper drafts with partner 24h before disc</li> <li>• Bring completed Final Peer Review form to disc for conference with your partner</li> </ul> <p><b>Lab:</b></p> <ul style="list-style-type: none"> <li>• Life cycles, reproduction, flow of genetic information in plants</li> <li>• <a href="#">Read Ch 4 in 382 Lab Manual</a></li> <li>• Mid-semester Evals</li> </ul> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Grocery store botany: life cycles, genetics, and phenotypes</a> (check) due at the end of lab</li> <li>• Due 72h after Disc <ul style="list-style-type: none"> <li>○ <a href="#">Ecology Final Paper (15%)</a></li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>○ <a href="#">Authors response to Peer Review and YOUR draft (check)</a></li> <li>○ <a href="#">Your Peer Review of your partners paper (5%)</a></li> <li>○ <a href="#">GEA 2 (check)</a></li> </ul>
<p style="text-align: center;"><b>9</b></p> <p style="text-align: center;">Oct 31- Nov 4</p>	<p style="text-align: center;"><b>Genetics I:</b></p> <p>Intro to Phenotypic &amp; Genotypic Variation- project development</p>	<p><b>Disc:</b> Introduction to phenotype &amp; genotype: Anthocyanin Pigment Intensity (API) in <i>Brassica rapa</i></p> <p>Learning Goals and Group Learning check-in &amp; reflections; Meet new research team</p> <ul style="list-style-type: none"> <li>• Group Effort Analysis Feedback</li> <li>• *Sign up for writing conference with TA (time varies)</li> </ul> <p><b>Lab:</b> Fast Plant Research Project Development</p> <ul style="list-style-type: none"> <li>• <a href="#">Fast Plant Genetics Resources &amp; Literature</a></li> <li>• <a href="#">Fast Plant worksheet</a>- genotype v. phenotype, <a href="#">2019 Fast Plant populations</a> API data, and two-tier hypothesis</li> <li>• Research team work - tentative testable question and begin Experimental Design Worksheet</li> </ul> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Read Ch 5 in 382 Lab Manual</a></li> <li>• <a href="#">Fast Plant Genetics Prelab (5%)</a> due before discussion</li> <li>• <a href="#">Fast Plant Week 1 worksheet (1/team- check)</a> due 48h after lab</li> </ul>
<p style="text-align: center;"><b>10</b></p> <p style="text-align: center;">Nov 7 - 11</p> <p style="text-align: center;"><i>Biocore 381 exam Tues Nov 8</i></p>	<p style="text-align: center;"><b>Genetics III:</b></p> <p style="text-align: center;">Giving and receiving feedback</p>	<p><b>Disc:</b> Generating Research Proposal slides- for feedback</p> <p><b>Lab:</b> <a href="#">Experimental Design Worksheet</a> used to prepare <a href="#">Informal Feedback presentations - template</a></p> <p>Biorationale workshop &amp; scientific posters (Outside of lab time) Plant Fast Plant seeds within 24h after lab</p> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• Material and Schedule (1/team- check) by discussion</li> </ul>
<p style="text-align: center;"><b>11</b></p> <p style="text-align: center;">Nov 14 - 18</p>	<p style="text-align: center;"><b>Genetics III:</b></p> <p>Intro to Posters &amp; Begin Data Collection</p>	<p><b>Disc:</b> Scientific poster workshop and expectations for 'poster parts' proposal</p> <p><b>Lab:</b> Plant growth check in and preliminary data collection</p> <p><a href="#">Data Analysis Worksheet</a></p> <p><a href="#">Poster Parts Assignment Guide</a></p>



		<p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Experimental Design Worksheet</a> (check) due before discussion</li> </ul>
<p><b>12</b> Nov 21 - 23</p>	<p><b>Genetics IV:</b> Complete Data Collection &amp; Analysis</p>	<p><b>Disc:</b> Plant growth check in and complete data collection</p> <p><i>**poster consult with instructors outside of class</i></p> <p><b>Lab:</b> <b>NO LABS - THANKSGIVING BREAK</b></p> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• Due Wed Nov. 23 5:00pm <ul style="list-style-type: none"> <li>◦ <a href="#">Fast Plant research 'poster-parts' proposal</a> (15%) INDIVIDUAL</li> <li>◦ <a href="#">GEA 3</a> (check)</li> </ul> </li> </ul>
<p><b>13</b> Nov 28 - Dec 2</p>	<p><b>Genetics V:</b> Data Analysis &amp; Interpretation</p>	<p><b>Disc:</b> Research Teams prepare Data Analysis feedback presentation</p> <p><b>Lab:</b> <a href="#">Data Analysis feedback PPT template</a></p> <p>Final group poster workshop</p> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Data Analysis Worksheet Parts A &amp; B (1/team- check)</a> due 48h after lab</li> </ul>
<p><b>14</b> Dec 5 - 9</p>	<p><b>Evolution of Fast Plants:</b> Developing Hypotheses and Rationale</p>	<p><b>Disc:</b> <a href="#">Brassica rapa Fast Plant evolution activity</a>- focus on phenotype variation, agent of selection, selection pressure, and fitness variation</p> <p><b>Lab:</b> <a href="#">Fast plant evolution BR and experimental design</a></p> <p>Oral presentation workshop</p> <p><b>Assignments:</b></p> <ul style="list-style-type: none"> <li>• Science Identity Survey</li> <li>• Exchange group posters for <u>individual</u> peer review by the end of lab</li> <li>• <a href="#">Poster Peer review forms</a> returned to authors 48h after lab</li> <li>• Sign up for oral presentation peer review with uTA</li> </ul>

<p style="text-align: center;"><b>15</b></p> <p style="text-align: center;">Dec 12 - 14</p> <p style="text-align: center;"><i>Biocore 381 Diversity Project due Tues Dec 13</i></p>	<p style="text-align: center;"><b>Evolution of Fast Plants: Developing Hypothesis</b></p>	<p><b>Disc:</b> Formal oral presentation peer review</p> <p><b>Lab:</b> Fast Plant Evolution Presentation; meta reflection on process of science</p> <p><b>Assignments:</b></p> <p>Due in lab</p> <ul style="list-style-type: none"> <li>• Final Evaluations</li> <li>• <a href="#">Fast Plant Poster Oral Presentation (8%)</a> (1/team)- <i>Thurs lab sections sign up to present on Tuesday Dec 14 or Wednesday Dec 15</i></li> </ul> <p>Due 48 h after presentation</p> <ul style="list-style-type: none"> <li>• <a href="#">Fast Plant final poster (1/team) (20%)</a></li> <li>• <a href="#">Poster Peer Review Form (1/individual) (5%)</a></li> <li>• <a href="#">Fast plant evolution Biorationale figure, figure legend, and hypothesis for Fast Plant Evolution (4%) (1/team)</a></li> <li>• <a href="#">GEA 4 (check) individual</a></li> </ul>
<p><b><a href="#">Team work, class participation and check assignments (5%)</a></b></p>		