

BIOLOGY CORE CURRICULUM HONORS, CERTIFICATE

Biology Core Curriculum (Biocore (<http://www.biocore.wisc.edu>)) is an undergraduate Honors biology certificate program for students who are motivated to learn biology within a small community of students, peer mentors, and faculty instructors. The four-semester curriculum of lecture and laboratory courses provides an integrated foundation of knowledge and skills applicable to any area of bioscience.

Biocore is not a major but fulfills requirements (introductory to intermediate coursework, Honors, and Communication Part B) for a variety of biological science majors including those in the College of Agricultural and Life Sciences, College of Letters & Science, College of Engineering, and School of Pharmacy. See the Biocore website and video (<http://www.biocore.wisc.edu/about>) to learn more.

Unique aspects of Biocore include:

- Small classes and high faculty/instructor contact
- Emphasis on research, problem solving, science reasoning, group learning, and communication
- Collaborative community of students and faculty
- Peer mentoring, outreach, and directed study opportunities
- Biocore Honors certificate.¹

¹ *Biology Core Curriculum Honors certificate* is available to students within the College of Agricultural and Life Sciences, the College of Engineering, the School of Human Ecology, the College of Letters & Science, and the School of Pharmacy. Students in the School of Business, the School of Education, and the School of Nursing are welcome to benefit from enrollment in the Biocore courses, but they are ineligible to earn the certificate. Students earn Honors course credit for each Biocore course and are eligible to earn a certificate upon completion of all four lecture courses and two of three lab courses with a grade of B or higher in all BIOCORE (<http://guide.wisc.edu/courses/biocore>) courses and a 3.33 cumulative GPA.

HOW TO GET IN

Biocore is an application-based Honors program that starts in the fall. While any UW–Madison who is admitted to Biocore can take courses and complete the program, only students in the College of Agricultural and Life Sciences, the College of Engineering, the School of Human Ecology, the College of Letters & Science, and the School of Pharmacy will be eligible to have the certificate noted on their transcript.

Application options:

1. Regular: For all students who have completed the prerequisites and would like to begin Biocore sophomore year. Applications are available through the Biocore website (<http://www.biocore.wisc.edu/bioadmissions>). Regular application deadline is in early March prior to April registration; however, Biocore continues to accept applications right up to the start of classes (space permitting). Most students apply during the spring of freshman year and begin fall of sophomore year.

2. Freshman: for a small cohort (~10) of well-prepared students who meet the requirements and would like to begin Biocore at the start of their freshman year (see website (http://www.biocore.wisc.edu/bio_admissions_freshman)).

PREREQUISITES

Please inquire about course equivalents.

Code	Title	Credits
Math		
Select one of the following:		5
MATH 217	Calculus with Algebra and Trigonometry II	
MATH 221	Calculus and Analytic Geometry I	
Introductory Chemistry		
Select one of the following:		5
CHEM 104	General Chemistry II	
CHEM 109	Advanced General Chemistry	
CHEM 115	Chemical Principles I	
Total Credits		10

¹ Organic chemistry (CHEM 341 or CHEM 343) is not a prerequisite for the BIOCORE program; however, organic chemistry is a prerequisite for BIOCORE 383 Cellular Biology.

REQUIREMENTS

To earn the Biology Core Curriculum Honors (Biocore) certificate, students must:

1. Complete all four Biocore lecture courses and two of three lab courses
2. Earn a 'B' grade or better in all Biocore courses
3. Complete degree with a cumulative GPA of 3.3 or higher.

All Biocore courses are taken for Honors credit.

Code	Title	Credits
Complete the following lecture courses (in sequence): ¹		
BIOCORE 381	Evolution, Ecology, and Genetics	3
BIOCORE 383	Cellular Biology	3
BIOCORE 485	Organismal Biology	3
BIOCORE 587	Biological Interactions	3
Complete two of the following lab courses (in any order):		4
BIOCORE 382	Evolution, Ecology, and Genetics Laboratory	
BIOCORE 384	Cellular Biology Laboratory	
BIOCORE 486	Organismal Biology Laboratory	
Total Credits		16

¹ Students pursuing the Biology Core Curriculum Honors certificate should not take the following courses since most majors will not allow credit for both:

ZOOLOGY/BIOLOGY/BOTANY 151
 ZOOLOGY/BIOLOGY/BOTANY 152
 ZOOLOGY/BIOLOGY 101
 ZOOLOGY/BIOLOGY 102
 BOTANY/BIOLOGY 130
 GENETICS 466

ANAT&PHY 335 Physiology

CERTIFICATE COMPLETION REQUIREMENT

This undergraduate certificate must be completed concurrently with the student's undergraduate degree. Students cannot delay degree completion to complete the certificate.

LEARNING OUTCOMES

1. Demonstrate a learning mindset and intellectual curiosity for biology.
2. Demonstrate advanced level scientific reasoning and integration of biological concepts and processes – from molecules to the biosphere, across different forms of life, through space and time.
3. Generate novel scientific questions, formulate hypotheses, carry out experiments, and make logical conclusions based on evidence.
4. Demonstrate advanced scientific communication skills, oral and written, and the ability to translate their understanding to the broader community.
5. Actively engage in and practice group learning, collaboration, and teamwork.
6. Reach for and achieve high standards in the quality of learning.
7. Articulate the value of their Biocore Honors experience.

FOUR-YEAR PLAN

EXAMPLE SEQUENCE OF BIOCORE COURSES AND RELATED COURSEWORK

To earn the Biology Core Curriculum Honors certificate, students need only complete two of three Biocore laboratory courses.

Talk with your advisor and look on the Biocore website (<https://biocore.wisc.edu>) for how Biocore fits into many different bioscience majors.

Code	Title	Credits
Prerequisite Coursework - Freshman Year		
MATH 221 or MATH 217	Calculus and Analytic Geometry 1 Calculus with Algebra and Trigonometry II	5
CHEM 104 or CHEM 109 or CHEM 115	General Chemistry II Advanced General Chemistry Chemical Principles I	5
First Semester of Biocore Program - Fall Sophomore Year		
BIOCORE 381	Evolution, Ecology, and Genetics (previous or concurrent registration in CHEM 341 or 343)	3
BIOCORE 382	Evolution, Ecology, and Genetics Laboratory	2
CHEM 343	Introductory Organic Chemistry	3
Second Semester of Biocore Program - Spring Sophomore Year		
BIOCORE 383	Cellular Biology	3

BIOCORE 384	Cellular Biology Laboratory	2
Third Semester of Biocore Program - Fall Junior Year		
BIOCORE 485	Organismal Biology	3
BIOCORE 486	Organismal Biology Laboratory	2
Fourth Semester of Biocore Program - Spring Junior Year		
BIOCORE 587	Biological Interactions	3

ADVISING AND CAREERS

Some majors require students to complete the whole program, but others do not. **Check on your major requirements and with an academic advisor in your major.** Look on the Biocore website (<https://biocore.wisc.edu>) for how Biocore fits into many different bioscience majors. Students who plan to study abroad during their junior year can plan to start Biocore as sophomores and complete coursework as seniors.

For general academic and advising questions in Biocore, contact: Janet Batzli, Biocore associate director, jcbatzli@wisc.edu.

For questions about the student experience in Biocore, contact: Biocore peer advisors, uwbiocore.peeradvisors@gmail.com.

PEOPLE

Jeff Hardin (director)

Janet Batzli (associate director)

Michelle Harris (faculty associate)

Seth McGee (lab manager)

Carol Borcharding (program manager)

Biocore faculty instructors come from departments and colleges across campus (College of Letters & Science, College of Agriculture and Life Sciences, School of Medicine and Public Health, College of Engineering) and bring with them different perspectives and disciplinary expertise on a whole range of topics and scales of biological organization from molecules to ecosystems. The curriculum permits students to attain a relatively high level of sophistication with complete flexibility of choice for subsequent major specialization.

Affiliated Faculty Instructors

Elaine Alarid (Oncology, SMPH)

Bill Bement (Zoology, L&S)

Paul Bethke (Horticulture, CALS)

Erik Dent (Neuroscience, SMPH)

Irwin Goldman (Horticulture, CALS)

Anne Griep (Cell and Regenerative Biology, SMPH)

Jeff Hardin (Zoology, L&S)

Evelyn Howell (Landscape Architecture, CALS)

Stephen Johnson (Comparative Biosciences, VetMed)

Trina McMahon (Civil and Environmental Engineering, Engr)

Amy Moser (Oncology, SMPH)

Shelby O'Connor (Pathology, SMPH)

Biocore Committee: Jeff Hardin (director), Janet Batzli (associate director), Michelle Harris, Evelyn Howell, Amy Moser, Shelby O'Connor

WISCONSIN EXPERIENCE

The Biocore Experience is aligned with the Wisconsin Experience, supporting students' development of knowledge, intellectual skills, and social responsibilities.

Biocore is an Honors biology program, a *community*, and a *curriculum* that challenges students to discover and reach their academic potential within a supportive biology education program. The Biocore Honors community of highly motivated students works with dedicated faculty to extend opportunities for scientific research, communication, integrative learning, and collaboration in the context of a four-semester undergraduate biology curriculum.

Students say:

"Biocore has helped me **think about science in a completely different way**."

"I have never been so challenged, nor so **excited about learning**, as during my time in Biocore."

"Biocore taught me how to **think critically and how to question**. I learned to be part of a team and made some great friendships. "

"Taking Biocore made other **advanced courses in biology/biochemistry/genetics so much easier** because I gained such solid background knowledge."

"Biocore has been my most valuable academic experience yet. It has helped me develop my **scientific writing skills, ability to problem solve as a member of a team, and to think like a scientist**."

"The **great staff and teaching teams** are excellent – they **really care** and invest a huge amount of time to benefit our learning."

See Biocore Experience video (<http://www.biocore.wisc.edu/about>) and alumni profiles (<http://www.biocore.wisc.edu/alumni>).

The Biocore curriculum provides an Honors experience in introductory to intermediate level integrated biology. Students experience small class sizes and a high instructor/student ratio all within a learning community of highly motivated and dedicated Honors students, faculty, staff, and peers. Biocore courses emphasize problem-solving, critical thinking, research, scientific writing, group learning, and the process of science. In this collaborative and supportive learning community, students are also able to engage in peer mentoring (http://www.biocore.wisc.edu/peer_mentors), in directed study opportunities, in the Biocore Prairie (<http://www.biocore.wisc.edu/prairie>), and in K–12 outreach through the Biocore Outreach Ambassadors (<http://www.biocore.wisc.edu/outreach>).