- PROGRAM IN BIOLOGY
  lsa.umich.edu/biology
- ECOLOGY AND EVOLUTIONARY BIOLOGY
  lsa.umich.edu/eeb
- MOLECULAR, CELLULAR, AND DEVELOPMENTAL BIOLOGY
  lsa.umich.edu/mcdb

UMBS students learn about local flora on a "plant walk" through the station's property. Image: Alexis Rankin

Real world research at UMBS

Since 1909, the U-M Biological Station — located at the tip of Michigan's Lower Peninsula — has been at the vanguard of field-based education and ecological research. Ten thousand undeveloped acres of forest, fen, lake and coastal wetland serve as a classroom for faculty and students, and a living laboratory for researchers.

Undergraduates in our field courses learn science where it happens. Faculty experts challenge students to ask insightful ecological questions and seek answers through thoughtfully designed research projects. Increasingly interdisciplinary courses in art, chemistry, policy and the humanities prepare students to creatively address some of the world's most complex environmental problems.

Our equipment and facilities, including a full-service analytical chemistry lab, dining hall and residential cabins, are available to students, faculty and researchers alike.

Learn more on our website: lsa.umich.edu/umbs

The Program in Biology offers eight majors with a wide range in specialization.

- Biology
- Biology, Health & Society
- Molecular, Cellular, and Developmental Biology
- Cellular and Molecular Biomedical Science
- Ecology, Evolution & Biodiversity
- Microbiology
- Plant Biology
- Neuroscience

Please consider a donation to help support:

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Program in Biology adminstrative staff:

(left to right) Anna Cihak, Keith Wittkopp, Kimberly Pavuk, Laura Curtis, Andrea Duenas. Image: Suzanne Tainter

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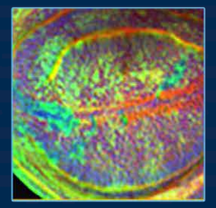
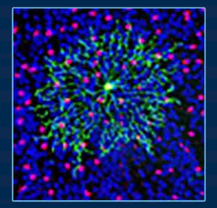
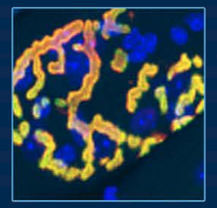
PROGRAM IN BIOLOGY

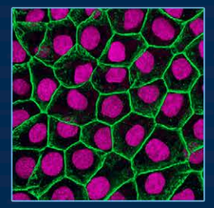
The Program in Biology encompasses a breadth of disciplines spanning all levels of organization — from molecule and cell to ecosystem and biosphere — and includes the study of a diversity of organisms. Our program includes: nearly 100 full-time faculty, eight different majors (and two minors), and a wide spectrum of career opportunities for graduates!

Yellow banded bumblebee (*Bombus terricola*) foraging on goldenrod, Pictured Rock National Lakeshore.
Image credit: Michelle Fearon







LSA PROGRAM IN BIOLOGY

Teaching about climate needs to empower students toward change

At a time when the reality of climate change has become a focus of national debate, research showing that 98 percent of students in a large introductory biology course believe it is a genuine problem would seem to be good news.

Yet EEB Professor Meghan Duffy and colleagues found that by the end of a large introductory biology course, students filled with more information were more worried about climate change than when they began and had a perception that nothing will be done about it.

"Our students are not just these vessels that we are depositing knowledge into, they are people with feelings and emotions and we need to factor that in, too," Duffy said. "So some of what I've been thinking about as I teach this semester is how can I lead students to feel more empowered to tackle climate change. They need to be able to take that information and act on it."

Read more>> myumi.ch/r8vQ7

Students in Introductory Biology. Image: Martin Springborg

Student researcher works to build healthy environment, community

Yoav Jacob

Yoav Jacob believes in leaving things better than he found them — specifically the environment and the University of Michigan.

With an interest in attending medical school in the future, Jacob discovered an interest in plant evolution during his sophomore year. While working as an undergraduate researcher in the Evolutionary and Ecological Genomic Lab of EEB Professor Regina Baucom, Jacob spent two and a half years working on his independent honors thesis, investigating the effect of nanoparticle exposure on plants.

"I hoped to make predictions about the future of agriculture, industry and its impact on human health," Jacob said.

Originally from Long Island, New York, Jacob was involved in many activities in and outside academia including as a leader in Michigan Hillel, a campus fellow for the Shamayim V'Aretz Institute, a part-time emergency medical technician, peer adviser, undergraduate teaching assistant and intern at the Matthaei Botanical Gardens.

On advice he'd give to his younger self, he said, "explore all the passions you have whether you think they are crazy or not. Then you will begin to flourish."

Read more>> myumi.ch/88nlx

Plague of plastics

An uncommon scientist who steps out of the lab onto boats and in front of policy makers, EEB Professor Melissa Duhaime wants to use science to keep our water healthy. Duhaime shares scientific research on the hazards of microplastics publicly and often, including at a Senate hearing in Washington, D.C., in 2018. Her lab conducted the largest-ever survey of Great Lakes plastic pollution, finding plastic in every trawl they dragged through the water, at some of the highest concentrations ever recorded in the world.

Duhaime and her lab, including many undergraduate students, often go out in boats, which serve as floating field stations. "I think about how my actions, my investments in my work, and my time might impact the planet or the other people living on it with us," Duhaime said. "I've had to really hone how I spend my time and thinking about whether it reflects my values. I find that personally very satisfying as a human."

Read more>> myumi.ch/7Z3Qg

Undergrads study microbes in the Great Lakes with Professor Melissa Duhaime. Image: Eric Bastien

Linking the Arboretum's peony garden and BSB's Genetic Diversity Lab

Nathan Amann in the Genetic Diversity Lab with former manager Raquel Marchan Rivadeneira. Image: Nathan Amann

It is no surprise that Nathan Amann's (B.S., 2020) favorite place on campus is the Nichols Arboretum. Since 2017, he has been helping researchers determine the genomes and historical lineages of the peony plants in its famed garden.

"The really cool thing about this research is the ability to do fieldwork and lab work within five minutes of each other." The process starts by sampling leaves from live plants in the Nichols Arboretum. Then, in the Biological Sciences Building (BSB) lab he extracts DNA and sequences chloroplast marker regions. "We use those markers to perform phylogenetic analyses and infer maternal lineages." He has worked closely with international peony experts Nastassia Vlasava, visiting scientist from Belarus, and U-M curator David Michener. Liliana Cortés-Ortiz, EEB research associate professor, has helped them understand the evolutionary pressures on the peonies.

Amann decided on an MCDB major because he has long been fascinated by genetics and molecular mechanisms, particularly of diseases. Amann's next stop is Case Western University Medical School.

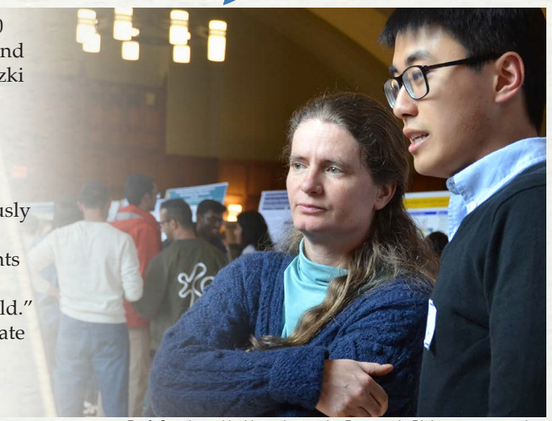
Read more >> http://myumi.ch/QAXkO

Thurnau Professorship for MCDB's Györgyi Csankovszki

A favorite MCDB Professor, Györgyi Csankovszki, has been named a 2020 Arthur F. Thurnau Professor by U-M. Thurnau professorships recognize and reward outstanding contributions to undergraduate education. Csankovszki often teaches Introductory Biology 172. According to students and faculty colleagues, she is known for recognizing students' needs and working to address them, such as when she replaced costly textbook quizzes with questions written by local instructors and housed in Canvas.

"Professor Csankovszki has a long track record of dedication to continuously improving biology teaching, both as an individual instructor and through departmental service roles," the description of her work said. "Her students report that her courses teach them to think critically, revolutionizing their understanding of biology and increasing their desire to continue in the field." Csankovszki has also served as the MCDB associate chair for undergraduate education. She will keep this title throughout her career at U-M and the recognition includes a grant for activities that enhance her teaching.

Read more >> http://myumi.ch/4pk5o



Prof. Csankovszki with student at the Program in Biology poster session. Image: Suzanne Tainter

Neuroepigenetics: bridging nurture and nature

After a semester with Professor Monica Dus in MCDB 421, her students are prepared to explain for a non-specialist how environment and life experience can affect brain function and behavior. While genomes are hidden inside cells, they are also influenced by the environmental experiences of cells and organisms. Diet, stress, social isolation and more alter the chemical nature of the genome, and in turn, its function. This is particularly crucial in the brain. There, function is linked to behavior. Through this class the students learn to critically read the scientific papers from academic journals in this field. "We examine how genes determine complex behaviors, and analyze in depth how maternal care, stress, drugs of addiction and more contribute to brain function and dysfunction," Dus explains. In a final project, the students write an article and record a podcast for the public on one of the topics covered in class. Find the podcasts at the link below.

Read more >> http://myumi.ch/yKkoj

Image: Michigan News