Teaching, research, and service to students and the community are all important roles that a university biology department must fulfill. In the UMD Department of Biology, we believe that these activities are synergistic with excellence in one area contributing to outstanding performance in others. Our teaching and research efforts complement each other as students benefit by working closely with internationally-recognized researchers in the classrooms and on research in the laboratory and in the field. UMD Biology students have always enhanced their education by working as research assistants in professors labs and by working on independent research projects supervised by faculty in the Undergraduate Research Opportunities Program (UROP). This year we have expanded the learning opportunities by initiating a summer undergraduate research program: Biology Undergraduate Research in Science and Technology (BURST). Learn more about this program, which has been generously funded by private donors, on page 4.

Active learning—the idea that classroom time is more effectively spent actively interacting with faculty, other students and the material rather than passively listening to lectures—is a newer innovation in teaching. UMD Biology students have been involved in active learning for years through the extensive lab and fieldwork in our courses, discussion sections of classes, and by research involvement. This year, we have increased active learning opportunities for students by constructing a new active learning classroom that facilitates interactions among students and faculty both directly and through interlinked computers. BIOL 3802 Evolution has been completely revamped to take advantage of the new classroom environment. Other new classes include BIOL 3501 Outreach to the K-12 Classroom and BIOL 3990 Creating an Undergraduate Biology Journal. Read about these classes on page 6.

The Biology Department is also significantly upgrading our greenhouse facilities for teaching and research by renovating our existing greenhouses and starting the construction of a new research greenhouse. Read more on page 8.

Finally, I would like to welcome four new Biology faculty members: Dr. Ted Ozersky (joint appointment with the Large Lake Observatory [LLO]), Dr. Ron Moen (joint appointment at the Natural Resources Research Institute [NRRI]), Dr. Robert Sterner (new director of LLO), and Dr. Joshua Hamilton, new Dean of the Swenson College of Science and Engineering. More information on these faculty can be found on pages 2-3.
FACULTY ON THE MOVE

Clay Carter, Assoc. Professor, will be moving to the Dept. of Plant Biology on the Twin Cities campus August 2014, where he will continue his research on the area of plant molecular biology. Clay joined the UMD Biology Department in January 2005 and primarily taught courses in the area of cell and molecular biology. He also served as Director of Graduate Studies for the Integrated Biosciences (IBS) graduate program from 2011-14.

John Dahl, Assoc. Professor, will participate as a faculty member on the Semester at Sea voyage that will travel around the Atlantic. Semester at Sea is a study abroad program that has operated for over 50 years as a floating university that integrates international education with visits to countries that provide the backdrop for each class. This fall the ship, the MV Explorer, will visit 15 different countries and make port stops in England, Russia, Poland, Germany, Belgium, France, Ireland, Portugal, Spain, Morocco, Senegal, Ghana, Brazil, Barbados, and Cuba. Dr. Dahl will offer Introduction to Public Health, Modern Evolutionary Theory, and Global Infectious Diseases. Each course will require one all-day port field lab in which students experience that course topic in one country. Dr. Dahl is particularly excited about the possibility of hosting eminent evolutionary biologist Dr. Richard Dawkins for the first 11 days of the voyage.

Julie Etterson, Assoc. Professor, writes that numerous studies have shown that native plants are blooming eight days earlier or more in recent decades as climate changes. Yet we do not know if these phenological advances are a passive response to warmer environments (i.e. earlier spring germination and growth) or a genetic response to changes in natural selection (i.e. adaptive evolution). For the last 10 years, Etterson has been conducting an artificial selection experiment on flowering time to address this question. She will spend her single-semester leave doing data analysis and writing manuscripts that summarize this work.

During her sabbatical, Jennifer Liang, Assoc. Professor, is looking forward to returning to the bench full-time. She will be focusing on two projects in collaboration with her students. The first project is aimed at uncovering genes and signaling pathways that are involved in closure of the neural tube, which is the precursor to the brain and spinal cord. In the second project, her laboratory is defining the role of the hormone melatonin in controlling circadian rhythms throughout developing and adult zebrafish. She is also looking forward to getting several manuscripts ready for submission and redesigning her “Zebrafish in the Classroom” website (www.zfic.org).

Rachel MaKarrall, Instructor, was recognized as the 2014 Inspirational Teacher of the Life Sciences. She presented a seminar entitled “Engaging Nature through Drawing” to the Biology department on Friday, May 9 in 185 LSci. MaKarrall teaches Entomology, Evolution and Senior Seminar.

Allen F. Mensinger, Professor, will be spending the winter 2014/15 at the Leigh Marine Laboratory of the University of Auckland New Zealand. He will be investigating the effects of anthropogenic (human produced) noise of the behavior of reef fishes. His host, Dr. Craig Radford, has developed a remote underwater video and hydrophone system that will allow monitoring of fish behavior in response to boat traffic and noise.

Department of Biology
207 Swenson Science Building
University of Minnesota Duluth
1035 Kirby Drive
Duluth, MN 55812
Phone: 218-726-6262
Fax: 218-726-8142
E-mail: biology@d.umn.edu
Website: www.d.umn.edu/biology

Credits:
Contributors: Anthony Schmitt, Kathy Stewart, and Jared Strasburg
Photos: Tim Craig and Katie Lassi.

New Dean for Swenson College of Science and Engineering

Joshua Hamilton comes to UMD from the Marine Biological Laboratory (MBL) in Woods Hole, Massachusetts where he served from 2008-2013 as the Chief Academic and Scientific Officer. In this role he oversaw their five year-round research centers and programs, the summer visiting research and education program, and all other MBL education, research, and outreach programs. He received his Ph.D. in toxicology and M.S. in genetics from Cornell University and his B.S. in biology from Bridgewater State College in Massachusetts. He was a faculty member at the Dartmouth Medical School from 1990-2008, senior scientist with the Marine Biological Laboratory from 2008 to present, and held an adjunct professor appointment at Brown University from 2010 to present.

Dr. Hamilton’s research interests have been in both the toxicology and pharmacology realms. On the toxicological side, the primary focus of his research over the past two decades has been on the molecular toxicology of arsenic and other toxic metals. Arsenic is considered the number one environmental chemical of human health concern by the EPA, WHO, and other regulatory and scientific review groups because of its potency, the large number of diseases with which it has been associated, and the large number of people exposed world-wide which may be in excess of a billion individuals. Dr. Hamilton’s lab was the first to report that arsenic can act as a potent endocrine disruptor in cell culture and in vivo, acting through a novel mechanism in which arsenic targets the shared cellular machinery that assists nuclear hormone receptors in translocating to the nucleus after hormone activation and acting as transcription factors. Research from their lab was cited by the EPA Administrator as key evidence in support of lowering the US drinking water standard for arsenic from 50 to 10 parts per billion in 2001.

On the pharmacology side, Dr. Hamilton’s lab discovered and developed several novel strategies for overcoming multidrug resistance in human cancers, first in human cell culture and then in an animal-human tumor xenograft model, using a combinatorial drug approach. Based on this strategy, they then developed a novel drug strategy for treating cystic fibrosis (CF), the basis of which is defects in a chloride channel protein, CFTR, that is closely related to multidrug resistance-associated membrane drug pumps (MRPs). Current pharmacology work has focused on drug discovery and evaluation using a novel class of organic structures that may serve as lead compounds that are effective clinically in treating CF.

Dr. Hamilton has taught in several undergraduate chemistry and biology courses including environmental chemistry and biochemistry, has led several undergraduate and graduate level biochemistry courses including nucleic acids biochemistry, and has taught extensively in toxicology, pharmacology, and cancer biology courses at the undergraduate, graduate, and medical school levels.
NEW FACULTY IN FALL 2014

Ron Moen will be joining the Biology Department as an associate professor in August 2014. Ron received his B.S. in Biology from Cornell University and completed both his M.S. in Wildlife and his PH.D. in Wildlife Conservation from the University of Minnesota.

Ron has been a Research Associate at the Center for Water and the Environment at Natural Resources Research Institute since 1988. His research is focused on terrestrial vertebrates. Space use, population modeling, nutrition, diseases, parasites, and human effects are issues that he and his research group are studying. His research projects are on many species, including moose, Canada lynx, wolves, American marten, whitetailed deer, bats, turtles, beaver, and other species. Dr. Moen also has two graduate students from Chile who are studying guina (a small cat) and mountain lions. In a new project he is working with Dr. Lee Frelich (UMTC) and Dr. Steve Windels (Voyageurs National Park) on climate change adaptation planning for national parks in Minnesota, Wisconsin, and Michigan.

Dr. Moen is not a newcomer to the Department. He has taught Mammalogy every year since 2003 and has also taught Evolution, Conservation Biology, Animal Behavior and Biology Seminar. He has been a member of the graduate faculty of the Integrated Biosciences (IBS) program since 2004, teaching such classes as IBS Graduate Seminar and Ecological Processes.

Ted Ozersky completed his undergraduate studies and Ph.D. at the University of Waterloo in Ontario, Canada. During his Ph.D. and subsequent research with the Ontario Ministry of Natural Resources, Ted examined how invasive zebra and quagga mussels impact the ecosystems of large lakes. In particular, Ted was interested in how these bivalves structure invaded ecosystems by changing patterns of nutrient cycling and the flow of energy and toxins through near-shore environments.

From Ontario, Ted moved to Wellesley College in Massachusetts to join a multidisciplinary team studying the effects of environmental change on one of the world’s most unusual aquatic ecosystems—Siberia’s Lake Baikal. Ted is investigating how a changing climate will interact with other stressors to shape the zooplankton community on the lake. Along with collaborators from Russia and Norway, he is also using a large collection of Baikal Seal (Phoca sibirica) teeth to reconstruct historical patterns of heavy metal contamination in the lake.

Dr. Ozersky is looking forward to teaching and continuing his work on environmental change and the ecology of large lakes in the Biology Department and the Large Lakes Observatory (LLO), where he holds a joint appointment. He is especially excited to join UMD because of the high-profile and interdisciplinary work being done here on the world’s large lakes, and the unique setting and facilities for large lake research that UMD offers. Ted enjoys cross-country skiing, canoeing and backcountry camping and is eager to explore the natural areas around Duluth.

One of Robert Sterner’s earliest memories is nighttime sailing with his family on Lake Michigan off of Chicago. He has been attracted to lakes ever since. As a Biology student at the University of Illinois, he had the good fortune to encounter a young faculty member, Dr. Michael Lynch, whose lab was full of glass jars of small aquatic organisms. These crustacean zooplankton, each of them one-to-several mm in length were fascinating creatures and when he went to graduate school at the University of Minnesota as the first Ph.D. student of the well-known ecologist Dr. David Tilman, Robert began thinking about how those zooplankton fit into the broader nutrient cycles within lakes. His Ph.D. work in Limnology (the science of inland waters) and then his Postdoctoral research at the Max Planck Institute for Limnology in Germany laid the groundwork for an ecological approach now called Ecological Stoichiometry. “ES” examines how the nutrient content of organisms shapes their ecology and evolution. In 2002, he co-authored a major book on the topic.

Robert’s first faculty position was at the University of Texas at Arlington in 1987. Robert joined the University of Minnesota faculty in 1994 at the Gray Freshwater Biological Institute, later moving to the main campus and the Department of Ecology, Evolution and Behavior (EEB) in St. Paul. He later served as the Head of the EEB Department. Between 2007-09, Robert served as the Director of the Division of Environmental Biology at the U.S. National Science Foundation. In that post he was responsible for a $110 million budget which made up roughly a quarter to a third of the federal investment in environmental research.

His move to Minnesota in 1994 brought Robert into the “gravitational pull” of Earth’s largest lake by surface area. His research since then has included studies of Lake Superior. He has examined different aspects of carbon and nutrient cycles and, over the years, has amassed a great deal of basic information about these basic ecosystem properties. He has led multiple grants from the NSF as well as Minnesota Sea Grant concerning Lake Superior. His move to Duluth as the new Director of the Large Lakes Observatory and member of the faculty of the Department of Biology puts him back into an interdisciplinary water center, an academic environment he values, and it brings him even closer to the shores of the big lake.
GETTING READY FOR BURST  
(BIOLOGY UNDERGRADUATE RESEARCH IN SCIENCE AND TECHNOLOGY)

This summer the UMD Department of Biology began an intensive summer research program for our most exceptional undergraduate students. The Biology Undergraduate Research in Science and Technology (BURST) fellowship program is designed to give qualified Biology or Cell & Molecular Biology majors the opportunity to take part in an in-depth summer research projects. For students interested in pursuing further education once they attain their bachelor’s degree, this is an excellent opportunity to experience what in-depth research outside the classroom is like.

Our inaugural BURST student cohort consists of eight students who are working closely with six faculty mentors for ten weeks this summer. Each student is in charge of his/her own research project and is working full-time on that project as well as taking part in other program-related activities. The program kicked off with a welcome party on June 8 and will conclude with a poster session on August 15 where students will present their research to other BURST fellows, members of the Biology Department, and the broader Duluth biology research community. We anticipate that many of the research projects will lead to scientific publications, so BURST fellows will experience first-hand the process of science from project development and data collection through data analysis, interpretation, and communication to the scientific community.

All BURST fellows receive a stipend for their work in addition to an additional amount of monies provided for research expenses. The program is supported by the UMD Biology Department as well as a number of donors who have generously made contributions. We hope that this will be the first of many successful summers of undergraduate research through the BURST program.

Be A Part of BURST

Our accomplished alumni often share stories of the exceptional educational experience they received at UMD, recalling individualized attention outside the classroom or working with a professor in a lab. All remember faculty who cared and responded to their interests, urging them toward success. Continuing in that tradition, eighteen months ago the Department of Biology recognized the need for an intensive undergraduate summer research program and conversations on Biology Undergraduate Research in Science and Technology (BURST) began. Thanks to the dedication of committed faculty and the support of a steadfast alumnus this program came to fruition this summer! The specialized environment of a concentrated 10-week full-time project, mid-June to mid-August, will encourage students to become better researchers and scientists who are also effective communicators, problem solvers and critical thinkers. The university contributed some funding to start BURST, but it will not provide for all of the students who are interested in and could benefit from this exceptional opportunity. Consider showing your support of BURST today! All contributions will directly support a student through the program. To discuss being part of our BURST program or to make a gift to any of the funds supporting Biology at UMD, please contact: Carrie Sutherland, SCSE Development Director, at 218-726-6984 or csutherl@d.umn.edu or use the enclosed contribution envelope.


### 2013—2014 BIOLOGY DEPARTMENT GRADUATES

**B.S. Biology**
- Blake J. Abrahamson
- Nicholas Anthony Altobelli
- Amelia K. Anderson
- Kara Marie Annnow
- Jessica Marie Antonovich
- Amanda M. Bales
- Jordan D. Bauman*
- Erik D. Bergstedt
- Cory J. Bielke
- Samantha R. Blahnik***
- Joyce Lee Brown
- Caitlin A. Chartrand
- Ellen Elizabeth Cook
- Brennan J. Dahl
- Kelesey Paige DeGarmo
- Brianne L. Dingmann
- Bennet A. Eklund
- Maggie Lee Essary Ferguson
- Molly Nicole Fitzgerald
- Ilexa Rae Flagstad**
- Amanda Carolin Fearon
- Benjamin Jacob Fazendin
- Megan Lynn Englund**
- Nicholas Anthony Altobelli
- Blake J. Abrahamson
- B.S. Biology

**B.A. Biology**
- Lisa Ann Braun
- Caillin Rose Enstrom
- Taylor W. Hallgren
- Tessa Marie Korf
- Lindsey Ann Kramer
- Julia Marie Luger
- Catherine Frances Maierhofer
- Kayla Marie Nelson
- Jeremy J. Reiersen
- Anthony Jared Schmitt*
- Marc H. Sizer
- Jacob Jo Stiller
- Courtney J. Stone
- Nicholas Elliot Swanson
- Erick Wickland West
- Tui T. Yang
- Amanda Christine Zrust

**B.A.Sc. Teaching Life Science**
- Fraye Bendson
- Emily Sue McDonald**
- Cody Farrell
- Patrick A. McMahon

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**GIFTS TO THE DEPARTMENT OF BIOLOGY**

The Department of Biology warmly thanks the following alumni and friends who supported our students and programs with a charitable gift. Listed below are the names of individuals who donated to Biology Department funds between June 1, 2013 and April 30, 2014. Thank you for your generous contributions!

Dr. and Mrs. Matthew Andrews
Dr. Edward T. Bersu
Dr. Timothy Craig
Ms. Jeanne Daniels
Dr. Joanne Itami and Dr.
Mr. Steven Garske
Ms. Dorace Goodwin
Ms. Angie Hanson
Mr. Paul and Mrs. Helen B. Hanten
Dr. Linda Holmstrand
Dr. Donn Johnson
Dr. M. Raj Karim
Ms. Cheryl Kelley
Dr. Jerome Kun
Mr. John Kohlstedt
Mr. Philip Loucks
Dr. Thomas Mowbray
Dr. Gerald and Bonnie Niemi
Ms. Julie Palakovitch Carr
Mr. Richard Peterson
Dr. James Regali
Ms. Annette Riley
Mr. Kieth Seversen
Dr. Laurence Skog
Dr. Edgar Turcotte
Dr. Lloyd Turtinen
Dr. Bruce H. Warren
Mr. Daniel Weaver
Wells Fargo Foundation

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Honor Graduates are recognized as follows: ***summa cum laude, **magna cum laude, *cum laude and †with distinction.
ACTIVE LEARNING IN BIOLOGY

Undergraduate research opportunities are a major priority in the UMD Department of Biology. There are a number of different ways that students can get involved in the process of meaningful research. This semester the UMD Department of Biology added another unique experience for students to contribute to UMD’s thriving undergraduate research culture. Students created the Department of Biology’s first undergraduate research journal through a new class, BIOL 3990 Creating an Undergraduate Biology Journal.

BIOL 3990 Creating an Undergraduate Biology Journal

In Spring 2014, The Duluth Journal of Undergraduate Biology (DJUB) published its first issue. The journal is an open-access, online and peer-reviewed journal produced by undergraduate students at UMD. DJUB’s mission is to provide a venue for undergraduates to publish innovative and original work that advances the field of biology.

The project began as a collaboration between students and UMD faculty in both the Department of Writing Studies and the Department of Biology. Throughout the spring semester, students worked with Dr. David Beard, Dr. Jennifer Liang, Dr. Shannon Stevenson, and Dr. Elizabethada Wright to create the framework of the journal. As the editorial board of the journal, students undertook the tasks of identifying the audience for the journal, creating documents for submission guidelines, and designing the layout for the journal articles. In addition, students also prepared manuscripts for the first issue published at the end of the semester.

The first issue consists of five articles with three review articles and two primers. Primers are a new type of science writing that aim to breakdown primary research articles to help undergraduate biology students better grasp the dense content within those articles. The authors that were published in the first issue include: Lance Boedigheimer, Bethanie Borg, Julie Glowacki, Carsten Knutsen, and Anthony Schmitt. Articles examined subjects ranging from medical topics like drug resistance in tuberculosis, bioartificial hearts and thrombosis in patients with liver cirrhosis to ecological topics like the microbes that are found in nectar and the implications of mining on wetland ecology.

Guest speaker Dr. John Pastor, also taught students about the series of steps that a manuscript goes through from the first draft to publication in a peer-reviewed journal. After preparing several drafts of their review or primer manuscripts, the editors sent out the manuscripts to UMD alumni for a blind peer review. Each student also learned how to peer review by revising another student’s manuscript. The participants in the class then received their peer reviewed comments and made final edits of their manuscript published in the first issue.

The class was a hands-on opportunity for students to develop professional science writing skills that can eventually be utilized in their careers. With the collaboration of professors of writing and professors of biology, students received a unique experience to learn how to create concise, efficient and clear scientific writing that is now available to the scientific community. The journal is published online at: http://d.umn.edu/lib/d-commons/libpub/journals/DJUB/2014/.

BIOL 3501 Outreach to the K-12 Classroom

Dr. Jennifer Liang’s Outreach to the K-12 Science Classroom course turned undergraduate into educators. Seven undergraduates spent Fridays throughout the semester leading hands-on demonstrations to more than a dozen classrooms in Duluth and the surrounding area. Liang’s students enjoyed their first outreach in February so much, they doubled their school visit schedule.

The undergraduate teachers developed demonstrations appropriate to each grade level. For example, themes addressed in the fifth grade classroom included phenotype, fluorescence, inheritance, and metamorphosis. “The class helped reinforce my understanding of genetics, but also showed me that teaching can be fun,” said senior Jayce Brown. Amelia Anderson added, “This course has been by the far the best for skyrocketing my teaching and oral presentation skills. Outreach really challenges your ability to adapt to situations of explaining new concepts to students.” These comments really underscore the value of active learning exercises on student learning outcomes.

BIOL 3501 Front Row: Alisa Brakic, Morgan Prochaska (UTA), Allison Kingsbury, Amelia Anderson
Back Row: Jayce Brown, Mitch Johnson, Dr. Jennifer Liang
Not Pictured: Rebecca Goeman (UTA)

BIOL 3802 Evolution

Biologist Theodosius Dobzhansky said that “Nothing in biology makes sense except in the light of evolution.” However, students sometimes have difficulty grasping the intricacies of evolutionary theory in a large lecture hall.

To increase student comprehension and to expose them to the fun of solving evolutionary problems on their own, the Biology Department has added a discussion section to BIOL 3801 Evolution. Utilizing the new active learning lab, students work in small groups using the interactive software EVOBEAKER to simulate evolution in the virtual world. Each group recreates and modifies classic evolution studies and discusses the results with other students and the instructors. For example, they can manipulate the evolution of fish populations by adding predators or changing habitats and complete virtual experiments in an hour that took years in the field.

The active learning lab was developed by a group of faculty and staff led by Dr. Julie Etterson, and award-winning instructor Rachel Makarrall taught the inaugural class this spring. Funding for the classroom renovations was made possible through contributions from the Swenson College of Science and Engineering, UMD Academic Affairs, UMD Information Technology Systems & Services, and Biology Student Service fees.
The generosity of alumni and friends make it possible for the Department of Biology to present annual awards and scholarships to students within the department. This year’s reception was held on April 24th in the Library Rotunda on UMD’s campus. Thank you to the committee members who had the difficult task of choosing this year’s winners from the many deserving applicants. Congratulations to the following award and scholarship recipients!

A. Jane Berry Warren Memorial Scholarship—Brianna M. Ettestad

Ed & Alma Turcotte Scholarship—Elena C. Frye Naharro, Paula L. Miller, and Brandon L. Westmoreland

Excellence in Academics and Research Award—Andrew T. Olufson

Ernest & Tyyne Niemi Scholarship—Samantha J. Ekman

John McCabe Scholarship—Alexandra Theis

Karim Pre-Veterinary Medicine Award—Jesslynn A. Poitra

Mowbray Scholarship—Cody J. Thorpe

Outstanding First Year Biology Student Award—Su Yeon Kim

Outstanding Undergraduate Teaching Assistant—Ashley N. Holm and Ryan P. Lumen

Outstanding Graduate Teaching Assistant Award—Kelly A. Harrington, Mengyuan Jia, and Caitlin M. Sloan

Solidarity Through Science Scholarship—Katelin M. Goebel and Emily Harder

T.O. Odlaug Scholarship—Peter Blackwell, Taylor E. Dillinger, and Kaitlin D. Wohnoutka

Arrowhead Fly Fishers Scholarship—Shauna Maurer

T.O. Odlaug Outstanding Senior Biology Student Award—Allison C. Campbell

UMD Peterson Memorial Scholarship—Alexie A. Larson and Jesslynn A. Poitra

The UMD Department of Biology would like to express their grateful appreciation to all of the scholarship and award donors for their generous support. Their belief in today’s generation helps provide a springboard to tomorrow’s advancements in science and medicine.

Four Selected as McNair Scholars

UMD Biology students Lee Austin, Sydnie Mauch, Marvin Nieto-Robles and Matilda Omoru were selected as McNair Scholars for 2013-14. The McNair Program at the University of Wisconsin-Superior prepares income eligible, first generation college students and students from groups under-represented in graduate education for doctoral study. It is a nationwide program sponsored by the U.S. Dept. of Education, created in memory of Ronald E. McNair, Ph.D., an African-American physicist killed in the Space Shuttle Challenger mission in 1986. Each year, 25 students are chosen to participate in the program’s activities which include seminars, cultural events, graduate school visits and more. During the summer, 12 scholars participate in a paid individual research experience, working collaboratively with a faculty mentor on a project of interest to the student. Program participants also receive GRE preparation and help in the graduate school application process. Students from UMD are eligible to apply for the program.
New Biology Research Greenhouse Proposed

The Department of Biology has seen exceptional growth in the number of students entering our programs and the number of research projects focused on plants. Our most recent initiative to obtain a research-grade greenhouse has grown out of two mission-driven factors: Support for research and teaching.

Increased enrolled in the biological sciences has nearly doubled over the last ten years. This has stranded our ability to propagate and maintain plant collections for a diverse number of courses. Additionally, the existing greenhouses lack the space and environmental control necessary to support our growing population of faculty, graduate, and undergraduate students conducting research projects on plants.

The new structure would provide approximately 1000 sf. of environmentally controlled greenhouse and 700 sf. of headhouse space for research groups. The additional space would release demands on the existing greenhouses so we may continue to maintain diverse collections of plants for courses and community-based outreach education.

Please consider a gift to help the Department of Biology secure our future greenhouse. For more information on making a gift to benefit the Biology Research Greenhouse, please contact Carrie Sutherland, SCSE Development Director, at 218-726-6984 or csutherl@d.umn.edu

Credit: Hay Dobbs Architecture

The University of Minnesota shall provide equal access to and opportunity in its programs, facilities, and employment without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression.