

# Bionews

Keeping in touch with alumni, students, friends, and faculty of the Undergraduate Biology Program at Iowa State University



## Update from Jim Colbert

Over the past several years, the number of biology majors has grown faster than student enrollment has at the university level. We expect ~200 new Biology students this fall alone. Our first-year student learning community ("BEST") is entering its 20<sup>th</sup> consecutive year of helping new students such as these adjust to Iowa State and the Biology Major. Freshmen aren't the only source of new students, however, and we recently established an orientation course designed to help transfer students adjust to their new school or major.

Our students continue to experience a wide range of outstanding opportunities, including those related to research, teaching, biology field trips, advanced courses, and the Biological Science Club. To help us serve the needs of our students, we recently hired two new Biology major advisors and have added additional lab coordinators for the Biology 211L and 212L courses. These changes are helping to enrich student experiences and foster a more positive & inclusive learning environment. Thank you for your past and present support of the Biology Program. We're looking forward to a very bright and successful future.



### Recent field trips

Find out more about the recent student trip to Roatan, Honduras

### Curriculum updates

See how biology labs are being changed to help students excel in science

### Student newflash

Discover what current and recent Biology graduates are doing

### Recent additions

Check out the exciting new facilities serving Biology students' needs

### Skunk River Navy

Celebrate 16 years of keeping Iowa rivers clean through service learning

### Donate

Help the next generation of students succeed by volunteering your financial support

Are you a recent graduate that has exciting news to share? Send us an update at [jtcolbert@iastate.edu](mailto:jtcolbert@iastate.edu) so we can feature YOU in the next issue!

## Students use spring break to explore the coral reef and marine ecosystems of Roatan, Honduras

During spring break 2014, Dr. Sakaguchi and Dr. Serb led twelve undergraduate students to the Roatan Institute for Marine Sciences in Honduras. As the only ISU course devoted to marine biology, this course provides a unique role in providing students the opportunity to gain first-hand experience with coral reef biology and marine organisms.

In preparation for the field trip, the class met each week of the spring semester to discuss a variety of marine topics and to help students plan independent research projects that they would be conducting while on the island.

Throughout the seven-day trip, students met with local experts on marine fish, dolphins, and sea turtles to learn about the ecology and conservation of these diverse organisms, and much of the trip was spent in the water either snorkeling or scuba diving in a variety of marine habitats. Perhaps the most memorable experience was a guided night dive, where students got to observe the nocturnal behavior of various organisms and witness the stunning phosphorescence of marine plants and animals.

The next planned trip is for Spring of 2016!



## Introductory Biology 211 Lab revamped

Did you take Biology 211 Lab prior to fall, 2012? If so, the lab activities of Biology 211L would be almost unrecognizable to you. Recently, Biology 211L switched from traditional labs that guided students step by step through a series of activities, to inquiry-based labs that present students with a series of problems that they must solve using a variety of lab and internet resources. One of the key aspects of the inquiry approach is an emphasis on students asking questions, and, most importantly, discovering the answers themselves. In this environment, rather than simply lecturing, TAs act as mentors to guide students to the information and resources they need to discover the answers to their own questions. Since initially implementing the switch to the inquiry format, new labs have been introduced, and existing labs modified based on student and TA feedback. Although it takes students a few weeks to adapt to the novel lab format, most students are excited about the new, open lab format. Biology 211 Lab focuses on studying the biodiversity of life on Earth, so it makes sense that this lab itself continually evolves. Unlike evolution, however, the goal of these changes is directional selection that will improve the lab experience!

## Developmental Biology Lab now focused on research



There have been big changes in the Developmental Biology Laboratory (423L) this last year thanks in part to Dr. Jeff Essner. The lab has transitioned from the stereotypical lab format into a semester-long, authentic research experience. Students now spend their semester developing and testing hypotheses about the roles of specific genes in zebrafish development. Students design their own experiments using state-of-art genome editing technologies, and utilize bioinformatics, molecular biology, and genetics to answer a wide range of novel questions pertaining to developmental biology. This unique experience is one of the things that make the Biology major so great!

## Newsflash: recent happenings in Biology

### Students showcase their research at the state capitol of Iowa in April

Biology program majors Nicholas Benge, Danielle Pohl, and Toni Proescholdt displayed their research posters at the annual “Research at the Capitol” event held at the State Capitol building in Des Moines this past April. Nine other ISU students also presented at the event designed to showcase the importance of research to the undergraduate learning experience.



science works and why science is important in society. The long-term goal of the study is to provide additional incentive for ISU and other universities to increase the number of labs available that provide this important and unique educational experience to interested students.

### Scholarships awarded to students in Biology

Several successful students in the Biology program were recently awarded \$1000 scholarships for the 2014-2015 school year. Winners included Olivia LaGange and Adam Neuhouser, who were awarded the Irving W. & Natalie A. Knobloch Scholarship for their interest in botany. In addition, four more Biology majors: Katherina Hertzberg, Lyndsey Niebuhr, Hannah Thomae, and Heather Wilson, were granted the Sophomore Success Scholarships. These students have demonstrated active participation in activities related to career goals, such as research, academic clubs, volunteering, and attending field trips. Congratulations to all of this year’s scholarship awardees, great job on all your hard work, keep it up!

### Animal Behavior (Biol 354) receives grant to study student understanding and attitudes towards science

Dr. Amy Toth, along with graduate teaching assistants Amy Worthington and Alexander Walton, were awarded a grant that will allow them to investigate if an authentic independent research experience, like that provided in the BIOL 354 lab, helps students gain a greater understanding of how



## Troxel Hall offers a state-of-the-art learning environment for students

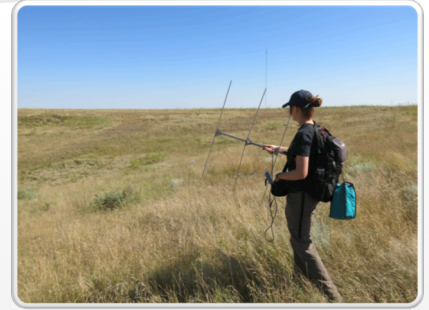


In Fall 2013, the newly built Troxel Hall opened its doors to provide a new, state-of-the-art learning environment for more students. The large, 400-seat auditorium provides fully tiered seating for improved visibility,

chairs that swivel to accommodate in-class group work, and smart-room technology fully integrated into multiple projector screens. Introductory Biology students experienced the advantages of this innovative, new classroom located just south of Bessey Hall. Each student has individual access to wireless portals for online activities or access to lecture materials. Additionally, a post-lecture area equipped with white boards and tables is available for faculty to meet individually with students after class to address questions they may have.

Perhaps the most interesting feature of the new building is the green architecture incorporated into its design. Large windows provide natural light to the building, drastically reducing energy costs. Further, a “green roof” was planted so that live vegetation can help control excess storm water, which helps lower mechanical and electrical costs, while at the same time adding extra insulation to the building.

Plans are already in the works to continue improving student education by renovating and adding additional teaching space to Bessey Hall and building a new biosciences building for teaching a research estimated to cost \$80 million dollars.



### Biology Graduate Update: Abby Neyer

Biology major Abby Neyer hadn't gotten her fill of science when she graduated from ISU in 2012. After only a year off of school, she decided to jump back into academia and pursue her PhD at the University of Nebraska Lincoln with Dr. Gwen Bachman. Abby's research at ISU had focused on the reproductive behaviors of crickets. Her new research program has broader implications for global climate change, however.

Using ornate box turtles, Abby is investigating how the inability of an organism to maintain its preferred body temperature affects how stressed the organisms becomes, which may go on to affect its current and future reproduction. At the Cedar Point Biological Station in Western Nebraska, the turtles are held in semi-natural enclosures. Abby is measuring stress in the turtles by looking at changes in body condition and determining the concentration of corticosterone, a hormone released in response to stress.

When asked what she plans to do after graduate school, Abby says, “In the future, I plan on looking at other environmental factors that may affect stress, such as food availability and moisture. After graduate school I hope to continue doing research and join an organization that focuses on helping threatened and endangered species.”





## Wandering the Dream

Travelling the world to gain valuable experience and helping endangered animals is a life-long passion of student Maggie Curtis. This summer, Maggie decided to pursue a unique opportunity in elephant conservation in Thailand.

This summer, Maggie joined Global Vision International to help elephants rescued from captivity transition to live natural lives in the Chiang Mai Province. She spends her days hiking the mountains to check on newly released elephants, and spends her evenings sleeping on a thin mat in a small hut.

Although Maggie's enthusiasm will be greatly missed from Biology courses during her absence, we hope she will share her experiences with others upon her return to help students recognize the diversity of careers that they can pursue with a degree in science.

Follow Maggie's adventure by visiting her blog- "Wondering the Dream: a wildlife nerd explores the world" at: [wanderingthedream.wordpress.com](http://wanderingthedream.wordpress.com)



## The Skunk River Navy is now old enough to drive!

The Skunk River Navy (SRN) turned 16 this past fall. During that time, 46 SRN trash patrols have been conducted, nearly 2,000 students have volunteered for "navy duty", and over 71 tons of trash has been removed from the river. SRN volunteers have also personally interacted with the many different types of insects, arthropods, and amphibians that call the Skunk River home, including many of the organisms that the students later study in Biology 211 and Biology 211L.

Although reporting to duty always has its highlights and difficulties, the years of 2012 and 2013 proved especially challenging for SRN volunteers. Dry weather resulted in nearly no running water in the Skunk River or Squaw Creek. No water means no canoes, which in the navy means carrying all of the trash that is collected. But, the volunteers proved to be up to the task and in two Saturdays extracted 7,520 lbs of trash, exceeding the long term average of about 3,000 lbs for the amount of trash per day. Hats off to our new SRN recruits!

SRN is going strong and will continue for many years to come. It's worthy to note that we regularly have alumni return to help with SRN trash patrols. We're always happy to have alumni join us – so if you're planning to be in Ames on a September Saturday please check with us for the SRN schedule. In case you need extra incentive to join in on the fun, volunteering as an alumnus comes with automatic promotion to "admiral" and a free hat!



# HELP BIOLOGY GROW

To support the exciting growth of the ISU Biology Program and encourage its trajectory of excellence, several funds have been established to which you can donate (see below).

If you are interested in helping to financially support the Biology Program or any the opportunities shared in this newsletter, please contact Jim Colbert (jtcobler@iastate.edu, 515-294-9330) for additional information. If you are prepared to donate, please visit [www.foundation.iastate.edu](http://www.foundation.iastate.edu) and click on "Make a gift", then specify the Biology program or department of interest under "Notes/instructions". Or, send your gift with the completed form below to:

**The ISU Foundation**  
**2505 Elwood Drive**  
**Ames, IA 50010-8644**



Undergraduate Biology major Caitlyn Corwin has spent the last year conducting research with graduate student Eric Gangloff on the physiological stress response in the common garter snakes.

## GIFT DESIGNATION

- ☐ Ecology, Evolution, & Organismal Biology Department
- ☐ Genetics, Development, & Cell Biology Department
- ☐ Biology Program Student Scholarships

Name: \_\_\_\_\_

Amount of Gift: \_\_\_\_\_

Address: \_\_\_\_\_

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City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_

☐ Check payable to **The ISU Foundation** enclosed

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