Research Experiences in Animal Behavior

Center for the Integrative Study of Animal Behavior
Indiana University, Bloomington

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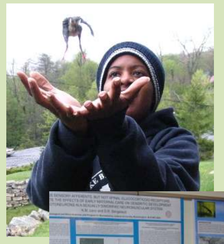
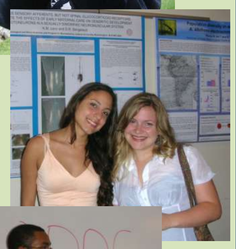
Research & Diversity

Since 1994, the Animal Behavior REU program at Indiana University has brought 10-12 undergraduate students to Indiana University each summer to engage in **animal behavior research**. The students spend 10 weeks conducting research in cutting-edge biology, psychology, neuroscience, anthropology, cognitive science, and other labs, with an emphasis on integrating diverse perspectives to understand complex behavior. For example, REU interns have studied prenatal social stress in hamsters, the effects of food supplementation on lizard immune function, serotonin levels in mouse brains, olfactory discrimination in birds, and maze learning in rats.

We pride ourselves on the **diversity** of our program (70% underrepresented minorities) and give preference to less-advanced students with little, if any, research experience and who are uncertain about their career goals. About 75% of our students have gone on to continue their education in graduate or professional schools. Of those who went into jobs instead, nearly 80% found employment in science-related careers.





Students also participate in group activities such as faculty research talks, bioethics case studies, and professional skills training. They present their results in an end-of-summer symposium, and in a recent advance also at a **professional conference** during the subsequent academic year. Publication has been a special challenge because our labs typically combine REU intern results with a larger project, and it can take several years before those results appear in the literature. Having the REU students present at a professional conference in the following year is a good intermediate that extends and solidifies the close relationship between students and their mentors.

Multi-tiered mentoring

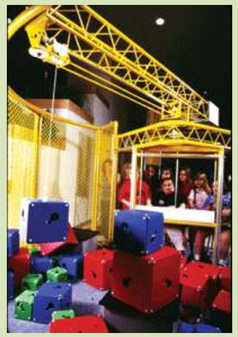
REU research mentors guide each student through the process of research design, data collection, analysis and presentation. In most cases, **we match interns with two mentors**: a graduate student or postdoc mentor and a supervisory faculty mentor. In our experience, interns are more likely to become fully engaged in the project and to view themselves as equal colleagues if their most immediate supervisor is an advanced graduate student or postdoc. Graduate and postdoctoral mentors also serve as more immediate role models and offer better practical advice for the next few steps of a career in scientific research. Our faculty members supervise the relationship closely, using the experience also as a training tool for graduate students and postdocs who are learning to direct future students of their own.

Partnering with the Lilly Scholars Program, several of our REU undergraduates also take on the task of **mentoring a high school student** for a 2-week program. We have found that having the REU student explain their research to a high school student and help that student to prepare a poster for a parent symposium helps the REU student crystallize what they themselves have learned.

Lilly Scholars Program
Indiana University

K-12 Outreach

The **Wonderlab** (http://wonderlab.org/) is a small, local, children's museum that emphasizes interactive exhibits for elementary age children. During the CISAB-REU orientation sessions, our interns visit the WonderLab to learn about their programs, and to be encouraged to think about how their research can be translated into teaching tools for young children.



Each year, we also invite one local **K-12 teacher** participate fully in the REU program. Funded through NSF -RET supplements and other partnerships, this teacher attends the orientation sessions, professional skills and ethics training, and is matched with a lab for a short research experience. Primarily, though, the teacher is charged with developing curricular materials that bring the REU experience into her classroom and the classroom on a fieldtrip to our research labs. She shares the result with the REU interns at our end-of-summer symposium.

Building Community & Teaching Ethics

Each year, we hire a **graduate student facilitator** to build community while also teaching professional skills and ethics. This graduate facilitator is chosen from among behavioral researchers who have mentored REU students in previous years. They quickly form tight bonds with the REU students by organizing and participating in social events such as fieldtrips to the Indianapolis Zoo and Bloomington Farmer's market. For the first two weeks, they also host a series of informal early morning and evening chats on how to interact with your faculty mentor, manage your time, and find relevant papers in the library.

Each year, our graduate student facilitator is trained in a formal workshop on "**Teaching Research Ethics**", in which they learn about ethics and develop case studies to train our undergraduate interns. It is a powerful learning experience that benefits the graduate students' own career development. We have also found that having a facilitator who is close to the REU interns and who places the ethics discussion in the context of their immediate research experience dramatically improves critical thinking and engagement with difficult issues.

Teaching Research Ethics
workshop for educators
May 18-21 2010
IU Poynter Center
http://poynter.indiana.edu/tre/

Assessment and Tracking

We partner with Dr. Jack Cummings, an evaluation specialist, to conduct **surveys and focal group discussions** with both interns and mentors. He and his students take, summarize and interpret the evaluation data, using Likert-scale questions to provide detailed assessment. We use a combination of constant and novel questions to allow us to compare results across years, and have made numerous changes in response to intern and mentor suggestions.

Mentors are always the best source of current information on previous interns, and having the students present their research at conferences after the summer has ended fosters their long-term relationship. We also use modern internet technology to stay in touch with our former students. **Facebook and MySpace** have been especially powerful tools for staying in touch.

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