



BIOrhythms

Washington University Biology Department Newsletter

November 2011

“Autumn is a second spring when every leaf is a flower.”

~Albert Camus

Helpful Links

[Biology Home Page](#)
[Biology Course Listings](#)
[Faculty Listings](#)

BIOrhythms is a publication of the Washington University Biology Department for Undergraduate Majors

Contact Erin Gerrity to submit articles/info

Erin Gerrity
Editor-BIOrhythms
Biology Department
Washington University
Plant Growth 105
Campus Box 1137
St. Louis, MO 63130-4899
314 935-5064
gerrity@biology2.wustl.edu

Featured in this issue:

Faculty Spotlight: Lucia Strader

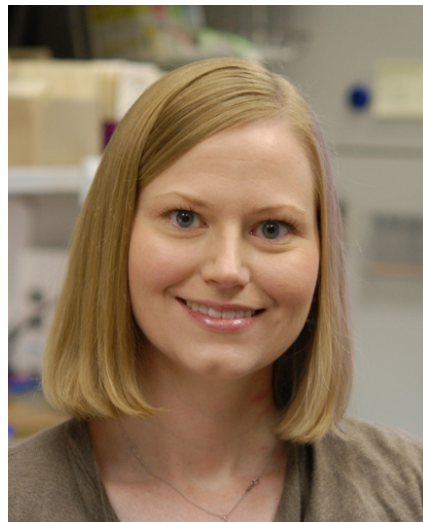
Course Spotlight: BIO 424: Immunology

Career Center: Events Over Winter Break

Calendar: Biology Events and links to event listings



Faculty Spotlight: Lucia Strader



Lucia Strader grew up on a cattle ranch in a small town in Louisiana. As a child, she was always interested in the way things grow and develop, but didn't fully understand the job of a scientist until she attended 4H camp in 7th grade at Louisiana State University in Baton Rouge. She was captivated by the presentation of a soybean breeder who talked about developing diesel for vehicles out of soy. At that point, she decided to pursue a career in agronomy. Dr. Strader completed her undergraduate degree in agronomy at Louisiana State University. Her undergrad experience was an important turning point in life, shaping her interest in plant genetics and end-use goals in a more detailed way. She worked in a lab researching the effects of smoke on seed germination.

She completed graduate work at Washington State University in Pullman, WA and her postdoc at Rice University in Houston, TX. Her first appointment as Assistant Professor at Wash U began in July 2011. She's enjoying getting to know fellow Biology faculty members and exploring St. Louis with her family.

The Strader Lab studies how plants grow, more specifically how that growth is controlled by the hormone auxin. The lab uses *Arabidopsis* as the primary model to look at how auxin levels are controlled and how the plant responds to auxin to facilitate its growth. Dr. Strader explains that plants, unlike us, are stuck in their environments and therefore have to make adjustments to control growth in the most efficient and beneficial ways. Auxin is the major hormone that controls that growth, for example directing roots to grow towards gravity or directing branches to grow towards light. These basic mechanisms, when understood, can potentially be altered to adapt crops to be more suited to less desirable conditions, increasing our ability to grow a wider variety of plants in different environments. The Strader lab's findings form —cont'd on p. 3

WASHINGTON UNIVERSITY CAREER CENTER

Locations:

Danforth University Center,
Suite 110 with satellite of-
fices in Lopata Hall, Brauer
Hall and Steinberg Hall

Main Office Hours in the
Danforth University Center:
Monday-Friday: 8:30-5:00

Contact Us:

Phone: 314.935.5930

Fax: 314.935.5905

E-mail: careers@wustl.edu

Website: careercenter.wustl.edu

Have a Quick Question?

You can always stop by the
Career Center's Quick
Question hours in the main
office Monday-Friday, 11am-
5pm for assistance with
CAREERlink, writing your
resume and cover letters, or
for quick guidance.

UPCOMING CAREER CENTER EVENTS (Over Winter Break)

Career & Internship Con- nections Career Fairs:

January 4-12

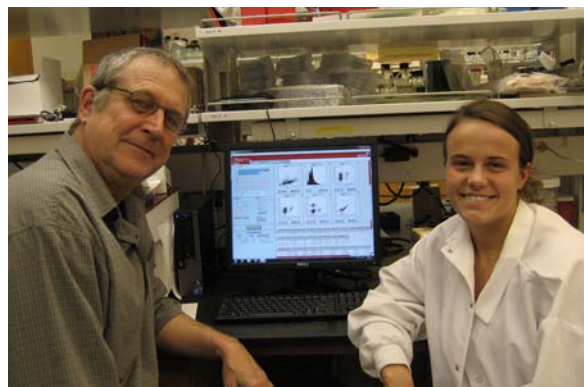
Meet with employers and
sign up for pre-screened
interviews by Monday, Nov.
28. These career fairs will be
in Washington, D.C., Boston,
New York and Los Angeles.
Read more.

—CONT'D ON NEXT PAGE

Course Spotlight: BIO 424: Immunology

Immunology was offered through University College for 10 years before it became an undergraduate course. When Bio 424 instructor Dan Hanson joined the faculty of Wash U in 1989, the course was a traditional 3-credit 3-exam course. The flexibility of U College allowed him to experiment with different ways of teaching the material.

When Wash U began offering Immunology to undergraduate students, Hanson tried the old 3-exam model and quickly saw the same issues surfacing as with the U College course. The students, often driven high-achieving pre-meds, were still having trouble digesting the large amounts of material and felt it was a lot of pressure to memorize so much information for 3 broad exams. He discussed these problems with the Educational Research Group, a regular meeting of the minds organized by Science Outreach Director Vicki May and Biology Chair Kathy Miller. The group talks about teaching: different styles, problems, ideas and solutions.



Dan Hanson and Immunology Teaching Assistant Christen Elledge examine data from a flow cytometry experiment as part of the pilot Immunology Lab course.

After much discussion and rethinking, Hanson redesigned the course in its second year of being offered to undergrads. It is now 4 credit hours instead of 3. There are 6 assessments over the semester. The first half of the assessment is a quiz. The quiz allows students to show him how much material they can recall. The second half is a take-home exam. The class breaks out into groups of 3 or 4 to discuss the questions before completing the exam at home. The addition of the class discussions minimized the occurrence of students misreading questions. The take-home exam allows students to show him how they can articulate the material. He compares learning the material to learning a new language: one can only get better by practicing. Daily homework assignments keep students in practice and keep them from getting behind in the assigned reading. While the reading is not particularly dense, its interrelationships are very cumulative and experience has shown that it is foolish to delay and later try to “cram”.

The first 2/3 of the semester revolves around the two great divisions—innate immunology and adaptive immunology. Innate immunology is what keeps us healthy most of the time. It is the older ancestral workhorse of our whole physiological system. Adaptive immunology is the type that has memory. It is the part of our system that when exposed to new things, remembers these things and knows to fight them. It is the type that allows vaccinations to work.

The last 1/3 of the course examines various stages of immunology and how it's all controlled. It addresses questions such as: What happens if it doesn't perform? What happens when it performs correctly? What happens when it over-performs, as with auto-immune diseases? What happens when it seriously over-performs, as with allergic reactions? The final 2 lectures talk about the major problems of cancer and AIDS, showing how these extremely tricky diseases require a deep and full understanding of the immune system before we can even begin to address them. To learn more, check out the course listing at: <http://wubio.wustl.edu/undergradcourses>. —cont'd on p. 4

Undergraduate Research Fellowships in Ecology and Environmental Biology—Information Session on Thursday, December 1 at 5:30 PM in McDonnell 412



If you are interested in summer research opportunities in ecology and environmental biology, please join us on December 1st for an informational meeting. You'll hear about ecology and environmental biology at Washington University, will have the chance to speak with researchers about undergraduate research opportunities in these fields, and will learn more about the possibilities for paid summer research fellowships at Washington University's environmental field station,

the Tyson Research Center (<http://www.tyson.wustl.edu/>). Many past research fellows have completed senior theses, published scientific papers on their research projects, and have gone on to graduate school in the natural sciences. Multiple openings are available and open research areas include aquatic ecology, disease ecology, conservation biology, biodiversity, restoration ecology, invasive species, plant ecology, and evolutionary ecology, among others. We hope to see you on December 1st!

Student Review: BIO 424: Immunology



Immunology is one of the few smaller Biology courses that give students more opportunities to interact with the instructor. The course material is interesting and the teacher, Dan Hanson, is passionate about the material, which keeps the students more interested. Course content can be dense and difficult at times but Hanson is very supportive and wants everyone to succeed. He tries to create an environment that is beneficial to all types of learners. Instead of having 2 or 3 large exams, he bases the grade on a combination of daily homework, quizzes and take-

home tests. Small frequent quizzes in class are great for the students who are able to memorize large amounts of information whereas take-home tests work well for students who need more time to process and synthesize the material. Daily homework seems burdensome at first but it keeps students from getting behind in the coursework which keeps it from becoming overwhelming. —*Christen Elledge*

Faculty Spotlight cont'd—the basis for more targeted agricultural research.

Dr. Strader will not begin teaching until fall 2012, however, she is already connecting with undergraduates in the department through work study positions in her lab and is available to students as a Bio 200/500 mentor. She feels that her own undergraduate years were some of the most important and formative of her career and she looks forward to providing that same guidance to students at Wash U. For more information about Dr. Strader and her lab, go to: <http://wubio.wustl.edu/strader>.

Career Center Upcoming Events cont'd—

Winter Break Road

Shows: January 3-13

The Career Center will be taking students to meet with employers in select fields this winter break. Make the most of your break by signing up for a Road Show in...

New York: Art Direction + Design (Jan 12-13)

New York: Publishing (Jan 12-13)

San Francisco: Architecture (Jan. 5-6)

San Jose: Biotechnology (Jan 4-5)

San Jose: Technology (Jan 5-6)

Washington, D.C.: Government, Nonprofit & Public Health (Jan 4-5).

Space is limited. The deadline is Monday, Nov. 28. Register at careercenter.wustl.edu/events

Winter Parties:

January 4-11

Meet up with classmates and young alumni in New York, Washington, D.C., San Jose, and Boston. This is a great opportunity to build relationships and network, as well as learn about life after college. R.S.V.P. online at careercenter.wustl.edu/events.



Synapse

Upcoming Events

Graduate Student Research Panel

Tuesday, November 29, at 7pm in Siegle L006, The panel will consist of one Neuroscience PhD student (2nd year), one Neuroscience MD-PhD student (6th year), and one Psychology PhD student (3rd year). Informal discussion in question/answer format regarding aspects of graduate school, such as lifestyle, classes, type of research, and varying interests within these areas. Snacks will be provided.

WashU Med School Anatomy Lab Tour

Wednesday, December 7, 2:30-3:30. During the tour, a fourth year medical student will answer any questions you may have about medical school and show you the cadaver dissections. It's a great opportunity to learn about medical school classes, handle dissected cadavers, and hold organs; and it's a lot of fun! Please RSVP to wusynapse@gmail.com. **The first 20 students who reply will be able to go, slots fill up quickly.**

Do You Have...

An announcement you'd like to make?

An interesting story or fun fact you'd like to share?

A professor or course you'd like to suggest for a spotlight?

We want your input! Send ideas and information to:

gerrity@biology2.wustl.edu

Course Spotlight cont'd—In addition to Bio 424, Hanson is trying a pilot Immunology Lab with his current Teaching Assistants. The lab is a work in progress. The TAs receive credit for the lab through BIO 493: Independent Research, but he's hoping to offer the lab as its own course in the future. Many young pre-med students seek research positions (credit or work study) in labs on campus or at the med school. Though this type of work is variable it is usually a great leap from the "cookbook" style labs taught to large groups of the same young students. Hanson is trying to bridge the gap by offering a course that is a true teaching lab but that also has real-life elements and hands-on work that applies to his actual lab research on the biological function of fever.

Each student is assigned a small research question to address. They learn core techniques that are used in successive stages throughout the semester. They create stashes of monoclonal antibodies and then use them to stimulate mouse cells. They demonstrate how the antibodies can be used as tools in the lab and design temperature experiments using those tools. To learn more about Immunology Lab (currently through Bio 493), contact Dan Hanson at dhanson@wustl.edu.

New Certificates Available to Undergrads: Certificate of Accomplishment in Bioenergy and the Environment; and Global Certificate

The Photosynthetic Antenna Research Center (PARC), and the International Center for Advanced Renewable Energy and Sustainability (I-CARES) are offering an interdisciplinary Certificate of Accomplishment in Bioenergy and the Environment. The purpose of the Certificate of Accomplishment in Bioenergy and the Environment is to provide an organized channel for students who wish to pursue interdisciplinary energy studies in addition to their selected major and/or minor. The program combines academic courses, outreach interactions, hands-on research experiences, and networking opportunities.

PARC and I-CARES see the certificate program as a complement to a student's major and/minor coursework. The certificate is also seen as complementary because it offers applied and experiential learning opportunities, such as outreach activities, seminars, field trips, etc., outside of the classroom. PARC and I-CARES emphasize the certificate not as alternative coursework but as a supplemental experience. For more info, visit: <http://parc.wustl.edu/outreach/certificate>.

The Office of International and Area Studies is pleased to announce that as of this semester, undergraduates may now apply to Washington University's new interdisciplinary Global Certificate. The GC is designed to develop the global competence of students from any major in any undergraduate school through specially-designed coursework, structured experience abroad, and targeted career advising. The goal is to help students to become better prepared for today's international world of work and to become more engaged global citizens.

Two new courses are being offered in conjunction with the launch of the GC:

-U43 210: Bugs, Drugs, and the Global Society: Topics in Global Health

-I51 301: Global Discourses in Art and Architecture

GC courses are listed under Global Studies in the "Interdisciplinary Programs" division on course listings.

For applications and more information, please visit: http://ias.wustl.edu/global_certificate.

Biology Department Calendar



Links to General Calendars and Regular Events:

Washington University Record Calendar: <http://record.wustl.edu/calendar>

Biology Department Seminars, Mondays, 4:00pm, Rebstock 322, check the website for topics/schedule:
<http://wubio.wustl.edu/events?tid=8>

Evolution, Ecology, & Population Biology Seminars, Thursdays, 4:00pm, Rebstock 322, check the website for topics/schedule: <http://wubio.wustl.edu/events?tid=3>

History & Philosophy of Science Seminar Series: <http://wubio.wustl.edu/events?tid=12>

Plant Lunches: most Tuesdays at noon (1st Tuesday of month @ DDSPC, others @ McDonnell 212):
<http://wubio.wustl.edu/events?tid=10>

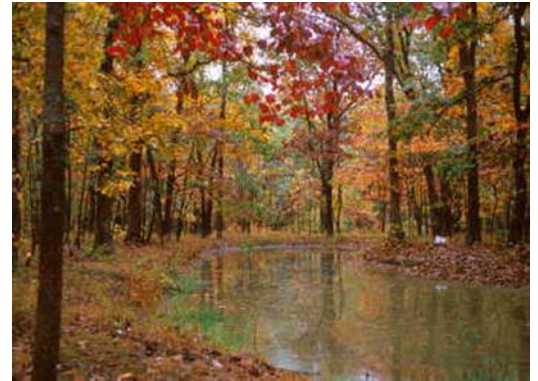
Donald Danforth Plant Science Center (DDPSC), Weekly Seminar Series—Wednesdays, 3:45pm, AT&T Auditorium, check the website for topics: http://www.danforthcenter.org/the_center/events/seminars_symposia/

Division of Biology and Biomedical Sciences (DBBS), all lectures and seminars:
<http://dbbs.wustl.edu/dbbs/website.nsf/SDN>

December 2011

- 9th Last day of classes
- 15th FINAL EXAMS begin
- 22nd Fall 2011 Rental Books due back to Campus Bookstore

January 2012



- 9th Spring 2012 courses available to students in Telesis
- 16th Martin Luther King Jr. Holiday—NO CLASSES
- 18th First day of classes
- 31st Last day to add/wait/change Spring 2012 courses

February 2012

- 1st Last day to drop/D, Spring 2012
- 6th Last day to change Spring 2012 courses to grade option to P/A (pass/fail or audit)

