



# BIOrhythms

Washington University Biology Department Newsletter

September 2013

*"Look! Look! Look  
deep into nature and  
you will understand  
everything."*

*-Albert Einstein*

## Helpful Links

Biology Home Page  
Biology Course Listings  
Faculty Listings

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

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## Featured in this issue:

Facility Spotlight: Tyson Research Center  
Student Clubs: Synapse & The Bee School  
Calendar: Biology Events & links to event listings  
PLUS: Career Center, Neuroscience Colloquium,  
Undergraduate Research Symposium



## Facility Spotlight: Tyson Research Center



*Kevin Smith, Interim Director, in newly renovated Headquarters*

provides a living landscape of local habitats for environmental research and education, with a particular focus on providing high-level research opportunities for Washington University undergraduates in the environmental sciences.

Kevin Smith, now serving as Interim Director of the Center, began as a postdoc at Tyson in 2007, and was appointed Associate Director in 2008. Kevin oversees the management and operation of Tyson, facilitating and planning the use of Tyson for research, teaching and outreach. He also teaches field courses in ecology and mentors undergraduate researchers. His current research on site focuses on aquatic ecology, amphibian disease ecology and declines, and the analysis of modern biodiversity loss and extinctions.

Other key researchers at Tyson from the Biology Department include Tiffany Knight, Stephen Blake (also faculty at UMSL) and new Biology faculty members Scott Mangan and Jonathan Myers. A full list of researchers, postdocs and grad students can be found on the website. Undergraduate work is also an important part of the work that goes on at Tyson. —cont'd on page 2

Tyson Research Center is a 2000 acre natural site near Eureka, MO, only 30 minutes from the Danforth Campus. The property was obtained by Wash U as surplus property from the federal government in 1963. Tyson's mission is to provide a living landscape for environmental research and education as a component of Washington University's initiatives in environmental studies and sustainability, including the International Center for Advanced Renewal Energy and Sustainability (I-CARES). Tyson

## Neuroscience

### Colloquium Fall 2013

Fridays from 4:00-5:00pm,  
September through October,  
*Location:* Connor Auditorium,  
Farrell Learning and Teaching  
Center, Washington Univer-  
sity School of Medicine

*Reception immediately following,  
Farrell Atrium*

#### 2013 Colloquium Schedule

September 6: Russ Pol-  
drack (UT-Austin) hosted by  
WUSTL Psychology

September 13: Frederic  
Theunissen (UC-Berkeley)  
hosted by WUSTL Biomedical  
Engineering. *NOTE location:*  
*Whitaker 100-Danforth Campus*

September 20: Don Cleve-  
land (UC-San Diego) hosted  
by WUSTL Anatomy & Neu-  
robiology

October 4: John Wood  
(University College London)  
hosted by The Pain Center

October 11: Catherine Wool-  
ley (Northwestern) hosted  
by WUSTL Cell Biology &  
Physiology

October 18: Timothy Mur-  
phy (U of British Columbia)  
hosted by The Stroke & Cere-  
brovascular Center

October 25: Joseph Takahashi  
(UT Southwestern) hosted by  
WUSTL Anesthesiology

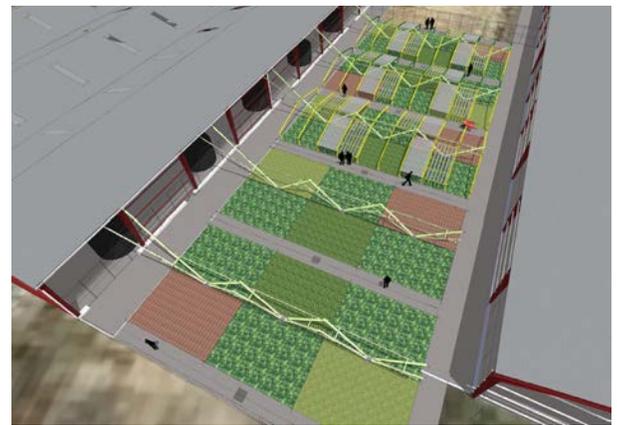
For more information go to:  
<http://neuroscienceresearch.wustl.edu/Pages/NeuroscienceColloquium.aspx>



*Construction of new lab space for Tyson researchers is nearly complete*

Novelty and Species Invasion; and Aquatic Biodiversity and Invasive Species. In addition to those environmental research projects, an Institute for School Partnership outreach grant involving both Tyson and Shaw Nature Reserve aims for quality over quantity through educational programming targeting local high school students. These students are paired with undergrad mentors from Wash U, giving the high school students an authentic research experience. This high level experience has led some students to eventually enroll at Wash U after project completion.

In addition to project and research grants there is a facilities improvement grant underway. As research expands and diversifies at Tyson, a need has arisen to pair Tyson's large scale ecological field experiments with more controlled experimentation. Construction will begin soon on a research garden that will allow PIs to experiment in a natural environment that can be easily manipulated in a way that is multi-functional and flexible. It's like a greenhouse without the "house". In other words, it will not be an artificial environment but will have structures in place to give PIs the flexibility to control the natural environment. Irrigation systems and basic framework for moveable shades or panels will allow researchers to run competition experiments with plants, drought manipulations or soil modifications, pollinator manipulations, and more. The garden will use rainwater runoff from the roof for irrigation.



*CORE 10 Architecture rendering of proposed research garden*

Other recent improvements include the renovation of Tyson's headquarters building and a brand new laboratory facility built into the existing warehouse structure that was part of the original army base which was located on the site before it became Tyson Research Center. The headquarters building was reconfigured and updated to include more efficient office and conference space for postdocs, grads and PI's. The new laboratory facility includes wet labs, a microscope room, tank rooms and other spaces for experiments. The communal research facility will be open this fall. PI's will share the space based on the function they need, rather than have their own separate labs. The building was designed to be easily expanded in the future as necessary. Future additions could include molecular and geochemistry labs, depending on the future needs of researchers. There are also plans for the future addition of on-site housing to allow more in-depth projects and places to stay for visiting researchers and undergrads working on summer projects.

**Opportunities and Courses for Undergrads:** Most undergraduate student opportunities take place in summer, but some students continue their work during fall and spring semesters for credit (through Bio 200/500 or Bio 493) and can turn into honors theses as well. The summer research program has grown from a small community of 8 undergrads in 2006 —*cont'd on page 3*

*Tyson Cont'd*—to an average of 20 paid summer research fellows. The number and diversity of projects applicable to Biology and Environmental Biology majors continues to grow. Students can learn more at annual info sessions on the Danforth campus, which typically happen every fall semester in late November. The application process begins in January, with final decisions in March. Students usually work on site for the entire summer. A full description of the summer research program and other opportunities for undergrads can be found on Tyson's website.



A site as large and diverse as Tyson provides many educational opportunities, everything from field trips to entire courses taught on site. Though most research and education at Tyson is based at Wash U, other local universities also use the site for research and teaching in ecology, botany, and related subjects. Regular Wash U Biology courses at Tyson include a variety of freshman seminars, Bio 393 and Bio 4193. Bio 393:

Practical Skills in Environmental Biology Research is taught mainly on the Danforth campus with field trips to Tyson. This spring course is considered to be a fast track path to doing summer research on site. Bio 4193: Experimental Ecology Lab is taught completely on site using the classroom at the Living Learning Center as well as the natural environment. This course, formerly taught in fall semesters, will now be offered in spring beginning in 2014, and will be taught by Scott Mangan. Other departments at Wash U including Environmental Engineering, Earth and Planetary Sciences, and even Design and Visual Arts use the site for teaching purposes as well.



Tyson is not open to the public and is not a recreational area like its neighbor Castlewood State Park on the Meramec River. People who are not currently conducting research at Tyson but want to visit can attend special events and weekly Ecology Seminars during summer. Visit the website at <http://tyson.wustl.edu/index.php> for more information on the events, people, research and facilities of Tyson as well as opportunities to get involved.

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## Student Clubs: Synapse & The Bee School

**Synapse** is WashU's premier neuroscience student organization, and is geared towards all students with an interest in neuroscience. Our mission is to provide students with opportunities to get involved in neuroscience-related activities in both the WashU and St. Louis communities. One way students can get involved is through our shadowing program. Students have the unique opportunity to see what a career in clinical neuroscience looks like by shadowing neurologists and neurosurgeons in both the clinic and operating room. The Clinical Shadowing Program pairs students with either a neurosurgeon or neurologist at Barnes Jewish Hospital or St. Louis Children's Hospital and gives them the opportunity to observe patient interactions, and the clinical set up first hand. The Operating Room Shadowing Program is a new Synapse program, and offers students a front row view of pediatric neurosurgeries. Both programs require students to attend a brief Shadowing Orientation, as well as complete minor paperwork. —*cont'd on page 4*

## SURF Undergraduate Research Symposium, 10/26/13

The Summer Undergraduate Research Fellows (SURF), funded by the Howard Hughes Medical Institute and various other agencies, is an opportunity for freshmen, sophomores and juniors to apply for a 10 week research project with faculty mentors, earning a summer stipend. Over the past few years, the number of students receiving awards has grown, due to increased funding and interest. When the research projects are complete, the participants join students from other fields to present their projects and findings at the Fall Undergraduate Research Symposium, this year's will be on October 26, 12-4pm. Many students continue to work with their SURF mentors throughout the academic year as paid lab technicians or in work study positions.

For more information: <http://www.nslc.wustl.edu/Research/HHMI/surf.html> or you can reach Amy O'Brien at [aobrien@wustl.edu](mailto:aobrien@wustl.edu) or in Life Sciences 200, 935-7170.

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## 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](mailto:gerrity@biology2.wustl.edu)

## Career Center Events

### Locations:

Danforth University Center,  
Suite 110 with satellite offices  
in Lopata Hall, Brauer Hall and  
Steinberg Hall

Main Office Hours in the DUC  
Monday-Friday: 8:30-5:00

### Contact Us:

Phone: 314.935.5930

Fax: 314.935.5905

E-mail: [careers@wustl.edu](mailto:careers@wustl.edu)

Website: [careercenter.wustl.edu](http://careercenter.wustl.edu)

### Upcoming Events

S.T.E.M. SLAM: Sept. 17

Looking for a science, technology, engineering, or math opportunity? Come hear employers 'open mic' pitch their internship and job opportunities at this fast-moving and fun event. Students can see participating employers and RSVP in CAREERlink.

Fall 2013 Internship & Job  
Career Fair: Sep 18

The fair will take place from 3 to 7 p.m. in the Athletic Complex. Students can research positions and sign up for employer-hosted information sessions by logging into CAREERlink.

Global & Public Health Internships & Jobs Work Group:

Every Monday, Sep 23-Oct 28

Join this Work Group at any time. We'll cover the basics of how to search for opportunities in the field, gain expert advice, and optimize the time you spend on your search.

Throughout the weeks, we will connect with professionals in the industry, including WUSTL alumni, to draw on their expertise. RSVP each week in CAREERlink.

For more upcoming events, go to [careers.wustl.edu/events](http://careers.wustl.edu/events).

*Synapse Cont'd*—More information about Synapse and its shadowing program can be found at [www.synapse.wustl.edu](http://www.synapse.wustl.edu) and any questions about shadowing through synapse can be directed toward Amanda Amen ([synapse.shadowing@gmail.com](mailto:synapse.shadowing@gmail.com)). Be sure to join our Wash U Facebook group ([facebook.com/groups/WUSYNAPSE/](https://www.facebook.com/groups/WUSYNAPSE/)) to get the latest updates and be sure to attend our general body meeting at the beginning of the semester!

*The Bee School*—Undergraduate student Shannon Welsh has always been interested in beekeeping and recently took it upon herself to start an official beekeepers club called The Bee School, sanctioned by Wash U's student union. The Bee School is "WashU's premiere Beekeeping organization, dedicated to spreading the practice and knowledge of all things bee! As of the spring of 2013, the Bee School maintains two honeybee hives on the Danforth campus." The club is still small, but plans to recruit new members to keep it going in the future through events such as the Student Activities Fair, where an observation hive was displayed at an info table on September 3.



*Mentor Philip Ewing assists in The Bee School hive inspection*

the mentorship of Philip Ewing from the Eastern Missouri Beekeepers Association. Philip helps the group regularly with setup, troubleshooting, finding equipment and more. They have also received invaluable resources and mentorship from Jane Sueme, the secretary of the Eastern Missouri Beekeeping Association (<http://www.easternmobeekers.com/>)!



*This frame shows evidence of a healthy hive with a thriving bee colony*



Shannon faced some stray liability concerns and redundant bureaucracy because of the nature of the club, but once it was officially sanctioned by the student union, she received funding to buy hive equipment, bees and suits for members to use while inspecting the hive. At this point, The Bee School maintains two hives at one location in the Eisendrath Garden between Rebstock Hall and Life Sciences, but hopes to find other suitable sites on campus as the club expands. The members perform regular hive inspections, pictured here, under

Monitoring is more intensive when starting a hive. Beekeepers check to make sure the bees have enough room, to see if they need to be fed simple syrup (sugar water) infused with essential oils, and check for signs of pests or diseases. They also check the 10 individual frames in each hive body for weight of honey. Eventually, the beekeepers would like to sell honey on campus, possibly to WashU's food service that tries to buy local where they can, and use the profits to support The Bee School. For more information on The Bee School and how you can get involved, see the club's portfolio on the Student Union website, or visit the facebook page at <https://www.facebook.com/TheBeeSchool>.



# 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?field\\_event\\_tags\\_tid=19](http://wubio.wustl.edu/events?field_event_tags_tid=19)

Evolution, Ecology, & Population Biology Seminars, Thursdays, 4:00pm, Rebstock 322, check the website for topics/schedule: <http://wubio.wustl.edu/events/eebp-student-seminar-schedule>

History & Philosophy of Science Seminar Series: [http://wubio.wustl.edu/events?field\\_event\\_tags\\_tid=20](http://wubio.wustl.edu/events?field_event_tags_tid=20)

Plant and Microbe Super Group Seminar Series, most Tuesdays at 9:00am, McDonnell 362: <http://wubio.wustl.edu/events/pmb-supergroup-seminar-series>

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/](http://www.danforthcenter.org/the_center/events/seminars_symposia/)

Division of Biology and Biomedical Sciences (DBBS), all lectures and seminars: <http://dbbs.wustl.edu/Pages/Events.aspx>

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## October 2013

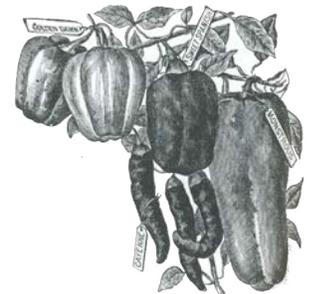
11th WILD: <http://team31.wustl.edu/>

18th FALL BREAK—NO CLASSES

25th Parent and Family Weekend, October 25th-27th

26th Summer Undergraduate Research Fellows (SURF) will present the results of their summer research from 12:00–4:00 pm in Olin Library

28th Advising Period Begins, October 28th—November 8th



## November 2013

12th Spring 2014 Online Registration Begins—*Undergraduates 90+ Units*

13th Spring 2014 Online Registration—*Undergraduates 57+ Units*

14th Spring 2014 Online Registration—*Undergraduates 24+ Units*

15th Spring 2014 Online Registration—*Undergraduates <24 Units*

27th Thanksgiving Break, Wednesday, November 27th-Dec 1st—NO CLASSES

