



# BIOrhythms

Washington University Biology Department Newsletter

September 2017

*“The good thing  
about science  
is that it’s true  
whether or not you  
believe in it.”*

—Neil deGrasse Tyson

## 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**

Course Spotlight: **Bio 200/500 Independent Research**

New Student Group: **Wash U Women in STEM**

Calendar: **Biology Events & links to event listings**

PLUS: **Career Center Events; Undergraduate Research  
Symposium 10/21/2017**

## Facility Spotlight: Tyson Research Center



*Sara Wright, PhD student in the Olsen Lab, and students  
from the undergraduate fellows summer program at Tyson*

Tyson Research Center is Washington University’s 2000-acre environmental field station located approximately 20 miles from the Danforth Campus. Tyson is a university-wide, interdisciplinary center with an annual budget provided by the university’s Central Fiscal Unit. Additional support comes from endowments for undergraduate fellowships and an annual commitment for student research funding from the School of Arts & Sciences. Tyson’s mission is to provide opportunities for environmental research and education for students and faculty from Washington University and beyond.

As a field station, Tyson is part of a global community. It is a permanent and secure environment where researchers can facilitate long-term investigations, protected from outside influences. Interested investigators approach Director Dr. Kim Medley about potential projects and Tyson accommodates as many researchers and new studies as possible.

Education is an important part of Tyson’s mission and a three-stage pathway of education programs are fully integrated into Tyson research activities. “Having access to a large pool of motivated young people means we can do big science at Tyson,” says —*cont’d on page 3*

## WU Career Center

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

Main Office Hours in 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)

### EVENTS

Med School Interview Prep Workshops

Date: October 5, 12-1:00pm

Location: DUC 232

RSVP on CAREERLink

STL Mosaic Project: Intl Student STEM Career Fair

10/11/17, 4:30-7:30pm

- Over 25 employers from the St. Louis metro

- Over 150 international students from 10 local universities representing a variety of STEM disciplines.

Visit [www.stlmosaicproject.org](http://www.stlmosaicproject.org) to learn more about St. Louis Mosaic Project programs.

Career Essentials Workshop Series: Improv for Interviewing (Interactive Workshop)

10/24/17, 4:00-5:00pm

RSVP on CAREERLink

### Internship at STL Zoo

A college/university student or recent graduate in the areas of biology, zoology, education, animal science, human resources, marketing, development or related field, receiving credit through their college/university under the direction of a faculty advisor, while obtaining practical hands-on work experience. Interns are required to serve a minimum of 20 hours per week for a minimum of six weeks.

APPLICATION DEADLINES:

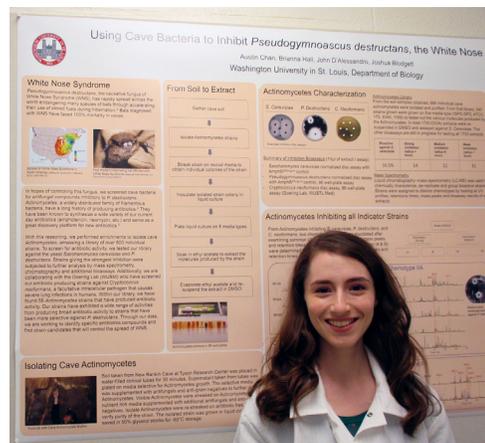
Winter/Spring Semester: 11/1

Summer: 3/1 Fall Semester: 7/1

Apply on CAREERLink

## Course Spotlight: Bio 200/500 Independent Research

The purpose of this independent study course is to provide opportunities for students to gain experience in using the scientific method to resolve problems of scientific importance. This includes acquiring technical skills, reading and evaluating articles in the scientific literature, gaining experience in design and conduct of experiments, learning to evaluate experimental data in relation to existing knowledge, and in expanding skills at communicating results of research both orally and in writing. Students who spend several semesters and a summer(s) in the same laboratory often accomplish enough to be co-author of a paper in a scientific journal. Once a mentor is chosen and a project plan approved, research can take place at the Danforth Campus, WU Medical School, or one of Wash U's other partner organizations such as Tyson Research Center, MO Botanical Garden or the St. Louis Zoo.



*Brianna Hall, undergraduate, shown standing with a group poster she prepared with the rest of her project team, explaining in detail their strategy and progress in the fight against *P. destructans*, the causative agent of White Nose Syndrome. This poster was presented at Wash U's Undergraduate Research Symposium.*



*Brianna Hall, undergraduate, observes as her mentor, John D'Alessandro, demonstrates proper plating technique.*

### Bio 500 Research at Blodgett Lab

One of the projects of Dr. Joshua Blodgett's lab aims to use native cave bacteria for the biocontrol of *P. destructans* (White Nose Syndrome) in hibernacula harboring infected or infection-prone bats. With funding from Washington University's International Center for Advanced Renewable Energy and Sustainability (I-CARES), Dr. Blodgett began investigating Tyson caves for the presence of actinomycete bacteria with potential antifungal capabilities during Summer 2015. Undergraduate student Brianna Hall will receive course credit for her participation in this research through Bio 500.

To date, the lab has isolated 586 cave actinomycetes, and preliminary data indicate roughly 15 percent of the tested bacterial isolates produce antifungal compounds in the lab, with many significantly inhibitory to *P. destructans*. The lab continues to test additional isolates for their ability to inhibit *P. destructans*, and those showing the strongest antifungal capabilities are undergoing chemical analyses to identify the inhibitory metabolites they produce.

Another Blodgett Lab project focuses on manipulating polycyclic-tetramate macrolactam (PTM). The goal is to discover genes that are responsible for potent antibiotic properties and see if the bacteria that produces PTM can be

—cont'd on page 3

*Bio 500 in Blodgett Lab cont'd*— re-engineered to get the best possible antibiotic effect. Undergraduate student Edward Ding began research for Bio 500 at the Blodgett Lab in February 2016 and will continue this work through the end of his senior year.

To learn more about Bio 200/500 research for credit, visit: [https://pages.wustl.edu/Bio\\_200-500\\_independent\\_research](https://pages.wustl.edu/Bio_200-500_independent_research).



*In the pictured procedure, undergrad Edward Ding is trying to conjugate plasmids of E. coli bacteria with spores of a Streptomyces bacteria that contain certain genes of interest which are responsible for making the PTMs. The conjugated Streptomyces would contain the plasmids that would help cut out or insert other tailoring genes related to PTM production. He uses the mass spectrometer to see if there is any change from the initial bacteria production that can help determine gene responsibility.*

*Tyson Research Center Cont'd*—Education Coordinator Susan Flowers. “The Tyson community is incredibly welcoming to students at all levels of training and we strive to provide educational experiences that really show what it means to be part of a collaborative research community.”



*Shaw Institute for Field Training (SIFT) high school students harvest plants from the Mangan Lab mesocosms at the end of the growing season in the Tyson research garden*

### **Tyson Environmental Research Fellowships (TERF)**

Many SIFTers move on to apply for the TERF program where they get to work side-by-side with Tyson research team members for 4 weeks during the summer. TERF is modeled on the Tyson undergraduate experience and includes activities to jump-start scientific research careers. TERFers develop scientific posters and present research results at the WashU Undergraduate Research Symposium in October and the —cont'd on page 4

## Undergraduate Research Symposium 10/21/17

Twice yearly the Office of Undergraduate Research sponsors the Undergraduate Research Symposium. It is a forum for students to present their research findings and a celebration of the diversity of research that takes place at Wash U. We encourage students in all academic departments, programs and schools to present their original research. The event has included a keynote address, selected student talks, a poster session, and performances and demonstrations of projects. The Fall 2017 Undergraduate Research Symposium will be held on **Saturday, October 21 from 12:00-3:30pm.**

For students who are interested in getting started in research, the Symposium is a great opportunity to learn about the process from your peers. Meet researchers in your area of interest to find out about resources and opportunities. Everyone is welcome to attend the symposiums!

### 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)

## New Student Group: Wash U Women in STEM



Biology major Judy Yoo, inspired by the Scientista conference she attended last spring, is starting an organization dedicated to supporting women in STEM here at Wash U, by partnering with the Scientista Foundation (<http://www.scientistafoundation.com/>)

Here's a link to the group sign up sheet: <https://goo.gl/forms/XTC54pA9dVUasl2k1>. At Washington University in St. Louis while there are many clubs and organizations devoted to women in separate disciplines, there aren't any overarching groups that include women in all STEM fields. As women in science, we face a number of roadblocks in our studies due to a skewed faculty ratio, frequent microaggressions, and ill-representation in the field.

We aim to change the patriarchal culture in higher science education by creating a strong network of women scientists who can uplift each other through mentorship. For further information, please sign up on the form provided and come to our first meeting at the DUC (Room TBA) on **10/10 from 6:00-7:00 PM.**

*Tyson Research Center Cont'd*—TERF symposium at Tyson in January. Because of their early research experience, some TERFers have been able to join faculty research groups during their first year in college.



*Tyson Forest Team, Summer 2014. Back left to front right: Jonathan Myers, Chris Catano (Ph.D. student), Marko Spasojevic (Postdoc), Jamal Gaddis (WU undergrad), Clayton Hillermann (Eureka High School), Eduardo Koerich Nery (Brazil Scientific Mobility Program), Ellen Sulser (Kirkwood High School), Maggie Gardner (WU undergrad), Dilys Vela (Ph.D. student), Hannah Walkowski (Fort Zumwalt North High School), Adam Vorel (Eureka High School), Emily Wen (WU undergrad), Maranda Walton (Lab Technician), Katherine Harline (WU undergrad).*

which takes place right before the weekly Tyson summer seminar by a visiting scientist. This career development series has students reading and discussing scientific literature, learning how to effectively communicate scientific research and distill their work into 2- and 5-minute presentations, and constructively critiquing each other's presentations. Two separate career panels include faculty, environmental professionals, and representatives from government agencies. There are also short workshops in Excel and R and a session with the WashU Career Center on resume writing, job searching, and networking. One unique feature of the Tyson undergrad program is that it offers the opportunity to gain mentoring skills as TERFers and SIFTERS work with research teams over the summer. All Tyson fellows are encouraged to put a poster together for the fall or spring WashU undergraduate symposia.

The application for the Tyson Undergraduate Fellows Program can be found on Tyson's website in early December (<http://tyson.wustl.edu/teaching-ugrad.php>) and the application deadline is typically February 1st. An information session is held on the Danforth Campus each fall with more fellowship program details and the opportunity to meet with a variety of Tyson research mentors. This year's session will be on **Tuesday, November 14 from 5:00-7:00 pm in DUC 234.** Tyson Education Coordinator Susan Flowers can be contacted for more information at [flowers@wustl.edu](mailto:flowers@wustl.edu).

Learn more about Tyson Research Center at <http://www.tyson.wustl.edu>.

## Tyson Undergraduate Fellowship Program

Tyson provides many opportunities for undergraduate students from WashU and other institutions to participate in research through the 11-week Tyson Undergraduate Fellows Program. The number of fellowships offered each summer depends on the current research needs of project principal investigators; during summer 2017, 25 fellows worked across six research teams. Students meet at Rebstock Hall on the Danforth Campus daily and carpool out to the field station. They collect data for faculty-driven projects and often carry out their own smaller independent projects, some of which even make it into peer-reviewed scientific journals. On Thursday afternoons the fellows attend colloquium,

# Biology Department Calendar



## Links to General Calendars and Regular Events:

Washington University Record Calendar: <https://news.wustl.edu/Pages/Calendar.aspx>

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

Evolution, Ecology, & Population Biology Seminars, Thursdays, 4:10pm, Rebstock 322, check the website for topics/schedule: <http://wubio.wustl.edu/events/eebp-student-seminar-schedule>

History & Philosophy of Science Seminar Series: <http://pages.wustl.edu/hpbm/events>

Plant and Microbe Super Group Seminar Series, most Wednesdays at 12:00pm, McDonnell 412: <http://wubio.wustl.edu/events/pmb-supergroup-seminar-series>

Donald Danforth Plant Science Center (DDPSC), Weekly Seminar Series—most 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 2017

- 10th Wash U Women in STEM meeting 6-7pm, Location TBA, please sign up on this google doc to receive the location info: <https://goo.gl/forms/XTC54pA9dVUasl2k1>
- 16th FALL BREAK OCT 16-17—NO CLASSES
- 20th Parent and Family Weekend: October 20-22
- 21st Undergraduate Research Symposium: undergrads will present the results of their research from 12:00–3:30pm
- 30th Advising Period Begins, October 30th-November 10th



## November 2017

- 10th Spring 2018 online registration: undergraduates graduation class of 2018
- 13th Spring 2018 online registration: undergraduates graduation class of 2019
- 14th Spring 2018 online registration: undergraduates graduation class of 2020  
Tyson Undergrad Research Information Session, 5-7pm, DUC 234
- 15th Spring 2018 online registration: undergraduates graduation class of 2021
- 22nd Thanksgiving Break, Wednesday, November 22nd-24th—NO CLASSES

