

# BIOrhythms

Washington University Biology Department Newsletter

April 2017

*“What you see is that the most outstanding feature of life’s history is a constant domination by bacteria.”*

*-Stephen Jay Gould*

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

## Featured in this issue:

**Faculty Spotlight:** Petra Levin

**New Major Track:** LA4107 Microbiology

**Course Spotlight:** Bio 4492: Infectious Diseases: History, Pathology and Prevention

**Summer Jobs:** Career Center

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



## Faculty Spotlight: Professor Petra Levin



Petra Levin grew up in Amherst, Massachusetts, where she spent more time than she cares to admit, in her father’s population biology lab, waiting for him to finish work so they could go home (already!). Although she did not originally intend to go into research as a career—she started her education at Williams College in Williamstown, MA as a premed Biology and Russian Studies major—a single upper level laboratory class she took during her junior year, changed her mind. Taught by a favorite professor, Dr. Marsha Altschuler, the lab had students repeat classic

experiments in developmental biology using invertebrate and vertebrate model organisms. The work was hands-on, difficult and exciting, not “cookie-cutter” like some earlier courses she’d taken. The thrill of coming into lab and seeing the results of the previous day’s experiments was hard to leave behind at the end of the semester. In addition to trying to learn as much biology and Russian as possible as an undergraduate, she spent a great deal of time on the water as a coxswain for the men’s rowing team. She credits the experience for her ability to project well in lecture class and found she enjoyed the hardcore athletic training over the winter term much more than she expected (Her personal record for the deadlift was 200lbs).

After finishing her undergraduate degree, Dr. Levin took a year off to teach high school. She took a job in Switzerland teaching earth and physical science —Cont’d on page 2

## WU CAREER CENTER SUMMER OPPORTUNITIES

### Locations:

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

**Main Office Hours in the  
Danforth University Center:**  
Mon-Fri: 8:30-5:00

### Contact Us:

**Phone:** 314.935.5930

**Fax:** 314.935.5905

**Email:** [careers@wustl.edu](mailto:careers@wustl.edu)

**Web:** [careercenter.wustl.edu](http://careercenter.wustl.edu)

### Have a Quick Question?

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

### Report Your Plans – Win \$100

Report your summer or post-  
graduate plans by May 15 for a  
chance to win \$100!

Whether you're traveling,  
taking classes, starting an  
internship or full-time job, or  
planning on attending gradu-  
ate school, we want to know!  
Please take 30 seconds to  
**report your plans** for summer  
2017 before the contest ends  
May 15.

**\*\*\*SEE NEXT PAGE FOR  
MORE ANNOUNCEMENTS**

## Course Spotlight: Bio 4492: Infectious Diseases: History, Pathology and Prevention

Leveraging the primary research literature, this course examines the history and pathology of infectious disease, the development of antibiotics and vaccines, the rise of antibiotic resistance, and the emergence and reemergence of diseases including Zika virus, Malaria, and Tuberculosis. In addition to gaining insights into the underlying causes and treatment of infectious disease, students will hone their ability to identify important biological questions, develop testable hypotheses, design experiments tailored to particular questions, and evaluate results. Through a series of written and oral assignments, students develop the skills to communicate about science effectively to both the research community and the general public. Prerequisites: Biology 349 Microbiology and one semester of Biology 500: Independent Research. In special cases, prerequisites may be waived but only with prior permission of the instructor. Area A. 3.0 units. P. Levin. Offered fall semester.



*Petra Levin Cont'd*— at TASIS, an American school in the Italian canton, Ticino. Although rewarding in many ways, teaching and living among 7th, 8th and 9th grade students solidified her decision to go to grad school and pursue a career at a research university where she could combine her desire to teach with her love of science. She attended Harvard where she worked in a microbial genetics lab, studying the sporulation in *Bacillus subtilis*, a close relative of anthrax. She completed her postdoctoral work at MIT, where she focused on identifying the factors that determine where cells divide (Why in the middle? Why not near one end?). She came to the WashU Biology Department in 2001 where she runs a small lab, serves as a Bio 500 mentor and major advisor, and teaches both graduate level and undergraduate level courses.

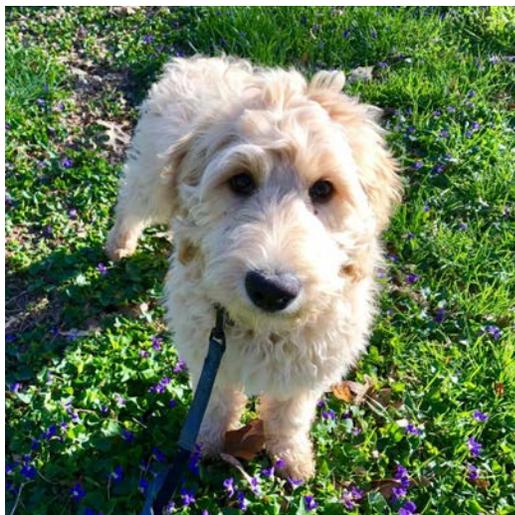
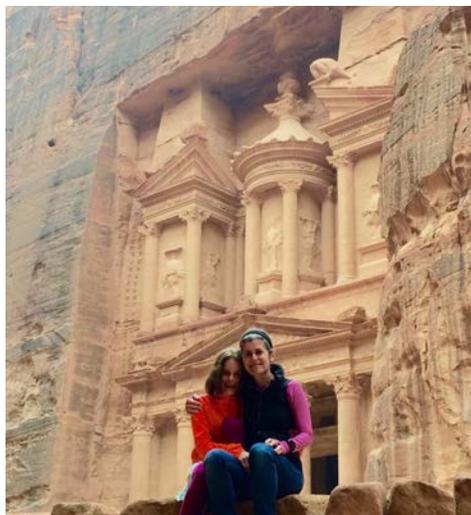
Dr. Levin is particularly excited about Bio 4492: Infectious Diseases: History, Pathology, and Prevention, an upper level undergraduate seminar that was offered for the first time last fall (see Course Spotlight for more information). Bio 4492 is a capstone course that emphasizes critical analysis of the primary literature and scientific writing in various forms. Dr. Levin is particularly proud of the communication component of Bio 4492, which focuses on writing about science in a clear and concise way for different audiences ranging from grant review committees to the lay audience. Writing exercises include a Wikipedia entry on a topic in microbiology that is currently only a “stub,” an “elevator pitch” for why their undergraduate research project is important, to a topical review written for a lay audience. Because the course focuses on the primary literature and emphasizes advanced topics in microbiology, students are required to have at least one semester of Bio 500 and have completed Bio 349, the microbiology survey course taught by Dr. Arpita Bose. This fall Dr. Levin will also be co-teaching the graduate level course Bio 5703: Experimental Design and Analysis in Biological Research, part of the Plant and Microbial Biosciences course sequence along with Dr. Bose. This course is geared toward graduate students, and focused on critical analysis of the primary literature as well as more specialized aspects of science writing. Pro tip: Dr. Levin is known to bring home baked sweets to both classes on a regular basis!

—Cont'd on page 3

*Petra Levin Cont'd*—The Levin Lab studies how cells respond to changes in the environment, specifically changes in the availability of essential nutrient, by altering their growth rate, cell shape, and composition. For example, the Levin Lab asks how cells “know” when they are starving for carbon and how they reduce growth rate and daughter cell production to compensate. Because nutrient starvation typically increases the ability of bacteria to survive in the presence of antibiotics, research in the Levin Lab’s will hopefully help us understand how human pathogens are so adept at acquiring antibiotic resistance, a growing crisis in today’s world. What is it about starving that makes cells more resistant to antibiotics and how can we influence this? The lab currently has 3 undergraduate research students, who work with graduate students and postdocs on an independent but related project. Students who want to join the lab typically work one semester doing glass washing and media preparation for pay, followed by an opportunity to continue with research for credit through Bio 200/500.

Dr. Levin played a part in the creation of the newest Biology major track, Microbiology. The university now houses enough faculty and corresponding labs to have an offering broad enough for a whole new track, and plenty of students that have expressed interest. Dr. Josh Blodgett and Dr. Arpita Bose came together with Dr. Levin to create a focus for the study of microbes and the myriad of ways they impact our lives, good (microbiome, biofuels, natural products, genetic engineering), bad (human pathogens, antibiotic resistance), and ugly (algal blooms, biofouling). These faculty members, who advise in this track, want to encourage biology students to think about careers in microbiology, in either basic research or infectious disease.

In her (sparse!) free time at home, Dr. Levin spends as much time as possible with her husband and two children and their 4 month old puppy, Lekker. She also enjoys running and cycling around Forest Park, baking sweets for her family and students, and has a healthy obsession with knitting and sewing, although she doesn’t get to spend as much time doing either as she would like. Travel is another family favorite. She recently crossed the ancient city of Petra in Jordan off her bucket list, and cites Japan and Hawaii as future places to vacation. She even took her family on sabbatical in the Netherlands where she fell in love with the culture, and her kids even became fluent in Dutch! To learn more about Dr. Levin, visit her website at <http://pages.wustl.edu/levin> or you can follow her on Twitter [@PetraLevin](https://twitter.com/PetraLevin).



*Left: Petra Levin in Petra, Jordan with her daughter; Right: The newest family member Lekker*

## Sign up for Career Camp!

Career Camp is Thursday, August 24: 9:00 a.m. to 4:00 pm, for the classes of 2018, 2019, and 2020. This event provides an opportunity to reflect on your summer and college experience and then create an action plan for the following year. You’ll choose the sessions right for you throughout the day. You may choose to:

- Reflect on your previous summer and college experience for future decision making
- Identify your interests and explore options within those areas
- Understand how to select and apply to the right graduate, medical or law school
- Explore career paths and network with industry professionals
- Build professional skills, such as resume and cover-letter writing, interviewing and networking
- Connect with an advisor to support you throughout the year
- Create an individualized action plan for the year ahead

Take advantage of this unique program to clarify your plans and use the year ahead to set your next summer goals.

Early Registration, 5/31: \$30  
Regular Registration, 6/1-7/31: \$40  
Final Registration, 8/1-8/4: \$50

[Click here to register for Career Camp!](#)

Streck Summer  
Internship and Assistant  
Program 2017

**Come Trek with Streck!**

Are you ready to trek into the next step in your professional and career development? Our summer internship and assistant program, Trek with Streck, offers individuals meaningful real-world experience, training in your desired industry and professional growth. We are seeking candidates for internship and assistant level positions within our Research and Development, Operations, Microbiology and MIS departments. We are in search for ambitious, enthusiastic, and talented individuals that will exemplify and complement our culture of commitment to quality, innovation, improvement, customer and employees.

**Internships:**

Hematology/Body Fluid Research and Development Intern  
Immunology/Biomarkers Research and Development Intern  
Molecular Research and Development Intern  
Technology Transfer Intern  
Microbiology Intern  
Quality Software Intern  
Programming Intern  
Assistants  
Processing Assistant  
Maintenance Assistant  
Sterile Services Assistant

<https://wustl-csm.symplicity.com/students/index.php?mode=form&id=7bdd09bc9d21e4e8d26692ab8826e7a3&js=jobs&ss=jobs>

For more details on these or other opportunities, visit CAREERlink.

## New Major Track: LA4107 Microbiology

**Core requirements (Bold type indicates core courses not required by the generic biology major)**

Biology: Biol 2960; Biol 2970; **Biol 349\***; **Biol 451 or Biol 4810/4820**

Chemistry: Chem 111A & 112A; Chem 151 & 152; Chem 261 & 262

Mathematics: Math 132; Math 2200 or 3200

Physics: Phys 117 or 197; Phys 118 or 198

*\*Enrollment in Biol 349 is highly recommended at the Sophomore level. Biol 349 is a prerequisite for multiple courses in the Track.*

**Advanced Laboratory Requirement (At least one of the following)**

Biol 3491 Microbiology Laboratory

Biol 3492 Laboratory Experiments with Eukaryotic Microbes

Biol 3493 Bacterial Bioprospecting & Biotechnology

Biol 437 Lab on DNA Manipulation

Biol 4520 Protein Function in Model Cellular Systems

**Advanced Microbiology Electives (At least one of the following)**

Biol 4331 Algae: Cell Biology and Molecular Evolution\* & Biol 4830 Bioenergy\*

Biol 4492 Infectious Disease: History, Pathology & Prevention

Biol 4832 Molecul

ar Mechanisms of Photosynthesis and Respiration

Biol 5426 Infectious Disease Gateway: Translational and Public Health

*\*Both Biol 4331 and Biol 4830 must be taken for Track credit. These half-semester long courses are designed to be taken sequentially in the same semester.*

**Allied Elective Courses (At least one of the following)**

Biol 191 Phage Hunters\* & Biol 192 Phage Bioinformatics\*

Biol 424 Immunology

Chem 453 Bioorganic Chemistry

EPSC 323 Biogeochemistry

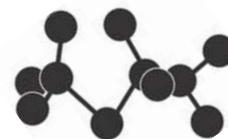
*\*Both Biol 191 and Biol 192 must be taken for Track credit.*

**Biology Major Areas B & C electives**

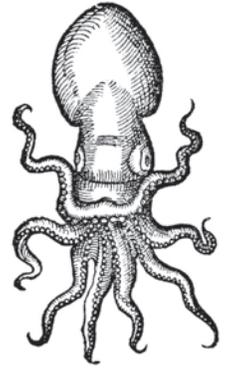
Students should select one course each from biology major areas B and C. Biol 3501

Evolution is highly recommended for Area C.

**Total upper-level (300+) credits earned in major-track biology courses and allied electives must be at least 24.**



# Biology Department Calendar



## Links to General Calendars and Regular Events:

Washington University Record Calendar: <http://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, 4:00pm, Rebstock 322, check the website for topics/schedule: [http://wubio.wustl.edu/events?field\\_event\\_tags\\_tid=18](http://wubio.wustl.edu/events?field_event_tags_tid=18)

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

PMB Super Group: most Wednesdays 12:00-1:00 in McDonnell 412: <http://wubio.wustl.edu/events/pmb-supergroup-seminar-series>

Donald Danforth Plant Science Center (DDPSC), Weekly Seminar Series—check the website for event details and topics: <http://www.danforthcenter.org/events/scientific-seminars>

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

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## April 2017

19th Registration begins for fall 2017

28th Last Day of Classes

## May 2017

1st Undergraduate Research Symposium, 4:00-7:00pm

2nd Spector Prize Ceremony

17th Honors Reception for Students, Mentors and Families

18th Arts & Sciences Recognition Ceremony  
Biology Major Graduates Celebration

19th **COMMENCEMENT**

