• $1000 scholarship
• Registration info
• Declaring Biology as a major
• Transitions in the Biology Department:
  Dr. Ewy will be on Sabbatical Leave Fall 2017 and Dr. Snyder will
  be on leave for the 2017-2018 academic year. Meet Dr. Kate
  Cleary, who will join us as a 1-year Visiting Professor!
• WISER Center News: Travels to Cuba with Ray Bowdish
• New and improved courses for the upcoming term
• Marine Biology for Summer 2017
• Belize over Winterim 2017-2018
• Health Professions
• Work study
• Teaching assistantships – Earn a credit and beef up your résumé
• Revision to the Environmental Science Minor
• Internships
• Research with Profs
• B.S. checklist and B.A. checklist
• Bio. specialization checklist

BOB CERWONKA MEMORIAL SCHOLARSHIP

This year’s recipient of the $1000 Bob Cerwonka Memorial Scholarship is Julie LeVonvne. This scholarship, made possible by a generous donation from department alumnus Mr. Robert E. Wagner ('75) is awarded to a declared Biology major in good academic standing with a demonstrated interest and appreciation of nature and the environment.

Look for an announcement about the next Cerwonka Award in the Fall 2017 newsletter.
REGISTRATION

**Advising begins March 20.** The spring schedule will be available online this day

**Registration begins:**
- **Seniors** – April 12
- **Juniors** – April 13
- **Sophomores** – April 14
- **Freshmen** – April 18-19

Students may adjust their schedules on BearPAWS until midnight, Sunday, August 27th 2017, which is the day before classes begin and before the week of Add/Drop.

Registration instructions can be found at this link:
http://www.potsdam.edu/offices/registrar/registration/index.cfm

Students should consult with their advisor to make sure that they have completed the appropriate prerequisites and cognates before choosing electives. Some course descriptions and B.S. and B.A. checklists are included in this newsletter. View the fall 2017 schedule of classes at:

http://www.potsdam.edu/offices/registrar/schedules/classschedulebydept

DECLARING BIOLOGY AS YOUR MAJOR OR MINOR

Students are strongly encouraged to declare their biology major as early as possible.

Declaring your major or minor early will help you obtain a biology faculty advisor and help you select the best courses toward your degree. It is our wish to match students with advisors with shared interests within life sciences. To declare biology as your major or minor, see **Marta Whalen**, the Department Secretary (Stowell 207a) or **Dr. Jan Trybula**, the Department Chair (Timerman 231). Just fill out one form. The entire process takes less than three-minutes, but it can save you a semester or more by insuring that you receive an advisor who understands our program.

Above: Humpback whales bubble net feeding on our Cape Cod trip – another cool thing about being a bio major! (Photo: Alex Matte)

A group of SUNY Potsdam students ready to enter the Bladen Forest Preserve in southern Belize…
Meet our new faculty member, Dr Kate Cleary; Kate will be coming here for the 2017-18 academic year as a replacement for Dr. Rob Snyder, who will be on sabbatical leave. She introduces herself below!

Although I just moved to the North Country last summer, I am actually a native New Yorker! I was born in NYC, and grew up in Connecticut. I traveled south to Virginia to get my B.Sc. in Biology at the University of Richmond, and later moved out west to enroll in the Peace Corps Masters Program at Colorado State University. After I completed my course work, I headed to Guatemala to serve as a Peace Corps volunteer in the high mountain city of Totonicapán. During my years there, I had many wonderful experiences, including teaching environmental education in local schools and working as the resident biologist of a small park, El Aprisco. My colleagues and I at El Aprisco carried out the first-ever study of the distribution, abundance, and habitat requirements of the bird community of the Totonicapán mountains. I used this data to write my MSc. thesis, and in collaboration with local government we also published a complete guide to the region’s birds, in English, Spanish, and Maya Q’iche.

One of the most inspiring experiences I had in Guatemala was watching the Maya Q’iche people use centuries-old practices to manage their lands for both agriculture and biodiversity. In 2010 I enrolled in a PhD program that would allow me to continue researching ways to sustain biodiversity in agricultural landscapes. My PhD was part of a joint program between the University of Idaho and CATIE, an agricultural research institute in Costa Rica. I worked with an interdisciplinary team of students and faculty from ecology, agronomy, and sociology to develop a project to study the impacts of agricultural intensification on social and ecological systems in a biological corridor in Costa Rica. My piece of the project was to measure how the conversion of forest, pasture, and crops to intensive plantation pineapple was affecting local bat populations. Bats are amazing animals, and provide essential ecosystem services like insect control, crop pollination, and seed dispersal. My research used a combination of field work and genetic analyses to reveal that pineapple plantations are causing a decrease in insectivorous bat populations, and making it more difficult for small frugivorous bats to disperse through the landscape. But, small changes in agricultural practice could mitigate these effects.

I’m very exciting to join SUNY Potsdam team, and I hope to continue researching ideas about agriculture and biodiversity here in the North Country. When I’m not teaching, I enjoy spending time with my 18-month-old twins and my husband at our house in Canton. I also love running, hiking, backpacking, identifying plants, reading novels, improving my Spanish, gardening, and travel, and as soon as my kids can keep up, I’m planning to do all of those things again! See More Pictures from Kate’s Research on the next page!
Dr Cleary with a fishing bat

A pair of nectivorous bats on the wing

A pineapple plantation in Costa Rica

Collecting bird data in Costa Rica

Ectophylla alba, the Honduran white bat
From Ray Bowdish: “When I graduated from Potsdam, in 1987, I never thought I would be back. After earning a Master’s in Entomology from the University of Maine, I discovered my passion was growing plants “sustainably”. I returned to the North Country in 1993 and began farming with sustainability in mind. My wife Megan (88’) and I own Never Tire Farm, a commercial greenhouse operation and organic gardens.

Fast-forward 24 years. I am finally able to put my horticultural knowledge to the test as the department’s University Instructional Specialist, directing the activities and programs in the new Wagner Institute for Sustainability and Ecological Research (WISER) Center. Please take a moment to look over the courses I teach and the opportunities for internships and research in the WISER Center. See the description for the Fall 2017 course BIOL 3014 Sustainable Agriculture on page 7!

Biology will be opening the WISER Center this spring or summer. It promises to be a hub of activity, supporting campus sustainability, biology courses and a variety of applied learning opportunities. The Center will feature a student learning space with new technology resources that will facilitate a wide variety of teaching and outreach missions. To support the mission and begin developing the WISER Center Coordinator and the Campus Sustainability Coordinator won a $150,000 grant for the development and implementation of distributed agricultural solutions. These resources will be linked to ongoing classes and programs.”

The First SUNY Course in Agroecology…Taught at the Universidad de Cienfuegos in Cuba!

Eight Biology students joined Ray Bowdish in the Agroecology of Cuba travel course. They were travelling with Drs. Brent Crow and Chris Torres and seven Community Health students in the Public Health of Cuba companion course. They were in Cienfuegos and outlining areas from 5 – 20 January 5 2017. Some of the sites they visited included the beautiful Rancha Luna beach, the historic town of Trinidad, Casa De La Santander (a sugar mill museum), a private Farm “El Mango”, the Pedregal biodiversity research farm, and the National Aviary Reserve at Laguna Guanaroca, as well as national historic sites like the Ernesto “Che” Guevara memorial and the Armored Train Museum in Santa Clara. All of the locations they visited helped students connect the history and culture of Cuba to modern day agricultural and public health issues.

“For me, the greatest part of the trip was watching attitudes and opinions change for students as they experienced how the Cuban people face the problems that the rest of the world are facing or will soon face. We learned that the Cuban people and their Caribbean neighbors are all feeling the full effects of climate change as droughts and extreme weather continue to test the resolve of Cubans who are dedicated to improving food security and public health.”

Here I am in on a farm in Cuba. Note the farmer is trying to keep me from losing fingers….silly isn’t it?
Bert Correa, Julie LeVonne and Sidney LaPan are heading off to do some birding in Laguna Guanaroca.

Potsdam students, alumni and faculty join gather with Universidad de Cienfuegos faculty for a farewell picture before celebrating a successful program on a Caribbean beach!
NEW AND IMPROVED COURSES

BIOL 483 – Current Topics: Metabolic Physiology - SI
Dr. Sarah Sirsat
Wednesdays 2:00 – 4:30 pm

“For such a large number of problems there will be some animal of choice, or a few such animals, on which it can be most conveniently studied.” – August Krogh

This interactive, discussion-based course will discuss fundamentals of metabolism at the physiological, environmental, and evolutionary levels. As Krogh so succinctly stated, animals display dynamic ranges of metabolism and a diverse spectrum of phenotypes to cope with natural challenges in their environments. During this course, we will explore methodologies for measuring metabolic rates as well as how metabolism at the whole organism level (primarily animals) has adapted to deal with short and long-term environmental and other challenges/signals such as high altitude, low oxygen, temperature extremes, body size differences, biorhythms and sleep, extended exercise, hibernation and pheromones. Extensive time will be spent in the scientific literature and there will be at least two large writing assignments.

Note: Only one Current Topics Section will be offered in Fall 2017!

BIOL 304 – Sustainable Agriculture (3 credits)
Ray Bowdish
MWF 1-00 – 1:50 Stowell 213
Prerequisites: BIOL - 100, 125, 151 OR 152

This course is offered each fall. Lecture and active learning activities are designed to investigate topics vital to understanding agricultural sustainability, including issues of: land use, biological diversity, pest control, labor and human rights and economic viability. Field trips to local farms will serve as examples of the various local agroecosystems. The class will document the differences between these farms and analyze them for their relative sustainability. Class members will also grow crops themselves, to investigate tools for sustainability assessment

Students from the Sustainable Agriculture 304 course grew microgreens for PACES in Fall 16’.

View the Fall 2017 class schedule at:
http://www.potsdam.edu/offices/registrar/schedules/classschedulebydept
BIOL 310 – Marine Biology  
**Dr. Walter J. Conley**  
Tu/Th 11:00 – 12:15

Offered for the second time on our home campus. Marine Biology examines the diversity and ecology of organisms that reside in our oceans, bays, and estuaries. We will examine physiological and morphological adaptations of marine life, including the specific adaptations and ecological interactions among organisms that inhabit the plankton, nekton, and benthos. We will also explore marine resources and the impact of humans on the oceans. Please be aware that this is not a laboratory course. Students exploring careers in the marine field should elect the summer field course at the Gulf Coast Research Laboratory.

BIOL 334 – Biology of Woody Plants  
**Dr. Johnson**

Meeting Times: Lecture MW 11:00-11:50; Lab 2:00- 5:00 Tuesdays

**Course Description:**
This course is about trees and shrubs. It emphasizes identification, ecological and silvicultural characteristics of native and introduced woody plants (trees, shrubs and vines). Initial lectures will deal with basic introductory botany, including tissue types and plant organs, plant reproduction and the origins and taxonomy of major plant groups. However, the primary focus of the course concerns woody plants; later lectures will cover the natural history, distribution, silvics, economic uses and ecology of selected species, the origin, physics, chemistry, morphology and physiology of trees and wood and topics in forest ecology and management. Laboratory exercises and field trips will focus on learning to identify about 100 species of woody plants (plus a few important ferns and herbaceous species) using leaves, bark, fruits and winter twigs. Field trips will include visits to diverse natural habitat types in the area, as well as the Botanical Gardens in Montreal and some private lands. Students may assist in development of an arboretum and projects to map and label specimen trees and shrubs on campus. Evaluations will be based on class participation, three lecture exams, group or individual projects including plant collections, and weekly field and lab quizzes.
BIOL 401 – Exercise Physiology – Fall and **SUMMER COURSE** – 100% online w/ lab
*Dr. Schreer*

Offered both this summer and this fall…it's the same course.
Summer: May 25 - June 29, 100% online with lab
Fall: Lecture: Tu,Th 9:30 – 10:45, Lab: Monday 2:00 – 4:50

OUCH MY LEGS HURT!!! Let’s figure out why. Exercise Physiology, Biol 401, will be offered this summer AND this fall by Dr. Schreer. Just to be clear, this is NOT a 2-term course; just the same course being offered 2 terms in a row. The summer course is 100% online and includes an online lab. The fall course will be a typical on-campus course with lecture and lab. Both courses fulfill the biology Physiology requirement. Any questions, please contact Dr. Schreer at schreejf@potsdam.edu.

BIOL 403 – Human Anatomy and Physiology I
*Dr. Schreer*

Most graduate programs in the health fields require a two-term, upper division, human anatomy and physiology course with labs. Well here it is! **And as a bonus, the second term of this course counts as the physiology requirement for the bio major. The first term counts as an elective and is a requirement to get into the second term.** If you already have the phys requirement, you get 8 credits of biology electives from these two courses. This fall I’m offering the first term of this course which includes basic orientation of the human body, chemistry of living cells, cells, tissues, integumentary system, skeletal system, and nervous system. The second term in the spring (Biol 404) will cover the muscular system, cardiovascular system, lymph system, immune system, respiratory system, digestive system, nutrition, metabolism, temperature regulation, urinary system, osmotic balance, and reproductive system. In the lab, we will alternate between detailed dissections of the cat and physiological experiments related to the system covered in the dissection. This course will be very demanding, but we’ll all learn a ton and you’ll be thanking me when you take your gross anatomy course in graduate school. And by the way, gross anatomy is a serious weed-out course so the more prepared you are ahead of time, the better.

**TA for Biol 403 – Human Anatomy and Physiology 1**

Looking for a quick one or two upper division credits and something to improve your résumé? I’m looking for 3 TAs for A&P 1. And if things go well, A&P 2 in the spring term. If you are currently taking A&P and doing well…especially in the lab, and interested in being exposed to the best way to learn…that is, to teach, contact me at schreejf@potsdam.edu or stop by my office T,Th 12:30-1:00 or any time I’m in.
What Is Ecology?
Ecology is the study of the relationships between living organisms, including humans, and their physical environment; it seeks to understand the vital connections between plants and animals and the world around them. Ecologists study these relationships among organisms and habitats of many different sizes, ranging from the study of microscopic bacteria growing in a fish tank, to the complex interactions between the thousands of plant and animal species inhabiting a tropical rainforest.

In this class, we will learn about ecology through classroom lectures on topics ranging from why some species are found in deserts and others in oceans, to how species interact in communities through predation, competition, and mutualisms, to how we can best protect the planet’s diverse ecosystems.

In the lab sections, we will combine classroom learning with field trips where students will gain hands-on experience in collecting ecological data on water quality, forest communities, and patterns of biodiversity.

**Catalog description:** BIOL 300 – Ecology (3-4) Physical environment of terrestrial and freshwater eco-systems, interspecific and intraspecific relationships, speciation, demography, growth and regulation of populations, energy flow, community organization and development.

**Prerequisites:** BIOL 151 or 125, and 152.

**Lab is optional.** Gen Ed: WI (writing intensive) – only the lab fulfills this requirement, the class is not WI.

*New students (Fall 2016) will have the option to take either Ecology (BIOL 300 lab) or Genetics (BIOL 311) lab. Students should consult with their Biology advisor to determine which option is best. Students can take both labs, with the additional lab counted as Biology Elective credit. Current students can request this option; please contact your advisor.*

**ECOLOGY TAs needed!!!** Please see Dr. Johnson, Dr. Cleary or Dr. Snyder if you are interested in being a TA for Ecology labs. **Valid Driver’s License required!**
BIOL 407 – Cell Physiology
Dr. Laura Rhoads
Lecture Tuesday/Thursday 9:30 – 10:45   Lab Tuesday 1:00 – 3:50 pm

Cell physiology is the study of living organisms at the cellular level. We will take a journey through cells to examine both structure and function. The accompanying lab will include protein quantitation and electrophoresis, organelle isolation and characterization, and work with animal, plant and protist cells. Students will perform an independent project based upon the techniques learned throughout the course. The lecture includes short writing assignments and exams that have a research focus. This course counts as a physiology requirement; if you are looking for an elective lecture and have already completed one of the physiology courses, please see me about an override to remove the lab requirement.

Please contact Dr. Rhoads (rholdsls@potsdam.edu) if you are interested in being a TA for Cell Physiology.

BIOL 455 – Molecular Genetics
Dr. Jan Trybula
MWF 9:00 – 9:50

Molecular Genetics is the study of genes and gene regulation. Every published study gives us a better clue to the processes of replication, transcription, translation, and gene control. And every study shows it is more complex than we thought! What regulates DNA replication and how often a cell divides? How are genes turned on and off? How does a cell regulate the amount of protein it produces? We’ll also explore writing in biology in the form of review-style term papers about molecular topics. This course counts as writing intensive (WI). The prerequisite is BIOL 311 or permission of the instructor.

**BIOL 320 – Microbiology**  
Dr. Gordon Plague

Microbes may be small, but they rule the world (and they’re phenomenally interesting from a biological perspective). We’ll meet MWF at 10 am for lectures, and W afternoon for lab.

**Call for Teaching Assistantships in Microbiology (BIOL 320).**

Please contact Dr. Plague (plaguegr@potsdam.edu) if you are interested in being a Microbiology TA. The lab will meet on Wednesday afternoon.

**BIOL 375 – Behavioral Evolution**  
Dr. William Romey  
MWF 11:00 – 11:50 Lecture; Wed 2:00 - 4:50 Lab

This is a course in animal behavior. We look at evolutionary explanations and mechanisms (senses, hormones, neurons) for why animals behave the way they do. We take a comparative approach and cover the behavior of: birds, mammals, insects, fish, and even humans. Some of the general topics include: foraging, predator avoidance, mating, communication, and fighting. In the laboratory part of the course, we work with animals in the field and lab. Students also get experience in doing research by doing an independent project.

**BIOL 312 - Insect Ecology**  
Dr. William Romey  
MWF 9:00 – 9:50 Lecture; Thurs 2:00 – 4:50 Lab

Have a fondness for insects, or want to learn a lot about the biology of the most diverse, and arguably the most important, group of animals on the planet? Whatever your career plans (genetics, ecology, behavior, medicine, teacher, conservation biologist) this course will enhance it by an understanding of biology and insects. We will cover the topics of: behavior, ecology, diversity, evolution, and physiology. In the laboratory for this course, students will prepare an insect collection, collect data in the field, and do behavioral studies in the lab. Several field trips will get us to the Adirondacks and surrounding areas to collect. At Halloween, we usually prepare an insect trick-or-treat banquet for the college. Students also get experience in doing research by doing an independent project of their choosing.
BIOL 330 – Natural History of the Lower Vertebrates  
*Dr. Johnson*

Meeting Times: Lecture MWF 9:00-9:50; Lab 2:00- 5:00 Wednesdays  
Also known as “Ichs and Herps”!

Natural History of Lower Vertebrates will return after a one year absence. This course is designed to be a sweeping introduction to protochordates, fish, amphibians, and reptiles (i.e. the “lower” vertebrates). I hope to convince you that the term “lower” in the course title does not imply these creatures are any less evolved than so-called “higher” vertebrates (birds and mammals). This course will mostly devote itself to fish and herps (a useful term to mean amphibians and reptiles), including overviews of their evolution, systematics, anatomy, physiology, ecology, behavior and conservation. In addition to the “facts” about vertebrates, you will be introduced to important ideas—especially in areas of evolutionary biology and ecology—that forms the basis of our conceptual understanding of this group of animals. The general approach will be phylogenetic, tracing each group of vertebrates from its origins, discussing the major changes associated with its evolution, and reviewing selected elements of their current diversity and biology. There will be at least 3 field trips plus a potential trip to the Bronx Zoo in New York City.

Note: I am looking for a Teaching Assistant for this course to help out with the labs and to be a driver for field trips!

Did you know that the Biology Department has a Facebook page? Please connect with us online through Facebook. You will find department announcements as well as information about internships, department seminars, and interesting science news.

[https://www.facebook.com/SunyPotsdamBiology/](https://www.facebook.com/SunyPotsdamBiology/)
SUMMER TRAVEL COURSE

Marine Biology for Summer 2017

Join the adventure! Several SUNY Potsdam students have been taking biology elective credits at our affiliate institution, the Gulf Coast Research Laboratory (GCRL) in Ocean Springs Mississippi as part of our Marine Biology Program. Courses include Marine Biology, Marine Mammals, Shark Biology, Ichthyology, and a variety of other life science courses with a marine focus. There are also research options available. Classes fill fast so please be attentive to opening dates if interested. For complete details, please visit the GCRL website (http://www.usm.edu/gcrl/) and under “Academics” click on “GCRL Summer Field Program.” Interested students should also contact our GCRL advisor, Dr. Conley.

Marine Biology class of 2014 on Santa Rosa Island, Pensacola Florida; including Potsdam students Ceira Dawson and Matt Nobles.

Matt Nobles and Ceira Dawson with their Atlantic Sharpnose shark (Rhizoprionodon terraenova) - catch and release.
BIOL 395 – Tropical Ecology and Conservation - Belize

Winterim 2017 – 2018

Dr. Glenn Johnson and Scott Schlueter (US Fish and Wildlife Service)

Spend the first days of the new year in a remote tropical rain forest in Belize.

Consider a winterim travel course leaving snowy Potsdam on December 27 and returning on January 9. See Dr. Johnson (johnsong@potsdam.edu; x2710. 231 Timerman) for details. Note: Winterim has gone to a tuition-based semester, however students taking travel courses, such as this one, do not have to pay tuition...you do, however, need to register during this Fall and attend 3-4 meetings in late November and December.

Over this two week course to Belize students will visit unique biological communities including tropical hardwood rain forests, mountain pinelands, mangroves, coral reefs and several freshwater wetland communities such as freshwater lagoons, tropical streams and rivers and deep water sloughs. Participants will visit Mayan ruins and see first-hand the ecological problems that beset this part of the country, including water diversion for agriculture, intense urbanization, and the introduction of numerous exotic plants and animals, and will meet with scientists and agency officials charged with management responsibilities for this unique region. Prerequisites: BIOL 300 or permission of instructor. Contact Dr. Johnson for details.
Dr. Rob Snyder will be on Sabbatical Leave for the 2017-2018 Academic Year

I will be on sabbatical for the 2017/2018 academic year. During that time, I will be traveling in South America exploring the temperate ecosystems of Patagonia. Why Patagonia? I hope to discovery groups of divergent insects that share common life-history adaptations to temperate climates (i.e. adaptations that allow synchronization of generations). Such groups are the focus of my research in temperate North America, and should be found in temperate South America, but the natural history of these groups has been less studied in this remote region. Documenting the natural history of these groups will inform the utility of the Host-plant phenology hypothesis, used to explain patterns of diversification in some North American species complexes.

Note to Advisees: Please prepare your questions for the upcoming academic year, for our spring meeting, as I won't be around next year. If you have any issues next year, please contact Dr. Trybula for guidance about your temporary advisor.

Health Professions

Interested in pursuing a career in a Health Profession? Enroll in the Health Professions Moodle course. There you will find information on all kinds of health-related programs including: MD, DO, PA, PT, Vet, Dental, OT, and Optometry, as well as medical related research programs. You can self-enroll and will receive periodic notices of events both on and off campus that pertain to various health-related careers. Talk to Profs Schreer, Trybula, or Ewy for more information.

Pre-health club

There is a student-run pre-health club on campus. This is another valuable resource for information about various health professional graduate programs. You can talk to students who have taken exams such as the MCAT, GRE, and other exams, as well as what out of class experiences you should be doing to help you get into the program you want. The current president is Lindy Chapman.
WORK STUDY

If you are interested in and eligible for the federal work study program please see either Rachel Wallace (wallacrm@potsdam.edu, Ph 267-4814), or the department secretary, Marta Whalen (whalenmm@potsdam.edu, Ph 267-2264). Responsibilities include laboratory setup and cleanup, plant and animal care and a variety of secretarial work.

TEACHING ASSISTANTSHIPS

See the world from our side. Most professors are looking for motivated students to be teacher assistants for their courses. This is a great way to get some teaching experience and an opportunity to work more closely with one of your profs. This also counts as a 1 credit upper division bio course. Contact your profs before the end of the semester if you are interested and see some possibilities below.

Teaching Assistant positions in General Biology 1 labs
If you are interested in becoming a Teaching A in the General Biology I labs (BIOL 151) please contact me before the end of the fall semester. Basic requirements: 1) successful completion of Biology I lecture and lab courses (3.0 or better) and 2) a willingness to commit at least 2 hours of time outside your regularly scheduled lab section each week.

As a lab TA you will be helping to prepare and teach the General Biology I labs. This is a great way to reinforce your knowledge and to learn how things are done “behind the scenes” of lab. Upon successful completion of a TA position, students earn 1 credit and no monetary compensation.

Preparing for MCATs or another exam that will test your Biology knowledge? The best way to really know Biology is to teach it! The Department is looking for TAs to help with Biology 151 recitation. This is an excellent way to review your Biology and help out the Intro class. Please see Prof Plague for more information.

Please see Dr. Rhoads if interested in being a TA for BIOL 407 Cell Physiology

Call for Teaching Assistantships in Microbiology (BIOL 320).

Please contact Dr. Plague (plaguegr@potsdam.edu) if you are interested in being a Microbiology TA. The lab will meet on Wednesday afternoon.

3-4 TAs needed for Bio 300 labs (Ecology) - Contact Drs Cleary, Johnson or Snyder.

Two assistants needed for Biological Concepts Lab (BIOL 125) - please contact Dr. Conley

“When you teach, you gain much more understanding of the subject at hand.”

This is a quote from an anonymous TA (not pictured).
**Revision to Environmental Science Minor!!**

Beginning Fall 2015, the Environmental Science Minor has been revised in an effort to shift the focus of the Environmental Science Minor to the natural sciences in order to give students the knowledge and technical skills they need to get jobs in the environmental science sector. The number of credits is largely unchanged and the number of uncounted prerequisite courses have been greatly decreased. Most scientists who focus on environmental issues end up functioning primarily as either biologists (plants, animals, and ecosystems) or geologists (water, soil, and pollution); a minor that gives them interdisciplinary training will improve their marketability. Common tasks like wetland delineation can be done more effectively by a biologist if they have had a few classes on soil and water; geologists can do it more effectively if they have had formal coursework on ecology and plant biology. See it below and go see Dr. Johnson for more info!

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<th>Revised Environmental Science Minor (24 credits)</th>
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<td><strong>Level</strong></td>
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<td>Required courses: 6 credits</td>
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<td>Prerequisite courses: 3-4 credits for BIOL/GEOL majors, 7 credits for others</td>
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<td>Advanced Courses: 14 credits for BIOL/GEOL majors, 11 credits for all others, Advanced courses must be taken outside of the student's major</td>
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**INTERNSHIPS**

**Biology Department Applied Learning Opportunities**

**Care and Handling of Display Animals in the Biology Department at SUNY Potsdam**
- Help care for animals (reptiles and fish) in the department
- Create learning materials to help others discover the animals in the department
- Report your work to the campus at the Learning and Research Fair
- See Dr. Johnson or Rachel Wallace for more information

**Wagner Institute for Sustainability and Agricultural Research (WISER) Internship, in the Biology Department at SUNY Potsdam**
You get to:
- Manage the Healthy Plant Initiative (HPI) program
- Grow microgreens for PACES
- Help develop our campus composting initiative
- Learn horticulture techniques
- Practice Integrated Pest Management
- Report your achievements to the campus at the Learning and Research Fair

**Biology Technician Internship Techniques in the Biology Department at SUNY Potsdam**
You get to:
- Help create and maintain chemical inventory lists
- Learn to prepare lab materials for biology labs
- Develop skills in lab instrument care and maintenance
- Maintain the lab materials inventory
- Learn various lab protocols and skills for working in a biology research lab
- Get trained in chemical safety.

**Technologies in Teaching**
- Work as a TA in the General Biology Labs (credit only)
- Learn how to deploy cutting edge technologies in a classroom laboratory setting
- Create learning materials to help students learn how to use technologies
- Aid in the development of Unity software to improve its functionality for teaching.
- Report your work to the campus at the Learning and Research Fair

**Off Campus Internship Opportunity**

*Study Horticulture from Never Tire Farm*

Each spring, Never Tire Farm (Lisbon, NY) seeks motivated students of junior status or higher, for a unique and valuable experience, working in a modern greenhouse operation. Students that qualify for the internship will be actively learning about all aspects of greenhouse production including: sowing, transplanting, fertilizing, watering and propagation of various annuals, perennials, vegetables and herbs. Interns learn about the business of growing plants and will be exposed to maintenance and labor issues facing modern growers. Qualifying interns should have experience as a WISER intern and be trained in Integrated Pest Management (IPM) techniques and participate in the Never Tire Farm’s biological control program.
I am participating in a turtle project that has begun several years ago, where students and I are surveying local streams for the presence of wood turtles, considered a Species of Greatest Conservation Need in New York. This project is regional in scope and is being pursued by conservation departments in most northeastern states. In the meantime, we are busy beginning surveys in streams and rivers throughout the region. Wood turtles are most readily found in Fall (late September – mid November) and again in late March to early May, when they are still active and moving about in clear streams that course through woodlands and meadows. Between those dates in winter, they are hibernating in the stream banks and in beaver lodges, while in summer they spend most of their time on land, foraging for invertebrates they love to eat. Five students participated last Fall and I am hopeful a similar number will be interested this Spring...so, if you like to muck about in wetlands and cruise up and down beautiful creeks and streams, please stop by and see me or email (johnsong@potsdam.edu).

A second, somewhat related project involves a region-wide survey for Blanding’s turtles, a Threatened Species over much of its range. This project is part of a multi-state State Wildlife Grant and we will be cooperating with conservation biologists in Pennsylvania, Massachusetts, New Hampshire and Maine. Our portion involves conducting rapid assessments of Blanding’s turtle populations across the North Country, Saratoga and Dutchess Counties, establishing several long-term monitoring sites, creating artificial nest sites for this species and setting up a Turtle Crossing sign network within parts of New York. If interested in learning more, please contact Dr. Johnson.
Dr. Laura Rhoads

As a cell biologist, I examine the behaviors of cells in response to their environment. The metabolic and signaling pathways of cells change in response to environmental toxicants, and I am interested in learning more about how these toxicants influence cells. I am looking for a student interested in working with *Tetrahymena* (pictured), single-celled free-swimming protists that can be cultured and manipulated in the lab. You will learn how to cultivate these cells in the lab, expose them to various conditions, and use both microscopic and biochemical techniques to study the effects of toxicants on the protists. Ideally the student will have had cell physiology and/or genetics. Please contact me by email (rhoadsls@potsdam.edu) if you are interested, and provide me a list of courses you have taken and what your interests are.

Dt. Robert Ewy - Research experience on environmental effects on plants

I have a number of research projects ranging from sustainable energy (biofuels) to co-evolution of proteins. You can learn a number of different techniques, including molecular biology processes, insect identification, analysis of "non-traditional" data sets, protein isolation and identification, and pomegranate orchard management. Yes, we have several baby pomegranate trees that need tending as well as other plants that will be grown in the new WISER Center greenhouses. If you are at all interested in graduate school, research experience during your undergraduate education is becoming a must. But the most important point is that research is fun! I work with all levels of students, from first year students to seniors. The only requirements you need are curiosity and an appreciation of plants.

*North Country's first Pomegranate Orchard*

I am particularly looking for someone to make growth measurements this fall/next spring as I am comparing yearly growth rates of the various willow varieties. The willows are beginning their ninth year of growth after planting. You can earn research credit via Biology 485 or an internship.

**I will be on Sabbatical in the fall**, so I will be off campus at times, but not for long stretches of time. I am still interested in working with students, so if you are interested, stop by my office so we can discuss possible projects.
Dr. Jessica Rogers  
Office: 307A Satterlee Hall; Office phone: x5255; E-mail: rogersje@potsdam.edu

Project 1: Monitoring Deforestation in Central African Protected Areas

Central Africa has almost 200 different protected areas (National Parks, Forest Reserves, etc.) in 6 countries that make up the Congo Basin Forest. One of the goals of protected areas is to keep that forested area safe for the future. However, not all areas are treated equally – deforestation can occur both inside and outside a protected area. Using GIS (Geographic Information Systems) we look at deforestation around protected areas. There are a lot of different possible causes for this deforestation, many of which can be examined using remote sensing (satellite images, aerial photography) and GIS (analysis, mapping, etc.). Students working with Dr. Rogers on this project can look at a lot of different aspects of protected areas, from deforestation, human settlement, road access, etc.

Applications to work on this project are always accepted – research for various credit options can be set up during the spring and fall semesters.

Project 2: Invasive Species in the North Country

Purple Loosestrife (Lythrum salicaria) is an invasive species that has infested much of the North Country and the St. Lawrence River valley. There is a field research component to this project, and applications for summer research will be accepted during the spring 2017 semester (likely late March depending on funding availability). Dr. Rogers and a research assistant will likely spend 3-4 weeks during the summer of 2017 surveying the major County Routes 68 and 37 to document the extent of purple loosestrife using GPS. During the spring and fall semesters following this research, analysis will be done using GIS techniques to map the full extent and intensity of the invasion of Purple Loosestrife.

Dr. Jan Trybula – Molecular Ecotoxicology

Since my sabbatical, my research has gone through a reset. I am leaving behind antibiotic resistance studies and going back to my true interest – molecular ecotoxicology. That is a fancy way of saying using molecular techniques of DNA or protein genetics to study how pollutants in the environment disrupt the genetics of various organisms. Of course, my species of interest are dragonflies, but I’m willing and able to work on just about anything. With my reset, I’ll slowly be trying to find students interested in the interesting combination of ecology and population genetics. If you want to know more, please stop by my office!
Fall 2017: I will be teaching Behavioral Evolution (= animal behavior) and Insect Ecology this semester. Come see me (or read courses section of this newsletter) if you want to know more about these courses.

If you are interested in getting some experience doing some independent research you can go two ways. First, you could take one of my two courses this semester (Behavior or Insect Ecology). Both of these courses involve an independent project in the laboratory. If you want a semester-long experience I am willing to mentor undergraduate research in animal behavior or ecology as a Biol 485 course. Come by my office (204 Stowell) during the office hours posted on my door and I can talk about opportunities with you. My students and I typically study grouping behavior in animals (such as fish schools and insect swarms). Some of the tools we use include: video analysis, robots, simulation models, and recently a 3-D printer.

Check out my website for a description of previous student projects done in the Romey Lab: www2.potsdam.edu/romeywl
### REQUIRED BIOLOGY COURSES

(23 hours)

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### REQUIRED CHEMISTRY COURSES

(12 hours)

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### REQUIRED PHYSICS COURSES

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### REQUIRED MATH COURSES

(7-8 hours) (Two Semesters)

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### BIOLOGY ELECTIVES

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CHEM 342 (Organic Chemistry II) is highly recommended for Biology Majors seeking careers in health sciences, molecular biology, or physiology.

MATH 151 and 152 (Calculus I and II) are co requisites for the University Physics sequence.

* Ecology is only offered in the Fall semester.
* Genetics is only offered in the Spring semester.

Must have a 2.0 GPA or higher in all major courses.
### Requirements for Graduation

**Biology (BA)**

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### BIOLOGY ELECTIVES

(14 hours)

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* Ecology is only offered in the Fall semester.

* Genetics is only offered in the Spring semester.

Must have a 2.0 GPA or higher in all major courses.
**BIOLOGY SPECIALIZATION REQUIREMENTS**

**Biology Required Courses (13-15 hours)**

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College requirements are 16 hours in the Specialization. This does not include the hours for Biology 125 (or equivalent). All electives after the first-year sequence must be 300 or higher.