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BOB CERWONKA MEMORIAL SCHOLARSHIP

This year’s recipient of the $1000 Bob Cerwonka Memorial Scholarship is Sarah Simmons. 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 2019 newsletter.
REGISTRATION

**Advising begins March 18.** The spring schedule will be available online this day. **Registration begins:**
- **Seniors** – April 9
- **Juniors** – April 10
- **Sophomores** – April 11
- **Freshmen** – April 16-17

Students may adjust their schedules on BearPAWS until midnight, Sunday, August 25th 2019, 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](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 2019 class schedule at:**
[http://www.potsdam.edu/offices/registrar/schedules/classschedulebydept](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 207B) or Dr. Jan Trybula, the Department Chair (Stowell 205A). To declare Environmental Science as a minor, see Dr. Glenn Johnson. 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)
TRANSITIONS – NEW DEVELOPMENTS IN THE BIOLOGY DEPARTMENT

Biology 151 and 152 changes

Biology 151 and 152 have traded semesters! Biology 152 will now be taught in the fall and Biology 151 in the spring semester. But not to worry, this fall there will be a "trailing" section of Biology 151 lecture (with no accompanying lab). Biology 151 will be taught MWF at 9:00-9:50. Biology 152 will be taught MWF at 10:00-10:50.

From Bill Romey!

I will be retiring this coming May after teaching the last 19 years at SUNY Potsdam (30 years of full-time teaching all-together). It’s been great teaching and doing research here at Potsdam and getting to know many of you. If you never took a course with me, where were you? I taught Biol 152, Behavioral Evolution, Insect Ecology, Aquatic Ecology, Invertebrate Ecology, and Winter Ecology. I’ve always had special fun taking students out in the field, such as: to the Adirondacks, into the local rivers, and down to Cape Cod. Some of the other biology faculty plan on taking over some of these courses and it is hoped that the College will hire a new faculty next year to represent some of these specialty biology areas that make the SUNY Potsdam Biology Department unique. One of my goals at SUNY Potsdam, when I was hired, was to increase student involvement in undergraduate research. I started the biology seminar series, the end-of-a-semester student research symposium (PBS), the faculty research bulletin board, and developed a course called “Guided Research in Biology”. I obtained grants to support student research over the summer, attend conferences, and published primary papers with many of my students. Hopefully you will all get a chance to get some research experience with your professors while at Potsdam. Get out there and ask!

My plans for retirement are to stay in Potsdam and keep up my research activities but also have the flexibility to do some travelling. I'll be keeping an emeritus office in Stowell and continue to do more work with whirligig beetle grouping and surveys of native bees. Hopefully I'll see you at the seminar series or over at the Maxcy Hall!

The Dean of Arts and Science, Dr. Steve Marqusse, will retire this summer and we wish him well as he served us well! Steve served as Dean or Associate Dean for 18 years and has been a member of the Anthropology faculty for 43 years! Our new A&S Dean joining us in the Fall will be Dr. Gretchen Galbraith, who joins us from her current position as Associate Dean for Faculty, Resources, and Scheduling at Grand Valley State University in Allendale, Michigan. Please welcome her when you encounter her in the Fall.

Dr. Conley will continue to serve as Interim Dean for the School of Education and Professional Studies until the end of this semester BUT he will be back in the Biology Department (where he belongs!) and will be teaching courses this coming Fall. Dr. Plague will return from his sabbatical leave and we look forward to hearing all about his time away!
WISER Center News

The Wagner Institute for Sustainability and Ecological Research (WISER) Center is located at 205 Stowell Hall in the Biology Department. The Center’s classroom and greenhouses support activities and demonstrations for classes, labs, courses and programs in Biology, Chemistry, Anthropology, Education and Public Health and Human Performance.

The center’s staff includes Coordinator, Ray Bowdish and a group of 12-16 volunteers, interns and research students.

The WISER Staff:
- grows food in the PACES-CSA program
- educates plant owners to help green the campus through the Health Plant Initiative,
- fights hunger with food from the WISER Greenhouses and Cecilie Garden
- improves physical and mental wellness with Yoga in the Greenhouse and the Pet Plants Initiative
- improves education, by using Tower Gardens and the curriculum from the Green Bronx Machine to support teachers in our North Country Food and Nutritional Education program.

Even if you aren’t a member of our WISER staff we hope you will visit the public greenhouse, accessed via Stowell 205. Feel free to ask questions of staff members or else learn more by emailing wiser@potsdam.edu or contacting Ray Bowdish via email, bowdisrp@potsdam.edu.

Please consider becoming a WISER volunteer, intern or researcher for the Spring semester.*

*Positions are granted on a semester-by-semester basis. A total of 4 volunteers, 4 interns and 2 research positions are available in the WISER Staff. They are filled according to program needs and the strength of applications for positions. Please see Ray Bowdish, Timerman 232 or email wiser@potsdam.edu for more information.
NEW AND IMPROVED COURSES

Three Current Topics Offerings for Fall!!

BIOL 483 – Current Topics: Metabolic Physiology - SI
Dr. Sarah Sirsat
MWF 12:00 – 12:50

You’ve learned about the reactions in chemistry: glycolysis, the transport chain, and the Kreb’s cycle. You’ve learned about the organs of the body that use those reactions: the liver, skeletal muscle, the brain….now is your chance to put the biology and chemistry together and learn about metabolism: the set of life sustaining reactions in organisms. This course will discuss fundamentals of metabolism at the physiological, environmental, and evolutionary levels. During this course, we will explore the biochemistry behind normal physiological processes as well as how animal metabolism 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. Expect to spend time in the literature and to improve your speaking and presenting skills.

BIOL 483 – Current Topics: Animal Behavior - SI
Dr. Gordon Plague
M 2:00 – 4:50 pm

In this Speaking Intensive course, we will explore evolutionary explanations and mechanisms (senses, hormones, neurons) for why animals behave the way they do. We will take a comparative approach and cover the behavior of birds, insects, fish, and mammals (including humans). Some of the general topics will include territoriality, mating, predator avoidance, communication, and fighting.

BIOL 483 – Current Topics: Biology of Cancer - SI
Dr. Laura Rhoads
Wednesday 4:00 – 6:50

What person is NOT affected in some way by cancer? Why haven’t we figured out a cure for all cancers yet? Why do some people die young from cancer, yet others live to a ripe old age cancer-free? We will be looking at cancer through the lens of cell biology, molecular biology, physiology and medicine. Using these various aspects of biology, we find out what causes cancer, what the symptoms are for particular cancers, how cancer is treated and the epidemiology of cancer types. Through the course, you will learn how to communicate concepts in cancer biology to your peers, and how to critically evaluate primary and secondary literature in the preparation of your presentations and summary paper. Each student will give a presentation on a type of cancer, with peer review and feedback, and will also lead a discussion of a selected scientific article from the primary literature.
Simply put, developmental biology is the study of the processes by which organisms grow and develop. But this extensive field of study also encompasses the biology of regeneration, asexual reproduction, metamorphosis and the growth and differentiation of cells into tissues, organs, and entire organisms. Developmental biology spans from the complex, microscopic realm of DNA and molecular biology to the broad, over-reaching implications of evolution and ancestral relationships between organisms. In addition to the classical study of embryology, we will explore regional specification, morphogenesis, cell differentiation and the overall control of timing behind these intricate processes in a variety of species. Special emphasis will be placed on cellular and tissue levels of organization.

BIOL 304 – Sustainable Agriculture 4 cr
Ray Bowdish

BIOL 304 – Sustainable Agriculture (4 credits) - is offered every other fall beginning, next Fall Semester, 2019. Lecture and lab 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. Labs will require each student to become a “farmer” for the semester and “sell” plants to PACES as a CSA. 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. Course pre-requisites include General Biology 1 & 2, Ecology and Genetics.

BIOL 401 – Exercise Physiology – Fall and SUMMER COURSE – 100% online w/ lab
Dr. Schreer

Offered both this summer, or this fall...it's the same course.
Summer: Session 1, 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  
Dr. Schreer

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.

BIOL 279 – Careers in Health Care  
Dr. Robert Ewy

Interested in a health career, but not sure which one? Or maybe you came to college thinking you wanted to become a surgeon, but then decided it wasn't really for you. What else can you do in health care? Did you know you can be the person who runs the heart/lung machine during surgery, but you don't have to go to medical school to do this? Maybe the idea of working in a hospital lab determining if tissues are cancerous or not sounds interesting. There are lots of careers outside of medicine that enable you to help patients. This course will have professionals in various health careers discuss what they do, the ups and downs of the job, and what it took to get into a professional program. This course will meet twice a week for eight weeks in the first half of the semester. Sophomore level standing required. See Prof Ewy for details.
BIOL 334 – Biology of Woody Plants
Dr. Johnson

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

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.

Biology on Facebook

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/

Teaching Assistants for General Biology of Introduction to Anatomy and Physiology

If you would like to gain some teaching experience and encourage first semester biology students, this is a good opportunity. It is also useful for those students going on the graduate school or to teaching careers. This counts as a 1 credit upper division biology course. You must have successfully (3.0 or higher) completed Biology 151 lecture and lab. If interested contact Pat Burdick; burdicpc@potsdam.edu
BIOL 330 – Natural History of the Lower Vertebrates

Dr. Johnson

Meeting Times: Lecture TuTh 12:30-1:45; Lab 2:00- 5:00 Tuesdays
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 protostomes, 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!

BIOL 319 - Evolutionary Biology

Dr. Conley

Tuesday and Thursday, 9:30-10.45am

"Nothing in biology makes sense except in the light of evolution." Theodosius Dobzhansky, 1973

Evolutionary Biology examines the mechanisms that have resulted in the rich diversity of life. Students will explore connections between natural selection and Mendelian and molecular genetics, population biology, form and function, sexual selection, development, the fossil record, and human evolution. Evolutionary Biology is a biology elective that "brings it all together."
**BIOL 300 – Ecology**

*Dr. Robert Snyder*

Lecture Monday/Wednesday/Friday 9:00 am – 9:50 am. Lab options: M, T or W 2:00 pm- 4:50 pm

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**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. Ecology also provides information about the benefits of ecosystems and how we can use Earth's resources in ways that leave the environment healthy for future generations.

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, animal, and other communities found in a desert.

Ecologists also study many kinds of environments. For example, ecologists may study microbes living in the soil under your feet or animals and plants in a rainforest or the ocean.

**The Role Of Ecology In Our Lives**

The many specialties within ecology, such as marine, vegetation, and statistical ecology, provide us with information to better understand the world around us. This information also can help us improve our environment, manage our natural resources, and protect human health.

> -Ecological Society of America

**Catalog description:** BIOL 300 – Ecology (3-4) Physical environment of terrestrial and fresh-water 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 optional*. Gen Ed: WI (writing intensive) lab only.

*Biology majors 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.

**TA’s needed**

Ecology Lab: I am looking for 3-4 Ecology TA’s. TA’s must have taken BIOL 300. TA’s will drive College minivan to field sites, among other duties. Please contact Dr. Snyder (snyderrl@potsdam.edu) if interested.
**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. This course will take you on a journey through the cell, looking at both the structure and functions of biomolecules and organelles. The accompanying lab will give you hands-on opportunities to work with cells from across the living kingdoms of eukaryotic organisms- animal, plant, fungus and protist (in the photo you can see the protist called Tetrahymena- we will be playing with these!). Students will design and conduct an independent project based upon the techniques learned in lab. The lecture includes short writing assignments and exams that have a research focus. This course counts for the physiology requirement for the biology major; if you are looking for an upper level elective and have already completed one of the physiology courses with lab, please contact me (rhoadsls@potsdam.edu) about an override to remove the lab requirement.

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

**BIOL 455 – Molecular Genetics**

Molecular Genetics is the primarily the study of genes and gene regulation. Every published study gives us a better clue to the processes of replication, transcription, translation, and gene regulation. And every study shows it is more complex than we thought! What regulates DNA replication? How often does a cell divide? 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.

DNA Polymerase Family B From:  
http://www.ebi.ac.uk/pdbe/entry/pdb/2dy4
**BIOL 320 – Microbiology**

*Dr. Gordon Plague*

Lecture MWF at 10:00 am-10:50 am, Lab Th 1:00 pm - 3:50 pm OR Th 5:00pm – 7:50pm

Microbiology (BIOL 320). Microbes may be small, but they rule the world (and they’re phenomenally interesting from a biological perspective).

![Microbiology](image)

**Call for Teaching Assistants in Microbiology**

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

**BIOL 310 – Marine Biology**

*Dr. Walter J. Conley*

Tu/Th 11:00 – 12:15

Life began in the ocean, so the marine realm was not only the first ecosystem, but it remains by far the largest and it drives global forces that affect every other ecosystem on our planet. 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.

![Marine Biology](image)

Red Tide off the Coast of Florida in 2018
Love Biology? – Teach it!
The State of New York and the nation are experiencing a massive teacher shortage. Areas of greatest need include all STEM fields. There are many openings for biology, and all of the natural sciences, educators in every school district, and every state. If you love biology, and want to share that passion with others, the teaching profession offers opportunities to positively influence the lives of many. SUNY Potsdam has been a pioneer in teacher education, housing the oldest teacher preparation program in SUNY, and among the first in the nation. Our BA/MST option provides professional certification while preparing students for a lifetime of success in the classroom. If interested, please contact your academic 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 Camille Holmes.
SUMMER TRAVEL COURSES

Marine Biology for Summer 2019

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://gcrl.usm.edu/summer_field/index.php Interested students should also contact our GCRL advisor, Dr. Conley (conleywj@potsdam.edu).

SUNY Potsdam Biology major Nelson Torres (pictured far left) and Alexandra Bosse enrolled in the Shark Biology course during summer 2017.
Winterim 2019 – 2020

BIOL 395 – Tropical Ecology and Conservation - Belize

Dr. Glenn Johnson and Scott Schlueeter (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 so in addition to the program fee (which covers all expenses including flights) you need pay for the credits and register during 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. Participants will visit Mayan ruins and see first-hand the ecological problems that beset some parts of this small Central American country. Prerequisites: BIOL 300 or permission of instructor.

Contact Dr. Johnson for more details.

Photos: Jessen Swider
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 Assistant in the General Biology I labs (BIOL 151) please contact Dr. Jan Trybula trybulj@potsdam.edu 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 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.

Lecture TA’s (General Biology or Ecology): 1 or 2 students to assist in classroom activities and lead weekly review “Successions”. Must be able to attend MWF 11-11:50(Biol 152) or MWF 9-9:50 (BIOL 300) lecture. Please contact Dr. Snyder (snyderrl@potsdam.edu) if interested.
Dr. Ewy is looking for TAs for Biology100 (non-majors Biology). Bio 100 lab has (4) two-hour sections, all on Thursday. See Prof Ewy for more details.

“When you teach you gain much more understanding of the subject at hand.”
*This is a quote from an anonymous TA (not pictured).*

**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

**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.

**WISER Internship Guide**

**Introduction**

The Wagner Institute for Sustainability and Ecological Research (WISER) Center is located in 205 Stowell Hall. As a WISER Intern you’ll learn skills through experiences like event planning, urban farming and creating a culture of sustainability on campus! Most Center activities focus on growing a wide variety of plant life but also include composting, recycling, service learning and wellness activities like yoga and meditation! Interns are an integral part of the WISER Staff, a collection of student volunteers, interns and researchers and some community volunteers as well. Working at the WISER Center is a great way to learn about our campus, the local community and the globe and enrich your understanding of issues around sustainability and ecology.

**Internship job headings:**

- **General Intern (1-2 credits)** – This entry-level internship is a prerequisite* for all other job descriptions. Supports the maintenance of all programs and facilities.
• Plant Doctor (2-4 credits) – Supports the Healthy Plant Initiative to increase number and health of plants on campus.
• Urban Farmer (3-6 credits) – Grows food crops for the PACES/WISER, Community Supported Agriculture (CSA) program to be used in campus dining services or donated to local food pantries.
• Wellness Intern (1-3 credits) – works on programs that promote mental and physical wellness for the campus and surrounding community.
• Community Farmer (4-6 credits) – Works in the summer in The Cecilie Garden with local non-profits to grow food to increase local food security. This internship can serve as a course substitution for Environmental Studies 391.
• Assistant Coordinator (3-6 credits) – Experienced intern helps schedule, train and work with other interns in the WISER Center staff. Intern works closely with the Center Coordinator to plan and implement events and programs, run weekly meetings and create weekly reports on WISER Center activities.

* Prerequisites can be waived by the Center Coordinator based on prior learning experiences.

Getting Started as a WISER Intern

Becoming a WISER Intern requires you to follow the internship process required by the Experiential Education Office (EEO).

Your first step is to meet the WISER Coordinator, if you haven’t done this please email. After your meeting you can use the steps below

1. First click here to see if you qualify,
2. If you qualify, schedule an appointment with the WISER Coordinator by emailing, wiser@potsdam.edu.
3. At the meeting you and the coordinator will determine which of the internship job descriptions best fit your goals. The WISER Coordinator will email you a copy an Internship Proposal Template appropriate to the job description you selected.
4. After editing your Internship Proposal Template, attach it to an email to the WISER Coordinator for preapproval. This step may repeat depending on how complete your Internship Proposal is.
5. Once you have preapproval from the WISER Coordinator you need apply for full approval for academic credit. Full instructions are here.
What can you do with a Biology Degree??

Here’s a few web resources!


https://www.trade-schools.net/articles/biology-careers.asp

https://www.indeed.com/q-Bachelors-Biology-jobs.html

For those interested in Natural Resources, Conservation and Wildlife:

https://wfscjobs.tamu.edu/job-board/

Thinking of Grad School in Biology?:

https://www.gradschools.com/programs/biology

Profile of a Recent Bio Graduate: Ellen Norton

My name is Ellen Norton, I graduated from SUNY Potsdam in Spring 2015 with a Bachelor of Science in Biology. In high school, I knew I wanted to major in biology, I just didn’t know in what field. I chose Potsdam for the varying disciplines in Biology, as well as the opportunity to ride on the Equestrian team. My deciding factor was going on Dr. Glenn Johnson’s class ‘Biotic Communities of Southern Florida’. On that trip, I saw and engaged with wildlife species I only dreamed of seeing one day. We talked with people who work with wildlife every day, and I saw the excitement of getting a life species that it caused me to be hooked. My last few years at college, I dedicated my free time to caring for the animals in Stowell, participating in Wood Turtle surveys, and volunteering with NYSDEC on Blanding’s Turtle research.

The summer following graduation, I worked with Glenn and New York State Department of Environmental Conservation (NYSDEC) on the Blanding’s turtle conservation project. Every day, even weekends, we went out to check set traps for turtles. If a Blanding’s turtle was captured, we would first check to see if the turtle had a PIT tag from previous years- a small capsule with a microchip in it that reads off a unique code when a tag reader passes by. If the turtle was “new” (never been tagged), put a PIT tag in above a back leg, and if a female, also fit it with a very high frequency (VHF) radio transmitter. We would also go out at night during nesting season and search for nesting or about to nest Blanding’s- whom after nesting would come back to the lab with us and be fitted with a tag and transmitter.
During these summer months, I had the opportunity to volunteer with NYSDEC’s Spruce Grouse Recovery Team. This team safely captures and transports Spruce Grouse—a New York State Endangered Bird—from Maine and Ontario, Canada to the northern part of the Adirondack Park. I had never seen a Spruce Grouse before, let alone hardly knew anything about birding, but my desire to learn something new and wander around the woods motivated me to learn more about these birds. The first time I saw a female bird with chicks on the side of a dirt road was an indescribable euphoric feeling. Happiness, and the realization that I was a small part of something bigger for this species was enough to get me hooked. I later learned that there’s a term for this feeling—“bird high”—and it was glorious.

Subsequently, that winter, I accepted an opening at the New York State Department of Environmental Conservation as a Wildlife Technician 1 at the Potsdam Sub-office working with the Spruce Grouse Recovery Team. My job consisted of walking into spruce grouse areas and follow a specific frequency coming from a VHF radio transmitter and mark a GPS location, with additional notes in a scientific notebook. The spring, summer, and fall all consisted of those long, high adrenaline days of capturing birds—both in New York and abroad. After two years of collecting data and contributing to this research, I decided to switch positions to a position that encompasses all types of wildlife. On any given day, I talk to the public about wildlife issues, help organize hunter-education materials, conduct different bird and mammal surveys, and still fit in time to search for spruce grouse or Blanding’s turtles. I appreciate the diverse ecosystems in New York and the ability to help both people and animals in this state.

In my spare time, I would travel down to the Adirondack Park to explore, hike, and bird. My love for the outdoors made me realize that I could take things learned from the classrooms and labs to everyday life. Hiking became more than walking on trails and reaching a summit, it became a game to see how many birds I could identify by call, determine who the tracks in the mud belonged to, and quickly detect the salamanders under flipped rocks. The peace I found in the woods lead to me starting a journey to become an Adirondack 46er; which I later completed in 2018.

I currently live in Potsdam with my ball python, Cleo, and albino leopard gecko, Lemmie. I still enjoy going down to the Adirondacks to hike and backpack in my free time, as well as traveling around the US to see different ecosystems. Looking forward, now that I understand what field of biology interests me most, I hope to expand my knowledge in a graduate program, and hopefully apply that information to a career in government, where I can continue to help the people, and the resource.

On top of Mt. Marcy, the final peak!
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!

### Revised Environmental Science Minor (24 credits)

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<thead>
<tr>
<th>Level</th>
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<th>Credits</th>
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<th>Prerequisites</th>
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<td>CHEM 301: Fundamentals of Environmental Science</td>
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<td>PHYS 325: Energy and the Environment</td>
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<td>GEOL and BIOL majors</td>
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<td>Prerequisite courses: 2-4 credits for BIOL/GEOL majors, 7 credits for others</td>
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<td>BIOL 152: General Biology II</td>
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<td>BIOL 312: Insect Ecology</td>
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<td></td>
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<td>BIOL 330: Natural History of Lower Vertebrates</td>
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<td>BIOL 331: Natural History of Higher Vertebrates</td>
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<td></td>
<td>BIOL 334: Biology of Woody Plants</td>
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<td>BIOL 355: Invertebrate Biology</td>
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<td>BIOL 402: Conservation Biology</td>
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<td>BIOL 300 or permission of instructor</td>
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<td>CHEM 311: Quantitative Analysis</td>
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<td></td>
<td>CONS 314: Soil Mechanics (SUNY Canton)</td>
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<td></td>
<td>CONS 386: Water Quality (SUNY Canton)</td>
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**RESEARCH WITH PROFS**

**Dr. Sarah Sirsat – Physiology**

Physiology encompasses all biological levels from molecular to whole organism; as a physiologist I have an interest in the how and why at all of these levels. I am especially fascinated by the interplay of avian biological systems and the role phenotype, the outward manifestation of an organism’s genetic makeup, plays in physiological responses. My research explores the relationship of phenotype and physiology using a small, precocial bird known as the Chinese Painted Quail or King Quail. Numerous pattern and color mutations have been developed in captivity for this species; my students and I explore the effects a plumage variation known as “splash”, characterized by mostly white feathering with spots of color on the head and back, has on physiological parameters such as growth rate, thermal preference, body composition, fertility, and hatchability.

**Dr. Glenn Johnson – Conservation of Threatened Species**

231 Timerman Hall, 267-2710, johnsong@potsdam.edu

I have two funded projects on turtles. The first 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, **is fully funded**, 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.

For a second, somewhat related project, I am looking for someone to participate in a brand-new project on **Spotted Turtles**. This will be a **paid 12-week position** (May through July 2019), travelling around the northern half of NY State capturing this elusive small turtle, collecting tissue samples and habitat information as you go. Please see me if interested.
Dr. Jan Trybula – Molecular Ecotoxicology

My research involves studying 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 and health of various organisms.

Students in my lab examine a wide variety of ways to determine genetic damage caused by a wide variety of pollutants. We exam toxicity by examining the chromosomes, DNA genetic markers, and expressed proteins. We examine the toxicity of in-lab exposures and also natural and anthropogenic exposures in the environment.

https://www.pressherald.com/2014/06/25/buzz-about-bees-new-study-claims-widely-used-class-of-pesticides-is-killing-them/

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

The willows are being harvested and I will now have enough material to try to make pellets, so if you are interested in producing biofuels, see me. I am also looking for students interested in studying the medicinal properties of willow. There are numerous papers written on using willow extracts to treat a variety of ailments, but little is known about maximizing production of these extracts. 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. You can earn research credit via Biology 485 or an internship.

Redwood underpass
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. We did 4 weeks of data gathering in the summer of 2017, and plan to repeat that this upcoming summer. We were out in the field from mid-July to mid-August mapping all the locations of purple loosestrife, and there were MANY! Dr. Rogers and 1-2 paid research assistants will spend 3-4 weeks during the summer of 2018 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. We will also be studying the effects of an introduced beetle into one of the infestations to see if we can get a biological control for this species established in the North Country. Students from all majors are encouraged to apply.
A Giant Sonoran Centipede that was resting under a rock in Patagonia State Park in southeast Arizona...see if you can detect any other invertebrates in the photo. This species is the largest that can be found in the United States. Photo by Glenn Johnson

Nest Issue: The Vampire Squid
Requirements for Graduation

Biology (BS)

Name: ____________________________________________

Student ID No: ____________________________________

Expected Graduation Date: __________________________

Required Biology Courses: 22
Biology Electives: 17
Chemistry Courses: 12
Math and Physics: 15-20
Total Hours Required: 66-71

REQUIRED BIOLOGY COURSES
(22 hours)

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<th>Hours</th>
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<td>Genetics Lecture</td>
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REQUIRED CHEMISTRY COURSES
(12 hours)

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REQUIRED PHYSICS COURSES
(8 hours)

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<td>AND</td>
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REQUIRED MATH COURSES
(7-8 hours) (Two Semesters)

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<td>OR</td>
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<td>100</td>
<td>Probability &amp; Statistics</td>
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BIOLOGY ELECTIVES
(17 hours)

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<th>Title</th>
<th>Hours</th>
<th>Grade</th>
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</table>

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

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

No more than 4 cr of BIOL 475, 485, or biological internship may be used toward elective hours.

* If you take both BIOL 300 lab and BIOL 311 lab, one will count toward your Biology elective hours.

** MATH 141 & 142, Integrated Calculus IA & IB, together count as equivalent to MATH 151, Calculus I

Must have a 2.0/S or higher in all major courses, including cognates.
### Requirements for Graduation

#### Biology (BA)

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<th>Name: ________________________________</th>
<th>Required Biology Courses: 22</th>
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<td>Student ID No: ________________________</td>
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<td>Expected Graduation Date: ____________</td>
<td>Chemistry Courses: 12</td>
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<td>Total Hours Required: 49</td>
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#### REQUIRED BIOLOGY COURSES

(22 hours)

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#### REQUIRED CHEMISTRY COURSES

(12 hours)

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#### BIOLOGY ELECTIVES

(15 hours)

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No more than 4 cr of BIOL 475, 485, of biological internship may be used toward elective hours.

*If you take both BIOL 300 lab and BIOL 311 lab, one will count toward your Biology elective hours.

**Must have a 2.0/S or higher in all major courses, including cognates.**
### BIOLOGY SPECIALIZATION REQUIREMENTS

#### Biology Required Courses (13 hours)  

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#### Biology Electives (6 hours)

College requirements are 19 hours in the Specialization. All electives after the first-year sequence must be 300 or higher.