Department of Biology Newsletter
State University of New York at Potsdam

Department of Biology

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THIS ISSUE *The wasp mantidfly issue* Spring 2024

- Up to $1000 scholarship (below)
- Registration info
- Declaring Biology as a major
- Transitions in the Biology Department – The Revised Majors!!
- New and improved courses for the Fall 2024!
- Health Professions
- Marine Biology for Summer 2024
- WISER Center News
- Internships – Work Study
- Teaching assistantships – Earn a credit and beef up your résumé
- What to Do With a Biology Degree
- Environmental Science Major is officially here; see details inside!
- Research with Profs
- Conservation Biology Research Opportunity
- The Biology Department's Herbarium
- Beta Beta Beta (TriBeta)
- Side-by-Side comparison of the Revised Biology BA and BS degrees

BOB CERWONKA MEMORIAL SCHOLARSHIP

This year's recipient of the Bob Cerwonka Memorial Scholarship is **Annabell Smith-Goolden**. This scholarship is made possible by a generous donation from department alumnus Mr. Robert E. Wagner ('75) and 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 2024 newsletter. **Please note:** You must be a matriculated student in the Fall following the award given in January to receive the funds!!

Potsdam
STATE UNIVERSITY OF NEW YORK

Comments or suggestions about the newsletter?
Contact Dr. Glenn Johnson, Newsletter Editor, in Timerman 231, x2710, johnsong@potsdam.edu

REGISTRATION

Advising begins March 11. *The spring schedule will be available online this day*
Registration *begins:*

- ***Seniors – April 9***
- ***Juniors – April 10***
- ***Sophomores – April 11***
- ***Freshmen – April 12***
- ***Transfer Students – April 26***

Students may adjust their schedules on BearPAWS until midnight, Sunday, August 28th, 2022, 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 2024 class schedule 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, go to https://www.potsdam.edu/about/offices/registrar/majorminor-declaration for directions, but we suggest you visit with your Academic Advisor or **Dr. Glenn Johnson**, the Department Chair (Timerman 231) first!. **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 ensuring that you receive an advisor who understands our program.

(Photo: Alex Matte)

Right: A group of SUNY Potsdam students at the BFREE Biological station in southern Belize…
Left: Humpback whales bubble net feeding on our Cape Cod trip – another cool thing about being a bio major!

(Photo: Glenn Johnson)

TRANSITIONS and NEW DEVELOPENTS IN THE BIOLOGY DEPARTMENT

The biggest change within the Biology Department is a **revision of both the Biology BA and BS degree programs.** See page XX for a side-by-side comparison of the old and the new programs. In terms of coursework to complete your degrees, the biggest change to the **BS degree** is that we added a required Cell Biology course (BIOL 307; a new course never offered before) and we now also require BIOL 319 (Evolutionary Biology) and 301 (Communicating in Biology). We plan to offer the Cell Biology course for the first time in Fall 2025, so in the meantime, students can take Cell Physiology (BIOL 407) with or without the lab as a substitute.

We also added some choices for one of the required cognate sequences. With the new program, you can choose between a sequence in College or University Physics, or a sequence in Geology (GEOL 101 and GEOL 200) or a sequence in Computer Science (CIS 201 and CIS 203). We also removed the Physiology and the Current Topics (BIOL 483) requirements. These courses can now be taken as electives or not at all to fulfill the Biology BS degree requirements. These addition and removals also apply to the **Biology BA degree**, but please note that there are fewer cognate and elective requirements for the BA.

Any student can switch from the current Biology degree program to the revised one starting now. Please see your advisor before you do that though!

Another significant change moving forward is that we will no longer offer a trailing section of the general biology sequence in the fall and spring semesters. We will offer BIOL 152 in the Fall and BIOL 151 in the spring. The main reason that BIOL 151 is offered after 152 in a given academic year is that we believe that having CHEM 105 prior to BIOL 151 is a better way to understand the content in BIOL 151.

Dr. Schreer will be on Sabbatical leave during the 2024/25 academic year, finishing research projects in various stages of completion. He will return in fall 2025.

Biology Department Award Recipients

Bob Cerwonka Memorial Scholarship

2024 Recipient: **Annabell Smith-Goolden**

George R. Iseberg Award for Excellence in Biology and Cognate Sciences: Biology alumni, faculty, colleagues from various departments across campus, family and close friends of the late Dr. George R. Isenberg have contributed toward the establishment of an endowment in his memory. This prestigious award is intended to stimulate high academic achievement in biology and encourage advanced study in chemistry, physics, and mathematics.

2024 Recipient: **Eryl Bevan**

Jessie J. McNall Award: Miss McNall, who was Professor Emerita of Science, served as Science Department Chair for many years prior to her retirement in 1946. She established an endowed fund with the Potsdam College Foundation in order that awards be made to sophomores for excellence in science, especially if preparing for teaching.

2024 Recipient: **Ben Averill**

Dr. Alexander & Genevieve Major Science Scholarship: Recipient must be a full-time undergraduate entering their senior year of study; a declared Biology, Chemistry or Bio-Chem major; possess a passion and drive for the Sciences that sets student apart from the rest of their peers, as determined by the chairs of Biology and Chemistry, or designee(s), in consultation with the departmental faculty; and possess financial need, as determined by the Office of Financial Aid (or designee) using the student's FAFSA.

2024 Recipient: **Lucas Scalcione**

Biology Departmental Award: This award is presented to one or more senior biology students who have demonstrated scholarship, dedication, and leadership in this major.

2024 Recipients: **Deven Leggett, Kylie Wilkins and Annabell Smith-Goolden**

Departmental Scholars:

2024 Recipients: **Lucas Scalcione, Christopher Alexander and Reghan Anderson**

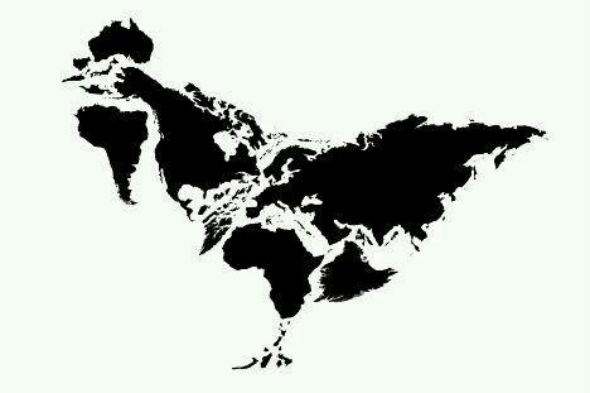
Congratulations All!!

POTSDAM PATHWAYS

WAYS 101 The Bird That Powers the World– 3 cr

Dr. Sarah Sirsat MWF 10:00 – 10:50

Socrates' last words were about it. Queen Victoria was obsessed with it. Charles Darwin and Louis Pasteur made their scientific breakthroughs using it. Catholic popes, African shamans, Chinese philosophers, and Muslim mystics praised it. But, only recently has the chicken become humanity's most important single source of protein." This course will explore the fascinating saga of the modern chicken and the wicked problems which arose because of its domestication. We will develop critical thinking skills to tackle such moral quandaries as the commercialized meat industry, humanity's role as a preserver of other species, and the emergence of zoonotic diseases, like avian influenza.



WAYS 101 The Ones Without a Voice: International Conservation of Wildlife – 3 cr

Dr. Bridget Amulike MWF 11:00– 11:50

In this class we will explore the challenges that hinder our capacity to effectively conserve and manage global wildlife populations and the multitude of strategies to help reverse biodiversity loss.

NEW AND IMPROVED COURSES

BIOL 483 – Current Topic – Food and Disease - SI

Dr. Robert Ewy
Wednesday 5:00-7:50 PM

Many diseases can be linked to food through production, consumption, and environmental degradation. Students will approach the topics through environmental, sociological, and disease processes. This class is designed to appeal to students interested in medicine or environmental sciences, and everything in between.

BIOL 312 – Insect Ecology

Dr. Robert Snyder
Lecture MWF 1 – 1:50 Lab Wednesday 2-4:50

Insects are by far the most species-rich Class of animals on the planet. As such, they exhibit an amazing diversity of ecological adaptations and behaviors, and they have an outsized impact on many ecosystems. In this class, we will explore insect ecology, behavior, evolution, and the effects of insects on humans. Numerous field trips to observe and collect insects will get us into the Adirondacks and surrounding areas, and students will prepare and curate an insect collection. This class satisfies an upper division lab credit requirement.

Don't pay extra! If your required textbook is an "Open Educational Resource" book, you do not need to pay a fee to get it. Last fall, there was a $7 optional fee listed on the College's bookstore website for "Open Stax" Texts (Biol 100, 151, 152, and 403). You do not need to pay this fee. Simply get the URL from the professor teaching your course.

BIOL 403 – Human Anatomy and Physiology I

Dr. Sarah Sirsat
Lecture TuTh 11:00 – 12:15 Labs T or W 2:00 – 4:50

Planning on going into a health professional program? MD, PA, RN, etc.? The first semester of any medical professional program will feature challenging gross anatomy, dissection, and physiology courses. But what if there was a way to get exposure to all of those topics ahead of time?! But, wait!! There is!!

Human Anatomy & Physiology I (BIOL 403) is the first half of a 2-term course (2nd term is BIOL 404 offered in the spring) in which students are introduced to different levels of human life: from cells to tissues to organ systems with a special emphasis on preparation for careers in the medical field.

Organ systems are explored in detail so that students will be able to recognize and identify key structures as well as discuss function and role of those structures in respect to the human body as a whole. Throughout the course, students will be challenged to integrate all the information and systems into a holistic approach of what makes a human being and how humans work. The laboratory component of the course provides hands-on experiences in physiological experiments and anatomical identification.

HLTH 370 – Health Coaches II

Dr. Robert Ewy

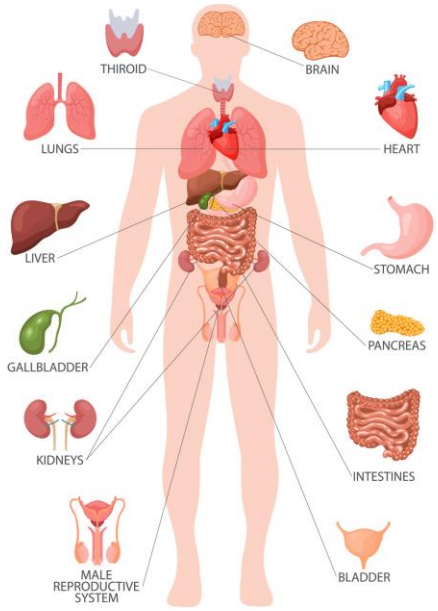
Looking for experience working with patients? SUNY Potsdam has teamed with Canton Potsdam Hospital (CPH) to train students to work with community members who have chronic conditions such as diabetes, COPD, or heart disease. If you have taken Health Coaches I (Biol/Hlth 270) you can enroll in BIOL 370 "Health Coaches II" Students are paired with a community member who has a chronic condition. Together the health coach and patient will work to develop small patient-centered goals to improve quality of health. This kind of experience looks great on an application to a health professions program such as MD, DO, PA, and PT, and will give you valuable experience in working with patients and first-hand insights into our health care system. You will learn more than you can imagine about working with patients! **The course meets Mondays 5:30-7:10 pm.** You can earn 2 hours of either Biol or Hlth credit. See Prof Ewy for more questions.

BIOL 212 – Introduction to Anatomy and Physiology I

Drs. Sarah Sirsat and Laura Rhoads

Lecture MWF 9-9:50; Lab Tuesday 1- 2:50

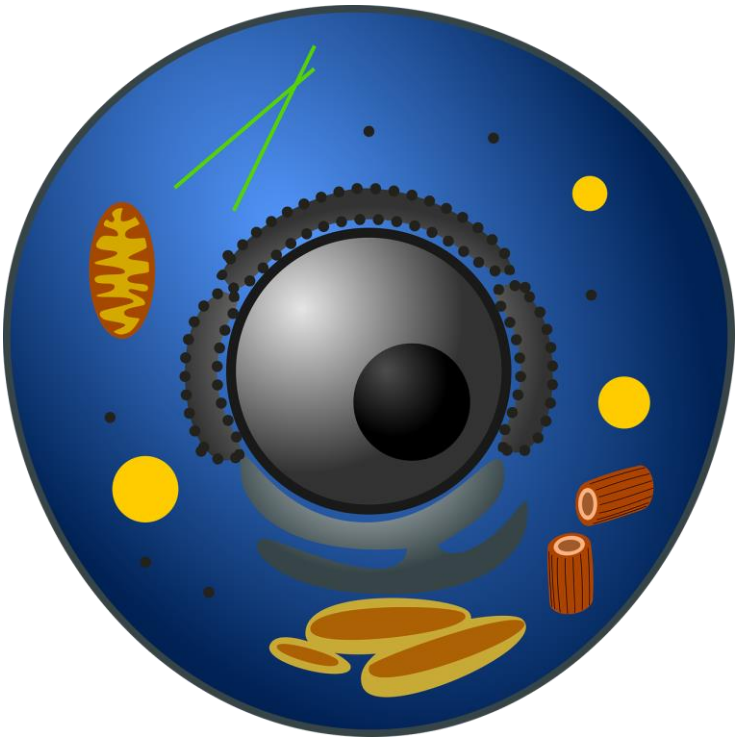
BIOL 212, the first half of a two-semester sequence, introduces students to the systems of the human body and emphasizes the interconnection between those systems that permits our daily activities. This two-course sequence is appropriate for students pursuing careers in physical therapy, occupational therapy, exercise science, community health, athletics, dance therapy and other health-related fields that require a two-semester Anatomy and Physiology sequence.



BIOL 407 – Cell Physiology

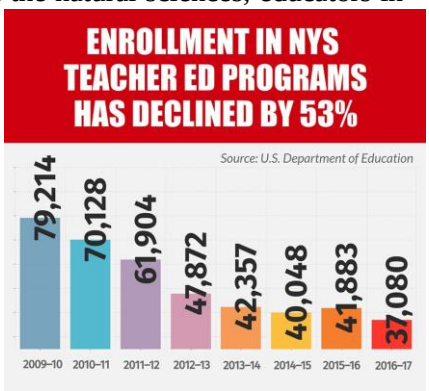
Dr. Laura Rhoads Lecture Tuesday/Thursday 9:30 – 10:45; Lab Wednesday 2:00 – 4:50 pm

Cell physiology is the study of living organisms at the cellular level. This course will take you through all the parts of a cell, looking at both the structure and the 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. Students will perform an independent project based upon the techniques learned throughout the 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 have entered our revised biology major, this course can count as BIOL 307. If you already have a physiology course with lab, this course can then serve as an upper-level elective course.



Love Biology? – Teach it!

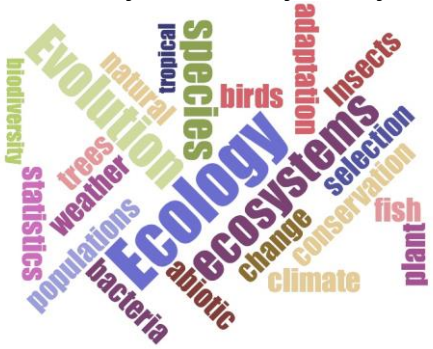
The State of New York and the nation are experiencing a massive teacher shortage. Areas of greatest need include all STEM fields. There are many openings for biology, and all of the natural sciences, educators in every school district, and every state. If you love biology, and want to share that passion 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.



BIOL 300 – Ecology

Dr. Bridget Amulike

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



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 1-2 Ecology TA's. TA's must have taken BIOL 300. TA's will drive College van to field sites, among other duties. You are encouraged to apply even if you cannot drive a van! Please contact Dr. Amulike (amulikbb@potsdam.edu) if interested.

Photos from Lab trip to Cold Brook

BIOL 334 – Biology of Woody Plants

Dr. Johnson

Meeting Times: Lecture MW 11:00-11:50; Lab 2:00- 4:50 Tuesdays

Course Description:

This course is about trees and shrubs. It emphasizes the 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 the 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.

Next year's class project will be to participate in an inventory of all the campus trees and shrubs and start the planning for a campus Arboretum!

Health Professions

If you are interested in a health profession, enroll in the "Health Professions" Moodle course. You will find information on various careers, how to prepare for such a career, and what exam you may need to prepare for. Send Prof Ewy an email: ewyrg@potsdam.edu and include the following information:

Your name
What career you want to pursue (dental, medicine, veterinary, etc.)
Your year classification (1st, 2nd, 3rd, 4th)

Professional school test prep If you are interested in an on-campus MCAT or other pre-professional test prep tutorial let Prof Ewy know. I want to see if there is enough interest to formalize a "test-prep" courses.

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 152 labs. This is an excellent way to review your Biology and help out the Intro class.

Committee Letters of Recommendation

Applying to Medical School (or any other program that requires a committee letter) for the upcoming cycle? HPAC interviews will be done in April. Please have your letters of recommendation to Prof Ewy by the end of March. For more information, contact Prof Ewy.

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 contact person is Arantxa Valdez. This link will get you to all the clubs and student organizations: https://getinvolved.potsdam.edu/organizations

SUMMER TRAVEL COURSE

Marine Biology for Summer 2024

SUNY Potsdam offers a field intensive Marine Biology concentration at our affiliate institution, the Gulf Coast Research Laboratory (GCRL) on the ocean in Ocean Springs Mississippi. Many students from our College have traveled to the GCRL to participate in our Marine Biology Program. Representative courses include Marine Biology, Marine Mammals, Shark Biology, Ichthyology, and Marine Ecology. There are also research opportunities. As members of the consortium, Potsdam students only pay instate tuition, room, and board. Students may complete three courses at the laboratory and fulfill their elective requirements, graduating a semester early. With this option, there is no additional cost within a four-year curriculum. For complete details, please visit the GCRL website (http://www.usm.edu/gcrl/) and under "Academics," select ―GCRL Summer Field Program. Interested students should also contact our GCRL advisor, Dr. Conley.

These six Potsdam students enjoyed the facilities and field experiences offered at GCRL, many completing multiple courses. From left to right; Alyssa Navilio, Alison Brown, Megan Jubert, Alex Matte, Dr. Conley, Justin Williams, and Amanda Blackburn.

Marine Biology class of on Santa Rosa Island, Pensacola Florida.

Biology on Facebook, Instagram and TikTok

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/

Not a wasp, a fly or a praying mantis! The **wasp mantidfly** (*Climaciella brunnea)*…a lacewing insect relative that mimics a wasp and is in a group of insects that imitates praying mantids!

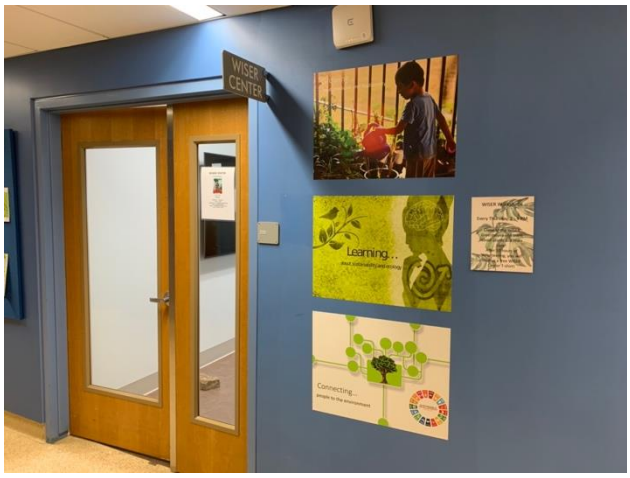
WISER Center Spotlight

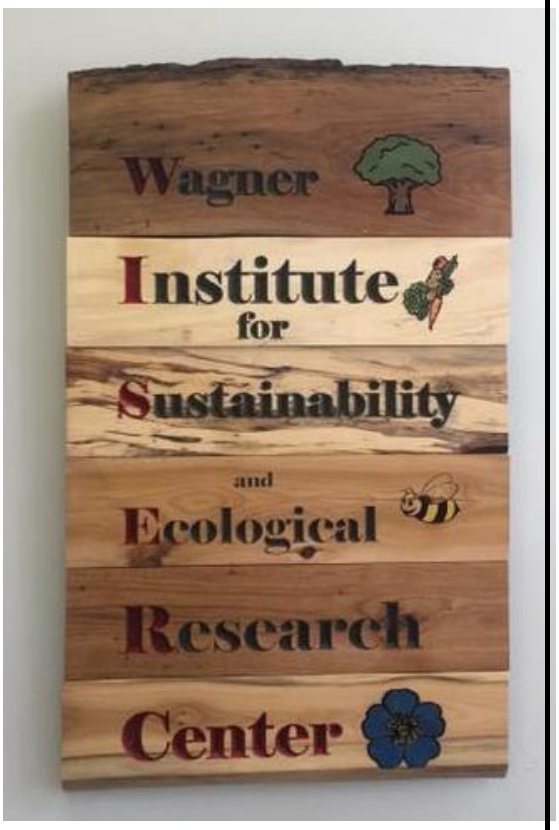
What *is* the WISER Center?

WISER stands for *Wagner Institute for Sustainability and Ecological Research* Center. It's an outreach and research Center run by students!

Where's the WISER Center?

Located at 205 Stowell Hall we are in the Biology Department





What's *in* the WISER Center?

- Computer classroom
- Public greenhouse
- Research and classroom learning greenhouse.
- Tower Garden® aeroponic food garden
- Plants of all kinds!
    - Decorative
    - Herbs
    - Food
    - Medicinal
    - Poisonous

What goes on in the WISER?

The WISER is an institute with spaces on campus outside of

the Center where there are…

- **Campus and community events**
    - Hosting school trips

- WISER Open Houses
- Yoga in the Greenhouse

Join the WISER Staff?

Please consider becoming a WISER volunteer, intern, or researcher.

- Positions are granted on a semester-by-semester basis.
- A total of 4 volunteers,4 interns, and 6 research positions are available.
- Staff positions are filled according to program needs and the strength of applications for positions.

Even if you aren't a member of our WISER Staff, we hope you will visit the public greenhouse via Stowell 205. When you are here, feel free to ask questions of staff members or else learn more by visiting the WISER Coordinator, Ray Bowdish at Timerman 232, calling 315-267-2276, or emailing wiser@potsdam.edu for more information.

Who coordinates the WISER Center?

Ray Bowdish
Hours in the WISER
MONDAY - FRIDAY:
9 AM - 2PM
EMAIL - WISER@POTSDAM.EDU
CALL 315-267-2276

Harper Barrett – Urban Farmer, Spring 2023

- **Internships* –**
  - Urban Farmer – Grow plants for food in the Tower Gardens and greenhouses.
  - Plant Doctor – Help keep campus plants healthy and handsome.
  - Community Farmer – Farm in campus gardens and greenhouse, for food justice!

- Campus Beekeeper
- WISER Wellness coordinator

Toni Wahl and Sydney LaPlant, Campus Beekeepers

- **Student research –**
  - Crop production and protection
  - Biological controls
  - Integrated Pest Management
  - Genomics

- **WISER Workshops** –
  - Join the WISER Staff!
  - Meet **Thursday from 2-4 PM** or arrange for custom volunteer times.
  - Volunteer and **learn horticulture** (how to grow and maintain plants).
  - **Earn a WISER T-shirt** after 5 sessions.
  - Have fun and beautify campus too!!

WISER Volunteer Staff at the WISER Workshop – Every Th. 2-4

WORK STUDY

If you are interested in and eligible for the federal work study program please see either **Rachel Wallace** (wallacrm@potsdam.edu, Phone 267-4814), or the department secretary. Responsibilities include laboratory setup and cleanup and plant and animal care.

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 labs

If you are interested in becoming a Teaching Assistant in the General Biology labs (BIOL 151 and 152) please contact Drs. Rob Ewy or Rob Snyder before the end of the spring semester. Basic requirements: 1) successful completion of Biology 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 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! This is an excellent way to review your Biology and help out the Intro class.

Lecture TA's (General Biology): *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) lecture. Please contact Dr. Snyder (snyderrl@potsdam.edu) if interested.*

Dr. Ewy is looking for TAs for Biology 100 (non–majors Biology). Bio 100 has a Thursday lab section.See Prof Ewy for more details.

TA's needed Ecology Lab: I am looking for **1-2 Ecology TA's.** TA's must have taken BIOL 300. TA's will drive College van to field sites, among other duties. Please contact Dr. Amulike (amulikbb@potsdam.edu) if interested.

INTERNSHIPS

Biology Department Applied Learning Opportunities

New internship: Laboratory Technician. If you've considered laboratory research or management after graduation, this internship may be for you. Topics and experiences covered include: maintaining a lab notebook; making solutions; model systems; hazardous waste disposal and chemical storage; equipment use, troubleshooting, maintenance and repair; media preparation: antibiotics and additives; molecular biology techniques; field trip to Clarkson to see their facilities; creative problem solving (or, Don't panic: how to fix anything with duct tape and popsicle sticks); and ordering and stocking supplies. Open to one student per semester depending on instructor availability. Contact Rachel Wallace (wallacrm@potsdam.edu) if you're interested in applying or learning more.

Care and Handling of Display Animals in the Biology Department at SUNY Potsdam

INTERNSHIPS

& Biology Department Applied Learning Opportunities

Learn how to apply for an internship with this link to the Experiential Education Office (EEO).

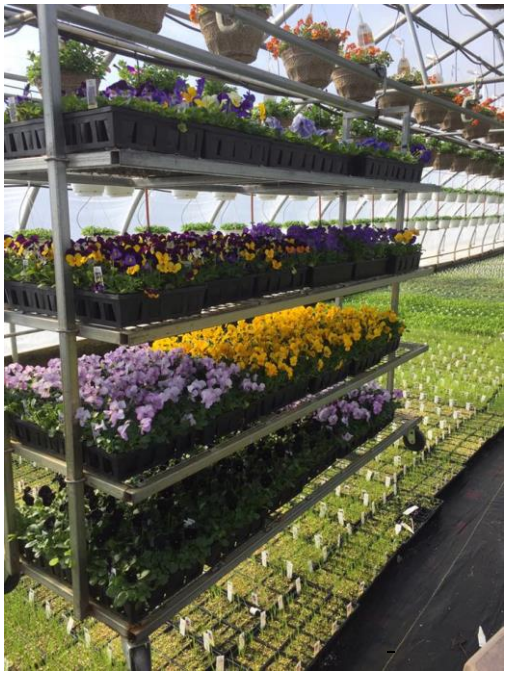
Wagner Institute for Sustainability and Agricultural Research (WISER) Internship, in the Biology Department at SUNY Potsdam

You get to:

- Manage the Healthy Plant Initiative (HPI) program
- Grow microgreens for PACES
- Help Develop our campus composting initiative
- Learn horticultural technique
- Practice Integrated Pest Management
- Report your achievements 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 who 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 be trained in Integrated Pest Management (IPM) techniques and participate in the Never Tire Farm's biological control program.

What can you do with a Biology Degree??

Here's a few web resources!

https://www.monster.com/career-advice/article/best-jobs-biology-majors-0317

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

And finally, here are some links to the **Bureau of Labor Statistics Occupational Outlook Handbook** pages. The first is the general page for Life, Physical and Social Sciences

https://www.bls.gov/ooh/life-physical-and-social-science/home.htm

Here is the page specifically for Environmental Scientists

https://www.bls.gov/ooh/life-physical-and-social-science/environmental-scientists-and-specialists.htm

And for Medical Scientists

https://www.bls.gov/ooh/life-physical-and-social-science/medical-scientists.htm

New Major in Environmental Science!

Notice: Faculty in Biology, Geology, Physics, Chemistry and Environmental Studies have developed a brand- new **Major and Minor in Environmental Science**. The fruits of this effort are on the books beginning **Spring 2022**. **Here's a brief overview**, however, if you are interested in exploring this exciting new major, email or stop by and chat with Drs. Johnson, Rygel, and/or Rogers to hear more!

Required Courses			
Cognates Classes (30 credits)			
Course Title	**Credits**	**Course Title**	**Credits**
BIOL 151, General Biology I + Lab	*4*	*ENVR 110, Intro to Environmental Studies*	*3*
BIOL 152, General Biology II + Lab	*4*	*GEOL 101, Environmental Geology + Lab*	*4*
CHEM 105, General Chemistry I + Lab	*4*	*MATH 151, Calculus I*	*4*
CHEM 106, General Chemistry II + Lab	*4*	*STAT 100, Probability and Statistics*	*3*
Core Environmental Science Classes (28 credits)			
Course Title	**Credits**	**Course Title**	**Credits**
BIOL 300, Ecology + Lab	*4*	*GEOL 410, Hydrogeology + Lab*	*3*
ESCI 200, Environmental Science	*4*	*CHEM 320, Environmental Analysis*	*4*
ESCI 301, Soil Science + Lab	*4*	*GEOL 425, Scientific Communication or ENVR 490 Senior Seminar*	*3*
GEOL 320, Geochemistry	*3*	*POLS 414, Environmental Law*	*4*
Elective Courses (14 credits from the following)			
Course Title	**Credits**	**Course Title**	**Credits**
BIOL 310, Marine Biology	*3*	*ENVR 391, Field Project*[1]	*1-6*
BIOL 312, Insect Ecology	*4*	*ESCI 495, Env. Science Research*[1]	*1-3*
BIOL 334, Biology of Woody Plants	*3*	*GEOL 350, Geomorphology*	*4*
BIOL 400, Field Ecology	*4*	*GEOL 380, Climate Change: Past & Present*	*3*
BIOL 402, Conservation and Wildlife Management	*3*	*GEOL 407, Applied Geophysics*	*3*
BIOL 408, Wetland Ecology	*3*	*GEOL 440, Economic Geology*	*3*
BIOL 409, Freshwater Biology	*4*	*GISC 101, Intro. to GIS*	*4*
CHEM 311, Quantitative Analysis	*4*	*GISC 302, Remote Sensing*	*3*
CHEM 321, The Sustainable World or ENVR 120, Intro. To Sustainability	*3*	*SOCI 340, Environment and Society or SOCI 341, Environmental Justice*	*3*
CHEM 341, Organic Chemistry I	*4*		
CHEM 342, Organic Chemistry II	*4*	*PHIL 330, Environmental Ethics*	*3*
CHEM 415, Instrumental Analysis	*2*	*PHYS 325, Energy and the Environment*	*3*
ECON 320, Economy and the Environment	*3*	*PHYS 330, Meteorology*[2]	*3*
[1]Students can count a total of no more than three credits toward the electives		*[2]Highly recommended for all students*	

BIOLOGY'S HERBARIUM

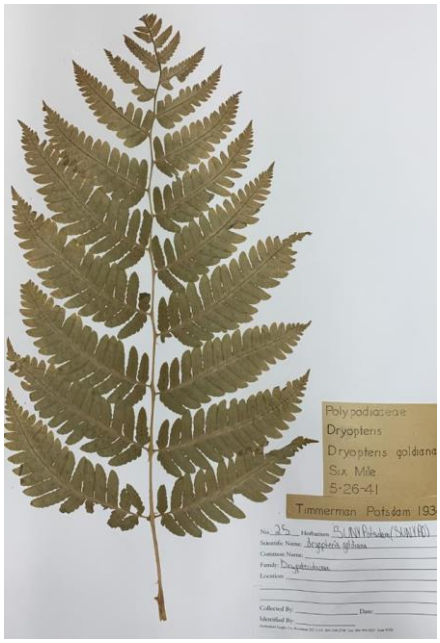
The SUNY Potsdam Herbarium is shaping up! An herbarium is a library of preserved plant specimens that have been collected or donated over the years. Herbaria provide a permanent record of plant diversity, mark the movement of species in or out of a geographic area, and provide a tangible example of a species' anatomy. Our collection encompasses 1851 specimens in 145 families and 53 orders. They've been organized according to APG (Angiosperm Phylogeny Group) IV classification and linear sequencing as generated by Christenhusz et al. (2011) for our lower vascular and non-vascular plant specimens.

Since 2017 we've been organizing the physical collection, getting STW 111A cleared out and set up to be a facility, databasing the collection, and now we're mounting and repairing the specimens. The end goal is inclusion in a SUNY-wide Herbarium Consortium, with all specimens digitized and fully accessible for classroom and research use.

Dan Marro '20 was hugely instrumental in the initial reorganization of the collection, along with the help of Victoria Saladino '18. In more recent times, Stevie Phelabaum '21 and Sai Barnes '23 have led the charge in repairing and mounting specimens, along with contributions by Diana Marji.

Stevie and Sai completed mounting and repairing the Magnoliids and Monocots last Spring. Sai recently completed non-vascular and vascular lower plants and is steadily working her way through our gymnosperm collection. Next stop is the daunting eudicot collection!

Interested in learning more or getting involved in the SUNY Potsdam Herbarium? Email Rachel Wallace (wallacrm@potsdam.edu) or stop by STW 111A for a visit!



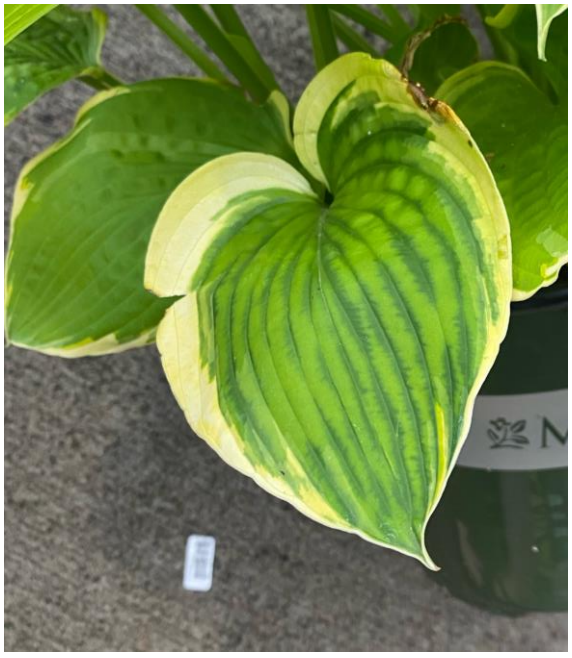
RESEARCH WITH PROFS

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. I currently examine physiological differences related to a recessive white pattern that my students and I have successfully developed into a pure-breeding lineage. These spotted white birds show different growth rates, organ masses, and morphological measurements than the wild type color. My research aims to determine the physiological mechanisms behind these differences, such as changes in metabolism and differences in mitochondrial function of various tissue types.

Dr. Sarah Sirsat – Hosta Project

I am currently looking for students to participate in an ongoing disease prevalence study during the summer and fall of 2024. We will be monitoring various plant populations (private garden, public landscaping, commercial sellers) for HVX, a highly infectious virus in the local population of a popular ornamental garden plant, the Hosta. Hostas thrive in the USDA zone 4b climate of Potsdam, NY and are used as ornamentals for commercial and personal landscaping. Numerous local corporate and privately owned nurseries sell hostas imported from around the world, providing an avenue of contamination. This project aims to establish the prevalence of HVX in established hosta plants around the Potsdam community using the HVX ImmunoStrip®: a polyclonal test strip developed as an on-site tool to quickly identify plants infected with Hosta virus X (HVX).



Dr. Jan Trybula – Molecular Ecotoxicology & Population Genetics

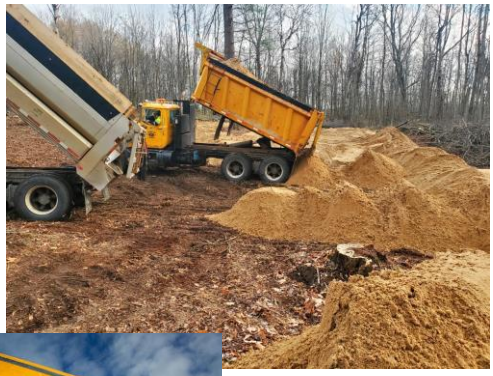
My research is tied to many aspects of genetics and biodiversity. I'm mainly interested in molecular ecotoxicology—how toxins in the environment affect the genetics of various organisms. I'm also interested in the biodiversity of emergent aquatic insects such as dragonflies, mayflies, stoneflies, and caddisflies. Worldwide insect numbers and diversity are in decline and pollutants of various sorts are thought to be one of the greatest contributing factors.

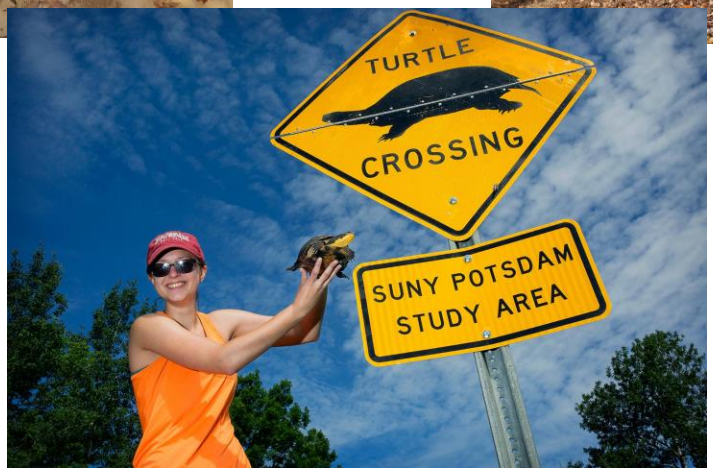
Students in my lab examine a wide variety of ways to determine genetic damage caused by a wide variety of pollutants. My most current work is investigating genetic variants of insect chloride ion molecular pore proteins and the effect those variants may have on susceptibility or resilience to road salt runoff. We will study genetic variation as well as damage to DNA. If you're interested in learning more, please contact me.

Dr. Glenn Johnson – Conservation of Threatened Species

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

I am in the latter stages of a funded project on turtle conservation. This involves Blanding's turtles, a Threatened Species over much of its range, and other regional freshwater turtles species. This project is part of a grant from the US Fish and Wildlife Service, 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, 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. Robert Ewy - Research experience: Medicinal Properties of Willows

The two primary projects in my lab are sustainable energy production and herbal medicines, both from shrub willow. Yes, you can get research credit for making energy! Currently, students in my lab are quantifying Salicylic Acid in 16 varieties of willow. This project will continue on in the fall. 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 to work in my lab are curiosity, a willingness to solve problems, and the desire to learn outside of a book.

You can earn research credit via Biology 485 **or** an internship.

Dr. Rob Snyder – Genomics/Animal Behavior

My main project is looking at the role of primary gut symbionts, in plant feeding insect speciation. Basically, gut bacteria provide the insect essential amino acids synthesis pathways. Closely related species have different diets and require different pathways. This research is interested in explaining how insects adapt and diverge to new diets, which leads to speciation. To date we have sequenced the genomes of two co-symbionts and are using that information to look for patterns in the amino acid pathways between 9 closely related species. **Research Opportunity: I am looking for two student researchs, with genetics lab skills or interest in molecular genetics for FALL 2024.**

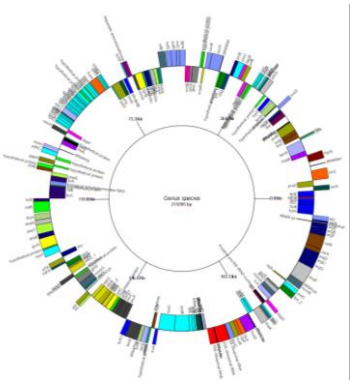


Figure 1: Genome of *Sulcia* sp. The first novel genome sequenced by SUNY Potsdam

Other projects include egg laying behavior of the Two-spotted treehopper, and the effect of the invasive Viburnum leaf beetle on Two-spotted treehopper habitat. **Research Opportunity: I am looking for one or two students interested in FALL 2024 field work.**

Figure 2: The two-spotted treehopper *Enchenopa binotata*

Interested in independent research? I'm willing to mentor undergraduate research in genomics / bioinformatics and phylogenetics, as well as behavioral ecology. Don't know what you want to do? Stop by my office (307 Stowell).

Dr. Jessica Pearson

Job Announcement: Paid Summer Research Assistant 2023 – INVASIVE PLANT RESEARCH

Dr. Jess Pearson

Application DEADLINE: April 12

Dr. Pearson is seeking 2-3 motivated students to work with her during summer of 2024 – the timing is flexible, a minimum of 4 weeks commitment is required, but it could extend a bit in either direction. She is continuing a research project on a local invasive species, purple loosestrife (***Lythrum salicaria)***, present in wetlands and along roadsides. The study will involve traveling local roads on foot both with Dr. Pearson and other interns as well as alone to find areas along these roads that demonstrate the presence of purple loosestrife. Measuring these infestations and examining plants for herbivory (damage from insects) and mapping these locations with this kind of data will be done from the Blue Line on Rt. 68, following Rt. 68 to Ogdensburg, and Rts. 37 and 12 along the St. Lawrence River to Akwesasne and back to Colton. We will also be helping propagate a biocontrol, *Galerucella* beetles, at the Akwesasne St. Regis Mohawk Tribe's Environment Offices. There will be 3 days of work immediately following graduation to build a beetle hatchery at Akwesasne, then waiting for plants.
Work will be 30-40/hrs per week starting around July 22nd and ending just before classes start. The requirements in a given week are uncertain based on the weather and plants/insects requirements. The compensation for this work is $17/hr with a minimum total salary guarantee when you sign on. The start and end dates are somewhat flexible and will depend somewhat on the availability of interns and of the target species. There is on-campus housing available.



Job basic skills:
1. A valid driver's license and comfort driving, having your vehicle is preferred, but not required.
2. The ability to work outside in potentially rigorous environments for many hours in potentially hot or wet environments (hiking boots/shoes are preferred, but sturdy sneakers will suffice)
3. A smart phone (iPhone or Android) with the ability to download the free ArcGIS Field Maps App, and the iMap Invasives app (this won't be provided, but training in using the apps will be).
4. A basic understanding of botany and the scientific method are preferred.
5. Good communication skills and interpersonal skills are required

If you're interested in the summer research work, please send a basic resume and a cover letter explaining your interest in the project and how it relates to your academic or career goals, including 1 on-campus. Students from all majors will be considered, with preference for those looking for academic credit. Send the 2 files to rogersje@potsdam.edu with the subject line SUMMER INTERNSHIP.

Conservation Biology Research Internship
Summer 2024

Are you interested in a career in managing wildlife populations? Do you like getting out in the field and learning new skills? If so, this internship is for you!

Conservation Biology Research Internship
Summer 2024

Are you interested in a career in managing wildlife populations? Do you like getting out in the field and learning new skills? This internship is for you!

This summer Drs. Cleary, Johnson, Amulike and Pearson are launching the third season of data collection for our research project on mammal diversity and tick-borne disease. Read more here!

Interns will assist with setting up trapping arrays at 20 sites around Potsdam, habitat sampling, checking camera and live traps, organizing equipment, and managing databases. We encourage students from underrepresented groups to apply.

Hours: Some flexibility, can likely accommodate another part-time job.

Pay: $16/hour, 200 hours total

Other requirements: Having your own vehicle is a plus, but not required. Mileage will be paid. You also need to be willing to get outside, get dirty, and work hard.

To apply: Please send a cover letter, resume, and the name of one on-campus reference to clearyka@potsdam.edu by ***April 1, 2024.***

SUNY Potsdam
Lambda Xi Chapter
Beta Beta Beta
National Biological Honors Society

Beta Beta Beta (TriBeta) is a society for students, particularly undergraduates, dedicated to improving the understanding and appreciation of biological study and extending boundaries of human knowledge through scientific research. Since its founding in 1922, more than 200,000 persons have been accepted into lifetime membership, and more than 670 chapters have been established throughout the United States and Puerto Rico.

New member candidates are invited to join BBB every year. Invitations are sent out in March and a new member induction ceremony is in late April.

The membership shall be divided into six classes: regular, associate, graduate, honorary, alumna/ us and corporate. Beta Beta Beta is a non-discriminating organization that does not consider age, race, color, creed, sex, national origin or sexual preference.

Regular members shall be:
a) Undergraduate biology majors (BS or BA) at SUNY Potsdam.
b) Shall have completed at least 3 semesters of a four-year curriculum.
c) Shall have completed at least three term courses in biology (BIOL), of which at least one must be upper division (300 or 400 level), with an average 3.25 GPA in those biology courses.
d) Shall have a 3.25 GPA in all courses, and in good academic standing
**Only regular members may hold the constitutionally specified chapter offices, vote on chapter membership nominations and national questions, and represent the chapter or vote at national conventions.

Associate members shall:
a) Shall have completed at least 3 semesters of a four-year curriculum.
b) Shall have completed at least three term courses in biology (BIOL), of which at least one must be upper division (300 or 400 level), with an average 3.25 GPA in those biology courses.
c) Shall have a 3.25 GPA in all courses, and in good academic standing.

Biology BS Curricular Changes							
	Current	**Credits**			**Proposed**	**Credits**	**Change**
Required	BIOL 151 Lec and lab	4		**Core Courses**	BIOL 151 Lec and lab	4	None
22 credits	BIOL 152 Lec and lab	4		24 Credits	BIOL 152 Lec and lab	4	None
	BIOL 300 Lec	3			BIOL 300 Lec	3	None
	BIOL 311 Lec	3			BIOL 311 Lec	3	None
	BIOL 300 or 311 Lab*	1			BIOL 300 or 311 Lab*	1	None. * If labs are taken in both BIOL 300 and BIOL 311, then the second lab counts toward the elective hours
	BIOL 483	3			BIOL 483		Now an elective
					BIOL 307	3	Addition
					BIOL 319	3	Addition
					BIOL 301 **CM**	3	Addition
	Physiology Component	4			Physiology Component		Removed
Concentration Requirements	At least two electives with labs	17		**Elective Requirements**	At least two electives with labs CT?	17	No change
Required	CHEM 105 Lec and lab	4		**Required**	CHEM 105 Lec and lab	4	No change
Cognates	CHEM 106 Lec and lab	4		**Cognates**	CHEM 106 Lec and lab	4	No change
27-28 credits	CHEM 341 Lec and lab	4		27credits	CHEM 341 Lec and lab	4	No change
	MATH 151 or equivalent**	4			MATH 151 or equivalent**	4	No change
	STAT 100 or MATH 125 or CIS 125 or MATH 152	3 or 4			STAT 100 or MATH 125 or CIS 125	3	Required Note: MATH 152 no longer an option
	PHYS 101 and PHYS 202 Lec and lab	8			PHYS 101 and PHYS 202 Lec and lab	8	Note: College and University Physics now one of three options
	or				**or**		
	PHYS 103 and 104 Lec and lab**	8			PHYS 103 and 104 Lec and lab**	8	**MATH 151 and 152 are corequistes
					or		
					GEOL 101 Lec and Lab	4	New Option
					and		
					GEOL 200 Lec and Lab	4	
					or		
					CIS 201 Lec and Lab	4	New Option
					and		
					CIS 203 Lec and Lab	4	
	** MATH 141 and MATH 142 are equivalent to MATH 151; require 8 credits to complete				** MATH 141 and MATH 142 are equivalent to MATH 151; require 8 credits to complete		
Total Credits Required		**65–66 Credits**				**68 Credits**	

Biology BA Curricular Changes						
	Current	**Credits**		**Proposed**	**Credits**	**Change**
Required	BIOL 151 Lec and lab	4	**Core Courses**	BIOL 151 Lec and lab	4	None
22 credits	BIOL 152 Lec and lab	4	24 Credits	BIOL 152 Lec and lab	4	None
	BIOL 300 Lec	3		BIOL 300 Lec	3	None
	BIOL 311 Lec	3		BIOL 311 Lec	3	None
	BIOL 300 or 311 Lab*	1		BIOL 300 or 311 Lab*	1	None * If labs are taken in both BIOL 300 and BIOL 311, then the second lab counts toward the elective hours
	BIOL 483	3		BIOL 483		Now an elective
				BIOL 307	3	Addition
				BIOL 319	3	Addition
				BIOL 301 CM	3	Addition
	Physiology Component	4		Physiology Component		Removed
Elective Requirements	At least two electives with labs	15	**Elective Requirements**	At least two electives with labs	15	None
Required	CHEM 105 Lec and lab	4	**Required**	CHEM 105 Lec and lab	4	No change
Cognates	CHEM 106 Lec and lab	4	**Cognates**	CHEM 106 Lec and lab	4	No change
12 credits	CHEM 341 Lec and lab	4	12 credits	CHEM 341 Lec and lab	4	No change
Total Credits Required		**49 Credits**			**51 Credits**	

BIOLOGY SPECIALIZATION REQUIREMENTS

Biology Required Courses (13 hours)

Biology Electives (6 hours)

Course Number	Title	Hrs.	Grade		Course Number	Title	Hrs	Grade
125 125L	Biological Concepts	3			300	Ecology Lab (Optional Elective)	1	
152	Gen Bio: Organisms and Ecology Lecture	3			311	Genetics Lab (Optional Elective)	1	
152	Gen Bio: Organisms and Ecology Lab	1						
300	Ecology Fall Only	3						
311	Genetics Spring Only	3						

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