

Department of Biology Newsletter

State University of New York at Potsdam

Department of Biology

http://www.potsdam.edu/academics/AA_S/biology/index.cfm

Sara Peabody, Administrative Assistant
Stowell 207B
Ph 315-267-2264; Fax 315-267-3170
peabodsr@potsdam.edu

Bridget Amulike
PRODiG Fellow/Visiting Asst Professor
Conservation Biology/Urban Ecology
Stowell 204 x2292
amulikbb@potsdam.edu

Raymond Bowdish, University Instructional
Specialist/WISER Center Coordinator
Sustainable Agriculture
Timerman 232, x2276
bowdisrp@potsdam.edu

Pat Burdick, Lecturer
Timerman 235, x2545
burdicpc@potsdam.edu

Walter Conley
Marine Biology/Biology Education
Stowell 206, x3764
conleywi@potsdam.edu

Robert Ewy
Botany/ Pre-Health Committee Chair
Stowell 202, x2191
ewyrg@potsdam.edu

Glenn Johnson, Chair
Vertebrate Ecology/Conservation Biology
Timerman 231, x2710
johnsong@potsdam.edu

Gordon Plague
Microbiology
Stowell 208, Ph 2272
plaguegr@potsdam.edu

Laura Rhoads
Cell Physiology
Stowell 203, x2260
rhadsls@potsdam.edu

Jason Schreer
Animal Physiology/Neurophysiology
Stowell 206B, x2290
schreejf@potsdam.edu

Sarah Sirsat
Animal Physiology
Stowell 301, x2293
sirsatsk@potsdam.edu

Robert Snyder
Ecology and Genetics
Stowell 307 x2850
snyderrr@potsdam.edu

Jan Trybula
Genetics
Stowell 205A, x2258
trybulj@potsdam.edu

Rachel Wallace, Instructional Support Associate
Stowell 210C x4814
wallacrm@potsdam.edu

Adjunct Instructors/Associates

Douglas Carlson, Research Associate
carlsodm@potsdam.edu

Angelena Ross, 229 Timerman
Senior Wildlife Biologist, NYS Department
of Environmental Conservation
angelena.ross@dec.ny.gov

THIS ISSUE The *Lampsilis* mussel issue **Spring 2023**

- Up to \$1000 scholarship (below)
- Registration info
- Declaring Biology as a major
- Transitions in the Biology Department /Social Networks/Awards
- Potsdam Pathways
- New and improved courses for the Fall 2023!
- Health Professions
- Marine Biology for Summer 2023; Belize Winter 2023-2024
- 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)
- B.S. checklist and B.A. checklist; Bio. specialization checklist
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BOB CERWONKA MEMORIAL SCHOLARSHIP

This year's recipient of the Bob Cerwonka Memorial Scholarship is **Lucas Scalcione**. 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 2023 newsletter. **Please**

note: You must be a matriculated student in the Fall following the award given in January to receive the funds!!



Comments or suggestions about the newsletter?

Contact Dr. Glenn Johnson, Newsletter Editor, in Timerman 231, x2710, johnsong@potsdam.edu

REGISTRATION

Advising begins March 13. *The spring schedule will be available online this day*

Registration begins:

- **Seniors – April 11**
- **Juniors – April 12**
- **Sophomores – April 13**
- **Freshmen – April 14**
- **Transfer Students – April 21**

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 2023 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 DEVELOPMENTS IN THE BIOLOGY DEPARTMENT

Dr. Conley will be on Sabbatical leave during the 2023/24 academic year, finishing research projects in various stages of completion. He will return for fall 2024.

Biology Department Award Recipients

Bob Cerwonka Memorial Scholarship

2023 Recipient: **Lucas Scalcione**

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. Iseberg 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.

2023 Recipient: **Cassidy Welsh**

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.

2023 Recipient: **Jane Mattingly**

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

2023 Recipients: **Gabriella Toriseva, Vincenzo Bonaiuto, Tristen Cruikshank and Kylie Wilkins**

Departmental Scholars:

2023 Recipients: **Eryl Bevan, Shanelle Borth and Cassidy Welsh**

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.

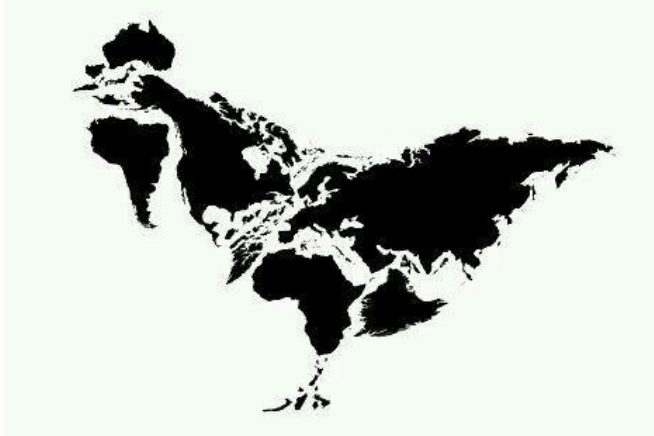
<https://www.facebook.com/SunyPotsdamBiology/>

POTSDAM PATHWAYS

WAYS 101 The Crossing of Chickens – 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 – The Biology of Cancer - SI

Dr. Laura Rhoads

Wednesday 4:00-6:50 PM

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? Biology of Cancer is a seminar-style class that satisfies the requirement for a Current Topics course in the biology major. We will be looking at cancer through the lens of cell biology, molecular biology, biochemistry, physiology, and medicine. Using these various aspects of biology and the research literature, we find out what causes cancer, 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 literature in the preparation of your presentation and summary paper. Each student will give two presentations (15 and 30 minutes) on primary research articles about cancer, with peer review and self-evaluation.



BIOL 409 – Freshwater Ecology (4 credits)

Drs. Snyder and Johnson

Lecture MWF 11:00 – 11:50 Lab Tuesday 2:00 – 4:50

Freshwater Ecology Lecture-Lab is an ecology course focused on aquatic ecosystems (streams, rivers, and lakes). Lectures will provide an overview of physical, chemical, and biological processes of these ecosystems, while labs will include field experiences to tie the lecture material to the local aquatic ecosystems. This course will also address the relationships between humans and freshwater, as well as the conservation challenges, we face.

Because this course is focused on only freshwater biota, habitats, and specific ecological processes, it will not cover the basic ecological concepts or terrestrial ecosystems in as much detail as Ecology (BIOL 300). Thus, Freshwater Ecology is not a replacement for BIOL 300. This course is designed for upper division Biology, Environmental Science, Environmental Studies, and Geology majors.

Why take this course? Freshwater ecosystems are complex and play important roles in human health and well-being, not to mention recreation. As such, society requires oversight and management to ensure these resources function as required. This class will help you prepare for a career as a Freshwater ecologist. And Human caused issues with water supply, fisheries, environmental quality, and flood control, will provide plenty of rewarding jobs. Lastly, freshwater ecosystems are awesome.



BIOL 107 – Human Biology

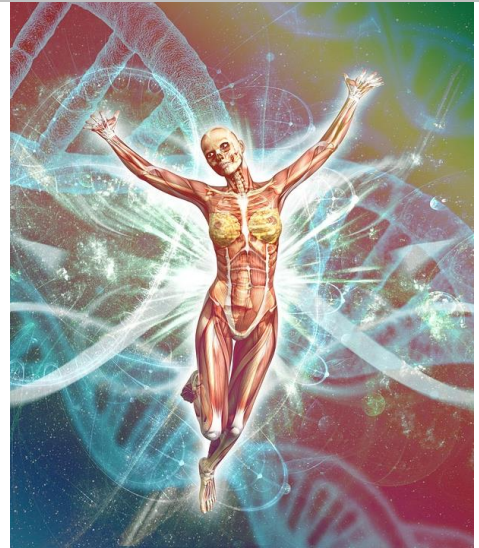
Dr. Schreer

Lecture Tues, Thurs 11:00-12:15am, Lab Thursday 2:00-3:50pm.

It's who you are!

Non-majors course that fulfills the NW gen. ed. All systems of the human body will be covered. And a quirky reality-bending perspective, as a bonus.

Any questions, please contact Dr. Schreer at schreejf@potdam.edu.



BIOL 401 – Exercise Physiology

Dr. Schreer

Lecture Tues, Thurs 9:30-10:45am, Lab Monday 2:00-4:50pm.

The body achieves what the mind believes!

Learn about physiological adaptations to exercise, lots of workout tips and motivation, and even get some free workouts in lab. Fulfills the physiology requirement and 4 credits of UD bio elective.

Any questions, please contact Dr. Schreer at schreejf@potdam.edu.



SUMMER COURSES!!! BIOL 151 and BIOL 480 (The Biology of Pandemics)

Dr. Ewy

Summer Plans? Biology 151 will be offered asynchronously online this summer during Summer Session I. The Lab portion of the course will not be offered during the Summer Session. I will also offer Biol 480 "The Biology Pandemics." In this course you will learn about the history of pandemics, the biological origins and spread, where pandemics begin, and how humans have responded to them. Biol 480 is a three-hour class that does count towards your upper division electives for the Biology major. This course is online and asynchronous.

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 structure 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.

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.

HLTH 320 – Microbiology

Dr. Gordon Plague

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



Roger crams for his microbiology midterm.

Call for Teaching Assistants in Microbiology (BIOL 320).

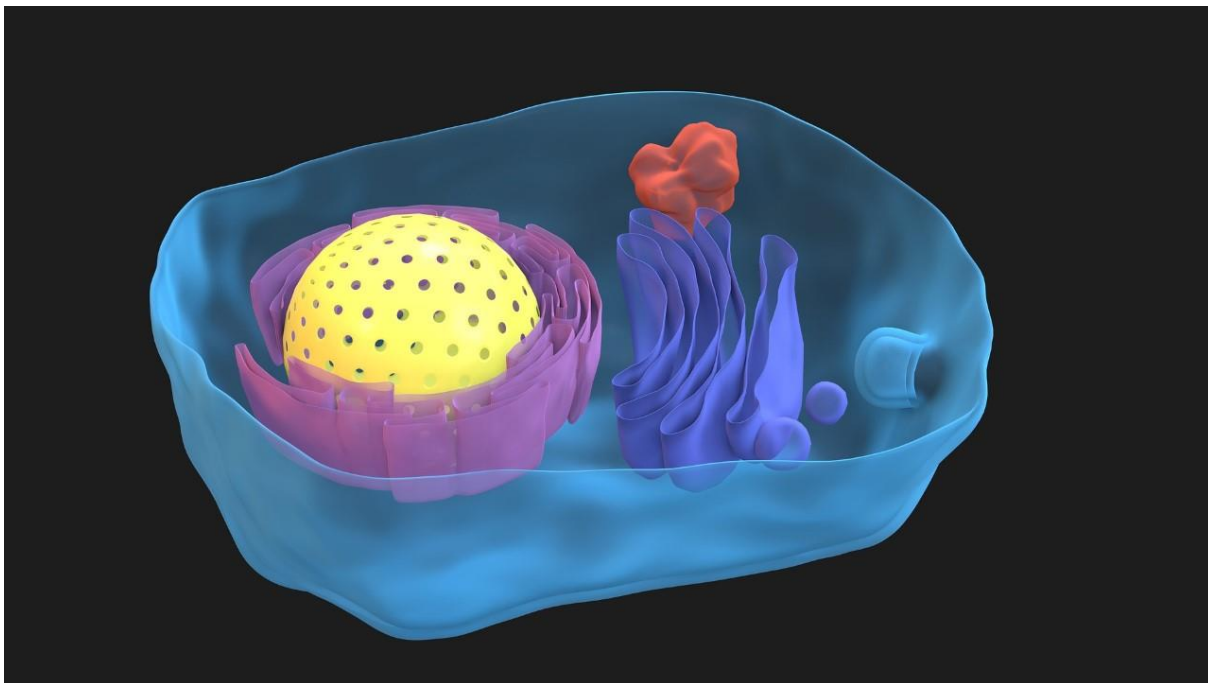
Please contact Dr. Plague (plaguegr@potsdam.edu) if you're interested in being a Microbiology TA. The lab will meet on Thursday afternoon and evening.

BIOL 407 – Cell Physiology

Dr. Laura Rhoads

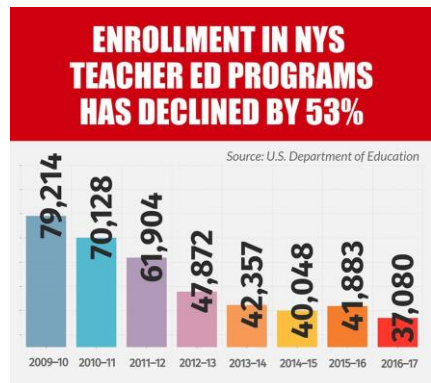
Lecture Tuesday/Thursday 11:00 – 12:15; Lab Tuesday 2:00 – 4:50 pm

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 are looking for an upper-level elective and have already completed one of the physiology courses, please contact me about an override to remove the lab requirement.



Love Biology? – Teach it!

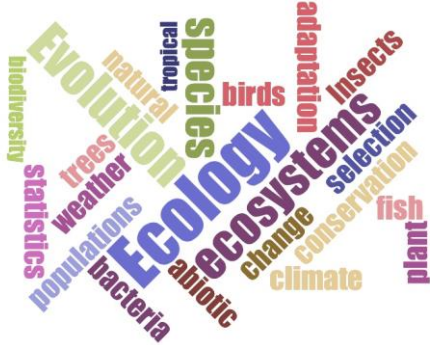
The State of New York and the nation are experiencing a massive teacher shortage. Areas of greatest need include all STEM fields. There are many openings for biology, and all of the natural sciences, educators in every school district, and every state. If you love biology, and want to share that passion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



Photos from Lab trip to Cold Brook



BIOL/ENVR 380 Sustainable Energy

New Fall Course! **ENVR 380: Sustainable Energy**

Transitioning our energy systems to sustainable models is a critical part of ensuring the future of humans on earth. Renewable energy is already a growth field for jobs, and this will only continue. Come be part of the change!

Dr. Cleary

Tuesdays/Thursdays 9:30-10:45



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@potdam.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 2023

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.

Several species of freshwater *Lampsilis* mussels have a fish-shaped lure in their mantle. This attracts local predatory fish and when they get close, the mussel blows a batch of its larvae into the fish's mouth where they attach to her gills, parasitize her and use her to disperse to new sites days later



Winter Break 2023 – 2024

BIOL 395 – Tropical Ecology and Conservation - Belize

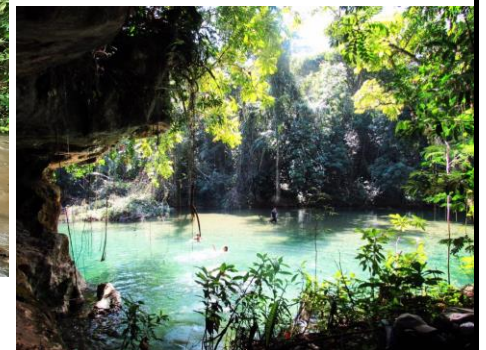
Dr. Glenn Johnson

Spend New Year's Eve in a remote tropical rain forest in **Belize!**

Consider a Winter travel course tentatively leaving snowy Potsdam on December 27 and returning on January 8, 2022. See Dr. Johnson (johnsong@potsgdam.edu; x2710; 231 Timerman) for details. We 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 and Glenn Johnson



WISER

(Wagner Institute for Sustainability and Ecological Research)

Center Spotlight

The WISER Center is the Biology Department’s unique organization for applied learning and outreach! You can find us in Room 205, Stowell Hall. 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 is run by the WISER Staff comprising the coordinator, student and community-member volunteers, interns, and research students. They do amazing things like growing food in the PACES CCSA program, educating plant owners and helping “green the campus” through the *Health Plant Initiative*, fighting food insecurity with *The Cecilie Garden Project*, helping improve wellness with *Yoga in the Greenhouse* and *The Pet Plants Project*, and improving education with Tower Gardens and the curriculum from the Green Bronx Machine to support teachers in our *North Country Food and Nutritional Education* program series.



All students, regardless of their major, can be a part of our WISER Staff! Please visit the WISER Center via Stowell 205 or email wisier@potsgdam.edu, for more information. Also check out: <https://getinvolved.potsgdam.edu/organization/wisier>

Here are some things we do at the WISER!! Upper left, tomatoes from The Cecilie Garden Project; upper right, Tower Gardens; lower left, Plant Propagation Workshop; lower right Yoga in the Greenhouse



WISER Internship Guide

Students in any major can be a *WISER Intern*. In the WISER Center and among its sites around campus, you will engage in applied learning programs designed to teach a variety of horticultural skills. As a member of our WISER Staff, interns help plan and produce events, maintain the WISER Center and its plants, practice urban farming and working with other student volunteers and researchers, to further a culture of sustainability on campus and in our region! Working at the WISER is a fantastic way to learn about our campus, the local community, and the earth as you enrich your understanding of issues around sustainability and ecology and add active learning to your resume or C.V.!



Choose from the following internship opportunities.

- **General Intern** (1-2 credits): This entry-level internship is a prerequisite* for all other job descriptions. Interns support all programs and facilities of the WISER .
- **Plant Doctor** (2-4 credits): Supports the Healthy Plant Initiative (HPI) to increase number and health of plants on campus.
- **Campus Urban Farmer** (3-6 credits): Operates the Campus Community Supported Agriculture (CCSA) program and grows food for PACES dining services.
- **Wellness Interns** (1-3 credits): Operate wellness programs like Yoga in the Greenhouse & The Pet Plants initiative.
- **Community Farmer** (4-6 credits) – are Fall and Summer term opportunities to coordinate The Cecilie Garden Project with local non-profits to grow food to increase local food security. This internship can serve as Environmental Studies 391 course, Field Project.
- **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.
- **Campus Beekeeper** (1-3 credits) – Interns assist, or lead activities and tasks required to maintain the campus apiary. **
- ***New Outreach & social media Internship** – (2-4 credits) Produce content the WISER Center and Biology Department social media platforms, create advertising, promote events and programing with marketing and advertising initiatives.

Prerequisites may be waived if students can demonstrate sufficient experience in the General Internship skill set. *

Getting Started as a WISER Intern

We follow the internship process required by the [Experiential Education Office \(EEO\)](#).

Here is what you need to do

1. First [click here to see if you qualify...](#)
2. Schedule a meeting with the WISER Coordinator by emailing: wiser@potsgdam.edu or by sending an Outlook Invitation to: bowdisrp@potsgdam.edu.
3. Meet with the coordinator and determine which internship descriptions best fit your goals.
4. You will receive an email with an *Internship Proposal Template* (IPT) attachment appropriate to the internship you selected.
5. Edit your IPT and attach it to an email it to: wiser@potsgdam.edu for preapproval.
 - a. This step may repeat depending on the completeness of your ITP.
 - b. Once you have preapproval from the WISER Coordinator you need apply for full approval for academic credit. [Full instructions are here.](#)

Internship Opportunity Off Campus!!

Study Horticulture at Never Tire Farm

Each Spring in Lisbon NY, Never Tire Farm seeks motivated students for a unique and valuable experience, working in a modern greenhouse operation. Students that qualify for the internship will be actively learning about all aspects of greenhouse production including sowing, transplanting, fertilizing, watering and propagation of various annuals, perennials, vegetables, and herbs. Interns learn about the business of growing plants and will be exposed to maintenance and labor issues facing modern growers. Qualifying interns should have experience as a WISER intern and be trained in Integrated Pest Management (IPM) techniques and participate in the Never Tire Farm's biological control program. Talk to Ray Bowdish about this opportunity.



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@potdam.edu) if you're interested in applying or learning more.

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



SUNY POTSDAM BIOLOGY DEPARTMENT

ANIMAL ROOM & GREENHOUSE

Volunteer and Internship Opportunities available!
Gain hands on animal care experience and even receive credit for it!

Location: Stowell 117 & Stowell 201

Contact Information

Glenn Johnson -	Email: johnsong@potdam.edu	Office: Timerman Hall 231
Rachel Wallace -	Email: wallacrm@potdam.edu	Office: Stowell Hall 210 C



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
<i>BIOL 151, General Biology I + Lab</i>	4	<i>ENVR 110, Intro to Environmental Studies</i>	3
<i>BIOL 152, General Biology II + Lab</i>	4	<i>GEOL 101, Environmental Geology + Lab</i>	4
<i>CHEM 105, General Chemistry I + Lab</i>	4	<i>MATH 151, Calculus I</i>	4
<i>CHEM 106, General Chemistry II + Lab</i>	4	<i>STAT 100, Probability and Statistics</i>	3
Core Environmental Science Classes (28 credits)			
Course Title	Credits	Course Title	Credits
<i>BIOL 300, Ecology + Lab</i>	4	<i>GEOL 410, Hydrogeology + Lab</i>	3
<i>ESCI 200, Environmental Science</i>	4	<i>CHEM 320, Environmental Analysis</i>	4
<i>ESCI 301, Soil Science + Lab</i>	4	<i>GEOL 425, Scientific Communication or ENVR 490 Senior Seminar</i>	3
<i>GEOL 320, Geochemistry</i>	3	<i>POLS 414, Environmental Law</i>	4
Elective Courses (14 credits from the following)			
Course Title	Credits	Course Title	Credits
<i>BIOL 310, Marine Biology</i>	3	<i>ENVR 391, Field Project¹</i>	1-6
<i>BIOL 312, Insect Ecology</i>	4	<i>ESCI 495, Env. Science Research¹</i>	1-3
<i>BIOL 334, Biology of Woody Plants</i>	3	<i>GEOL 350, Geomorphology</i>	4
<i>BIOL 400, Field Ecology</i>	4	<i>GEOL 380, Climate Change: Past & Present</i>	3
<i>BIOL 402, Conservation and Wildlife Management</i>	3	<i>GEOL 407, Applied Geophysics</i>	3
<i>BIOL 408, Wetland Ecology</i>	3	<i>GEOL 440, Economic Geology</i>	3
<i>BIOL 409, Freshwater Biology</i>	4	<i>GISC 101, Intro. to GIS</i>	4
<i>CHEM 311, Quantitative Analysis</i>	4	<i>GISC 302, Remote Sensing</i>	3
<i>CHEM 321, The Sustainable World or ENVR 120, Intro. To Sustainability</i>	3	<i>SOCI 340, Environment and Society or SOCI 341, Environmental Justice</i>	3
<i>CHEM 341, Organic Chemistry I</i>	4		
<i>CHEM 342, Organic Chemistry II</i>	4	<i>PHIL 330, Environmental Ethics</i>	3
<i>CHEM 415, Instrumental Analysis</i>	2	<i>PHYS 325, Energy and the Environment</i>	3
<i>ECON 320, Economy and the Environment</i>	3	<i>PHYS 330, Meteorology²</i>	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

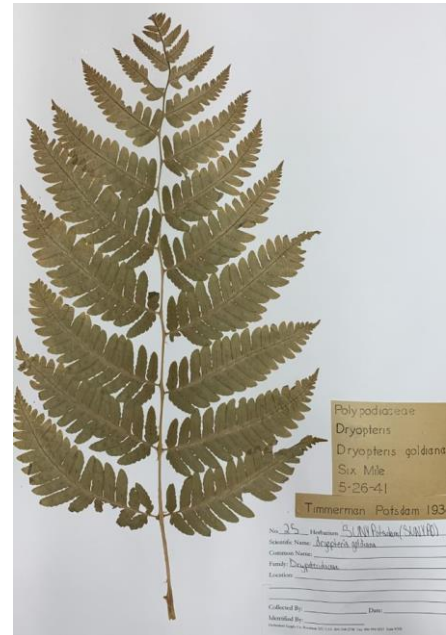
The SUNY Potsdam Herbarium is shaping up! An herbarium is a library of preserved plant specimens that have been collected or donated over the years. Herbaria provide a permanent record of plant diversity, mark the movement of species in or out of a geographic area, and provide a tangible example of a 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@potssdam.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. 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.

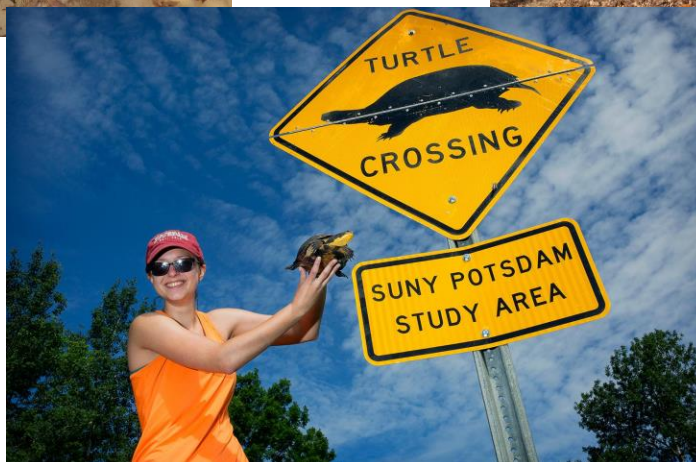
Students in my lab examine a wide variety of ways to determine genetic damage caused by a wide variety of pollutants. My most current work is investigating genetic variants of insect chloride ion molecular pore proteins and the effect those variants may have on susceptibility or resilience to road salt 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@potdam.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. [I am looking for one student research, with genetics lab skills or interest in molecular genetics]

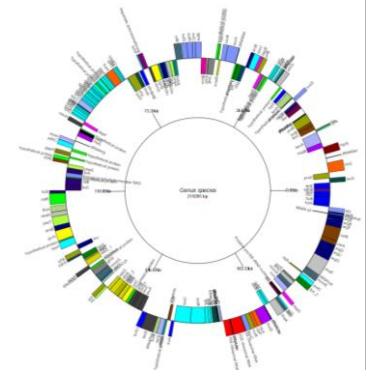


Figure 1: Genome of *Sulcia* sp. The first novel genome sequenced by SUNY Potsdam students

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. [I am looking for one or two students interested in field work, in September and October 2023]



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 Rogers

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



Application DEADLINE: April 15

Dr. Jess Rogers is seeking 2-3 motivated students to work with her during summer of 2023 (and 2024) – the timing is flexible, a minimum of weeks commitment is required, but the entire summer is an option. She is continuing a research project on a local invasive species, purple loosestrife (*Lythrum salicaria*), present in wetlands and along roadsides.

First, we will be propagating a biocontrol, *Galerucella* beetles outside the WISER center greenhouse at SUNY Potsdam. This would be 2-3 days setting up the beetle hatchery, going to the field site outside Canton, digging up plants, and then netting them. This takes place during or just after finals week. Then, the plants/beetles need to be monitored every other day through June. This timeframe is easy to take on a second job as it's just 15-30 minutes/day.

Full-time work begins as the hatchery matures, early July and it's 2 weeks of more intensive work harvesting beetles and then going out to distribute beetles. There's a break again after the beetles are disbursed until full-time work starts again around August 9th and will continue until the work is completed (hopefully before classes start, but possibly continuing after classes begin. We will be helping to monitor the beetles at Akwesasne Saint Regis Mohawk Tribe, and examine locations for future beetle releases.

The requirements in a given week are uncertain based on the weather and plants/insects' requirements. 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.

Job requirements:

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 strong commitment to organization, particularly with computer data/files.
4. A smart phone (iPhone or Android) with the ability to download the free ArcGIS Collector App, and the iMap Invasives app (this won't be provided, but training in using the apps will be).
5. A basic understanding of botany and the scientific method are preferred.
6. 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/e-mail explaining your interest in the project and how it relates to your academic or career goals, including at least 1 on-campus reference. Students from all majors will be considered. Send the 2 files to rogersje@potsdam.edu with the subject line SUMMER INTERNSHIP. A housing stipend is a possibility. Preference is given to students from Akwesasne, SUNY Potsdam, and under-represented groups in field ecology. Please feel free to ask any questions to find out more about the experience.

Conservation Biology Research Internship Summer 2023



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!

This summer **Dr. Kate Cleary, Dr. Glenn Johnson, Dr. Bridget Amulike and Dr. Jess Rogers** are launching the second season of data collection for our research project on mammal diversity and tick-borne disease along the rural-urban habitat gradient. You can read more about the project at Dr. Cleary's [Kilmer Lab site](#)(project 3) and in this article: [Smile for the Camera](#).

The intern will assist with setting up trapping arrays at 20 sites around Potsdam, doing environmental 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 if you use your vehicle. 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@potsgdam.edu by April 1, 2023.



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.

Requirements for Graduation

Biology (BS)

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

Name: _____

Student ID No: _____

Expected Graduation Date: _____

REQUIRED BIOLOGY COURSES

(22 hours)

REQUIRED CHEMISTRY COURSES

(12 hours)

Course	Title	Hours	Grade
151	Gen Bio: Cells and Genetics Lecture	3	_____
151	Gen Bio Lab	1	_____
152	Gen Bio: Organisms and Ecology Lecture	3	_____
152	Gen Bio Lab	1	_____
300	Ecology Lecture	3	_____
311	Genetics Lecture	3	_____
300/311	Ecol or Genetics Lab*	1	_____
	Physiology Lecture	3	_____
	Physiology Lab	1	_____
483	Current Topics	3	_____

Course	Title	Hours	Grade
105	General Chemistry I	3	_____
105	General Chemistry I Lab	1	_____
106	General Chemistry II	3	_____
106	General Chemistry II Lab	1	_____
341	Organic Chemistry I	3	_____
341	Organic Chemistry I Lab	1	_____

REQUIRED MATH COURSES

(7-8 hours) (Two Semesters)

Course	Title	Hours	Grade
151**	Calculus I	4	_____
	AND		
125	Probability & Statistics	3	_____
	OR		
100	Probability & Statistics	3	_____
	OR		
152	Calculus II	4	_____

BIOLOGY ELECTIVES

(17 hours)

Course	Title	Hours	Grade

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)

Name: _____

Required Biology Courses: 22

Student ID No: _____

Biology Electives: 15

Expected Graduation Date: _____

Chemistry Courses: 12

Total Hours Required: 49

REQUIRED BIOLOGY COURSES

(22 hours)

REQUIRED CHEMISTRY COURSES

(12 hours)

Course	Title	Hours	Grade
151	Gen Bio: Cells and Genetics Lecture	3	_____
151	Gen Bio Lab	1	_____
152	Gen Bio: Organisms and Ecology Lecture	3	_____
152	Gen Bio Lab	1	_____
300	Ecology Lecture	3	_____
300	Ecology Lab	1	_____
311	Genetics Lecture	3	_____
300/311	Ecol or Genetics Lab*	1	_____
	Physiology Lecture	3	_____
	Physiology Lab	1	_____
483	Current Topics	3	_____

Course	Title	Hours	Grade
105	General Chemistry I	3	_____
105	General Chemistry I Lab	1	_____
106	General Chemistry II	3	_____
106	General Chemistry II Lab	1	_____
341	Organic Chemistry I	3	_____
341	Organic Chemistry I Lab	1	_____

BIOLOGY ELECTIVES

(15 hours)

Course	Title	Hours	Grade

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)

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

