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BOB CERWONKA MEMORIAL SCHOLARSHIP

The Biology Department at SUNY Potsdam invites all Biology Majors to apply for the Bob Cerwonka Memorial Scholarship. This scholarship was made possible from a generous donation from department alumnus Mr. Robert E. Wagner ‘75. Dr. Cerwonka, a former faculty member in the department, was a Limnologist and Ecologist and also founder of our Lambda Xi Chapter of the Beta Beta Beta Biological Honor Society.

Please note: You must be a matriculated student in the Fall following the award given in January to receive the funds!!!
The successful scholarship candidate will:
1. Be a student who has declared Biology as their major.
2. Be in good academic standing at SUNY Potsdam, maintaining a minimum of a 2.5 GPA.
3. Preference shall be given to students that demonstrate an interest and appreciation of nature and the environment.
4. The applicant will be required to submit an essay that incorporates their understanding of ecology and natural history with their goals for a career in the life sciences.

The successful applicant will receive a $1,000 award. Students can apply for this scholarship multiple times. To apply, submit a typed essay of between 250 and 500 words to Dr. Glenn Johnson by December 1st.

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

**Advising begins Wednesday October 19.** The spring schedule will be available online this date Registration begins:

- Seniors – November 8
- Juniors – November 9
- Sophomores – November 10
- Freshmen – November 14
- Transfer Students – November 21

Students may adjust their schedules on BearPAWS until midnight, Sunday, Jan. 22, 2023, which is the day before Spring classes begin.

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

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

**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, either see Sara Peabody, the Department Administrative Assistant (Stowell 207B) or Dr. Glenn Johnson, the Department Chair; (Timerman 231) or email onestop@potsdam.edu. 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.
Reminder: Biology 151 and 152 changes

Biology 151 and 152 are taught both semesters, a change we made back in Fall 2020. We will continue using the OpenStax textbook, which is free to download. Summer Plans? **Biology 151 will be offered this summer during Summer Session I.** The Lab portion of the course will not be offered during the Summer Session. Contact Prof Ewy for more information.

**The Noon Biology Seminar Series is Back!**

10/19: Dr. Bridget Amulike-SUNY Potsdam, Biology Department: “The Conservation of Grey Crowned Cranes (*Balearica regulorum*) in Tanzania”

10/26: Dr. Marina Morindini-Paul Smiths: Title TBA

11/2: Dr. Karen Davis-SUNY Potsdam-animal behavior: “Development and Socialization of Captive Wolf Pups (*Canis lupus lupus*) with Comparisons to Dogs (*Canis lupus familiaris*)”

11/9: Dr. Mark Schmitt-SUNY Upstate: “Not All Ribsomes are the Same”

**A Q&A session will be planned during the hour before (@ 11am) this talk for students who are interested in finding out more about the SUNY Upstate programs**

11/16: Dr. Petra Kraus-Clarkson University – Title TBA

**POTSDAM PATHWAYS**

Beginning in **Fall 2020**, SUNY Potsdam began the process of transitioning away from the old General Education Program and begin moving toward a new one called **Potsdam Pathways**. Next spring (see below) and in future years, several Biology Faculty will be participating in this and developing new and innovative courses to meet the general education needs of SUNY Potsdam students.

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**WAYS 102 WORLD WITHOUT WOLVES** TuTh 200PM–315PM Dr. Kate Cleary

**WAYS 103 BIOLOGY OF SEX AND GENDER** MWF 1100AM–1150AM Dr. Jan Trybula

The Biology Department will be offering more Pathways Courses starting this coming Spring, including:

BIOL 100 and BIOL 125 both carry NW Thinking Scientifically, Natural World
BIOL 301 (Communicating in Biology) – CM Communication in the Major
BIOL 402 (Conservation and Wildlife management) – CT Connecting Theory to Practice
BIOL 415 (Virology) – CT Connecting Theory to Practice
NEW AND IMPROVED COURSES

ESCI 200 – Environmental Science – First time offered!
Drs. Jessica Rogers and Glenn Johnson

Lecture: TuTh 1100AM–1215PM, Lab: M 200PM–450PM

Since most of us understand that the environment controls many aspects of our way of life (e.g., food and fiber production, water supplies, resources for shelter and infrastructure), it is clear that the adverse impacts to the environment affect the well-being of humans and other living organisms. Therefore, this course is designed to introduce students to the basic scientific methods, tools and techniques needed to understand and analyze environmental issues using an earth systems (air, water, soil, life and solid earth) approach. Topics covered include ecosystem structure and function, population dynamics and regulation, earth’s resources and resource management and pollution. This course is also intended to help Environmental Science majors determine where they would like to specialize within the major, for example: land management, water or air quality, conservation science.

This course is required for the new Environmental Science Major!
NEW AND IMPROVED COURSES

BIOL 483 – Current Topics: Climate Change: Impact on Aquatic Communities - SI
Dr. Walter J. Conley
Lecture: TuTh 930AM–1045AM
Prerequisites: minimum Junior standing

In this Speaking Intensive (SI) elective students will explore the impact of climate change on aquatic communities through a review of primary literature. Students will share what they learned with the class via oral presentations. The focus will be on marine communities, but we will also investigate the impacts on the communities of the Great Lakes, St. Lawrence River, and the Adirondacks. The most recent report from the International Panel on Climate Change (IPCC) will be used as a text. This document is open source and will be shared on Brightspace.
NEW AND IMPROVED COURSES

BIOL 301 – Communicating in Biology - CM
Dr. Sarah Sirsat
Lecture: MWF 1000AM–1050AM
Prerequisites: BIOL 151 & 152, WAYS 101, 102, and 103

This course carries the Pathways CM (Communication in the Major) designator!

“Nothing in science has any value to society if it is not communicated, and scientists are beginning to learn their social obligations.” – Anne Roe, 20th century American psychologist and writer

Communication is a key component of our daily lives and in an ever-increasingly connected world, knowing how to communicate has become an imperative life skill. Such an important skill is even more crucial for scientists, upon whose shoulders the burden of sharing our knowledge with the world, falls. BIOL 301, which fulfills the Communicating in the Major (CM) designator of the Potsdam Pathways Program, is a newly offered course which introduces students to the numerous, discipline-specific modes of oral and written communication utilized in the biological sciences and provide a “communication toolbox” useful for future endeavors. Reading, discussion, and critique of peer-reviewed publications will provide students with an understanding of the principles and conventions of scientific writing while equipping students with skills to analyze the effectiveness of other modes of communication. Students will refine their speaking and writing skills through a series of writing assignments, class discussions, and visual and oral presentations throughout the semester while developing skills needed to communicate effectively and share biological concepts concisely and accurately in their future STEM courses and chosen profession.
BIOL 440 – Comparative Animal Physiology

Dr. Sarah Sirsat
Lecture: TuTh 930AM–1045AM, Lab W 200PM–450PM
Prerequisites: BIOL 311 & CHEM 341

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

Comparative Animal Physiology explores how animals function - how they breathe, whether it be in water or air; how they circulate their blood and how this facilitates transport of respiratory gases, heat, nutrients, waste products, etc.; how they exchange energy with their environment and how this affects their body temperature; how they excrete; and how these various phenomena are coordinated. As a comparative course, the topics will not be limited to humans, mammals, or even vertebrates. For example, we will explore how insects, fish and birds breathe, how some frogs survive freezing, and how an alligator heart is similar in function to the heart of a neonatal mammal. In short, we will be comparing structures and functions in a variety of animals to arrive at a better understanding of how animals have adapted to live and work in the diversity of environments found on Earth.
**BIOL 404 – Human Anatomy and Physiology II**  
*Dr. Schreer*  
Lecture: TuTh 1100AM-1215PM, Lab: Tu or Th 200PM-450PM

Most graduate programs in the health fields require a 2-term, upper division, human anatomy and physiology course with labs. This second term of A&P also counts as the physiology requirement for the bio major. This course will build on Biol 403 and will cover the muscular, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive systems. In the lab, we will perform dissections of the bovine, suine, or caprine brain, eye, and heart. We will use models for the anatomy of other system and perform various physiological experiments on these systems as well. This course will be very demanding, but we’ll all learn a ton and you’ll be thanking me when you take your gross anatomy and other physiology courses in graduate school.

**BIOL/HLTH 270 – Health Coaches I**  
*Dr. Ewy*  
Meets Mondays 530PM−710PM

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. Health Coaches I is a seminar course where health care professionals and community organizations give presentations on the US health care system, rural medicine, chronic diseases, and techniques to work with patients. In HLTH 370 "Health Coaches II" (offered during Fall Semester 2021) 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! See Prof Ewy for more questions. An informational session will be scheduled soon.

**BIOL 479 – Issues in Health Care**  
*Dr. Ewy*  
Meets MF 1200PM−1250PM  
Pre-requisites: BIOL311 or CHEM342 or BIOL320 or CHEM425 and a minimum of Junior standing required.

This is a one credit, eight-week course where you will learn about various issues facing health care providers and prepare you for your medical, PA, Veterinary, Dental, Medical, and whatever else school interview. We will cover such issues as Physician-assisted suicide, Health Care systems around the world, the Affordable Care Act, and government-financed health programs. Towards the end of the course, you will be both interviewed and interview others to prepare you for your professional program interview. Developing good interview skills is a must if you want to gain admission to a health professions program. If you are not interested in gaining admission to a Health Care Professional Program, this course is not for you. See Prof Ewy for details.
BIOL 402 – Conservation and Wildlife Management
Dr. Bridget Amulike with Dr. Glenn Johnson
Lecture: MWF 900AM–950AM, Lab: Tu 200PM–450PM

New: CT, Connecting Theory to Practice, designator being applied for during Fall 2022. Counts as an Environmental Science Elective

Conservation biology is relatively new as an intellectual endeavor in biology. The central goal of this science is to maintain the planet’s biological diversity. It attempts to apply scientific principles to understanding and solving the problems facing most of the Earth’s ecosystems and species. It is both derived from and nested within such areas of biological science as ecology, wildlife and fisheries management, zoology and botany and draws heavily on expertise from physiologists, microbiologists, molecular biologists, and population geneticists. It contains elements of many other disciplines including economics, political science, biogeochemistry, public health law, veterinary science, sociology, and environmental engineering. Indeed, the question may be what is not within the domain of Conservation Biology?

Raccoon sniffing around nesting snapping turtle

Releasing spruce grouse captured in Ontario into the Adirondacks to augment bolster (and increase the genetic diversity of) NY populations of this endangered species. Photo: Jason Hunter.

Note that the course name has changed from Conservation Biology to Conservation and Wildlife Management. While the content will be similar, this was done so that the course is now eligible for inclusion as a required course for Biologist positions with the New York State Department of Environmental Conservation.
BIOL 148 – Biodiversity Conservation

Spring 2022 Course Announcement:
Biodiversity Conservation
BIOL 148
Are you interested in conservation, but haven’t taken many classes in it so far?
Do you want to know more about how to protect wild animals, plants, and ecosystems?
Do you thrive with hands-on learning and real-life examples?
Then this course is for you!
MWF 10:00-11:00 - 3 credits
Questions? Contact Dr. Kate Cleary (clearyka@potsdam.edu)

BIOL 415 – Virology
Dr. Trybula
Lecture: MWF 900AM-950AM
Prerequisites: BIOL 125 or 151, and BIOL 152, and Junior-level standing

New: CT, Connecting Theory to Practice, designator being applied for during Fall 2022.

Viruses are mysterious causative agents of disease, tools used in research labs, carriers of drugs to treat cancer, even potential treatments for bacterial infections that no longer respond to antibiotics. But researchers cannot even agree as to whether viruses are alive or not!

It is sometimes hard to believe that we’ve been dealing with the COVID-19 global pandemic since at least February 2020, possibly as early as September 2019. As we move from pandemic to endemic we worry about resurgence of new variants. We also hear talk in the media about polio, monkeypox, and other viral diseases. This course will look at what viruses are and how they infect cells. We will investigate the basics of viral infection cycles, viral medications and vaccinations, and historic pandemics. We will dive deeper into viruses of the past and the present. We’ll discuss papers related to infectivity, spread, treatments, and vaccines. We will investigate why some people are affected more acutely or more severely than others. Some of this is genetics of the virus and of the people, but more worrisome are the purely socioeconomic concerns that lead to the disparity of care and deaths.

This graph shows the inverse relationship between protective immunity, as from a vaccine, versus its effect on infection and disease.

BIOL 151 – Gen Bio: Cells & Genetics

Dr. Snyder

Lecture: MWF 900AM–950AM, Labs: M 200PM–450PM or T 900AM–1150AM

This foundational general biology course is aimed at STEM majors looking to develop their understanding of the natural sciences. Typically, students take this course after completing one semester of General Chemistry. As part of a two-semester sequence, this course is often taken after Gen Bio: Organisms & Ecology. However, the order of these courses is flexible.

NOTE: You can take BIOL 151 and BIOL 152 in either order.

Course Description

The focus of this course is on cellular processes. Topics include cell structure, photosynthesis and respiration, cell division and genetics, and evolution. Lab required. Gen Ed: SB & LB credit.

TAs needed

Gen Bio: Cells & Genetics Lab: I am looking for 2 TAs. TAs must have taken BIOL 151, BIOL 311 preferable. TAs will attend all meetings of their assigned section. Please contact Dr. Snyder (snyderrl@potsdam.edu) if interested.

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. This past fall, there was a $7 optional fee listed on the College's bookstore website for "OpenStax" 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.

“When you teach you gain much more understanding of the subject at hand.”
This is a quote from an anonymous Bio TA.
BIOL 331 - Natural History of the Higher Vertebrates (Birds & Mammals)

Drs. Amulike and Johnson

Lecture: MWF 1100AM–1150AM Lab: Tu 200PM–450PM

Counts as an Environmental Science Elective

This course is a natural extension to BIOL 330, the Natural History of the Lower Vertebrates. While BIOL 330 is not a prerequisite, it is a useful precursor because many of the concepts in 330 are utilized again in this course. This course will devote itself to birds and mammals, including overviews of their (and our!) evolution, systematics, anatomy, physiology, ecology, and behavior. In addition to the “facts” about birds and mammals, you will be introduced to important ideas—especially in the areas of evolutionary biology, systematics, morphology, and ecology—that form the basis of our conceptual understanding of these animal groups. The general approach will be phylogenetic, tracing each group from its origins, discussing the major changes associated with its evolution, and reviewing selected elements of its current diversity and biology. Several field trips in spring are part of the course. As part of this course, I am planning on a weekend trip to Cape Cod late in the semester, which will include a Whale Watch for marine mammals and seabirds.

Male Spruce Grouse.
Photo by Jeff Nadler

Unusual hybrid mammal

Northern gannet off Cape Cod (Photo: Madison Cleveland)
**BIOL 311 – Genetics**

*Dr. Trybula*

**Lecture:** MWF 100PM–150PM, 2 Lab sections: Monday or Tuesday 200PM–450PM

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

*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. Both Biology majors and minors need at least two labs in their Electives.*

From early history, humans used genetics without knowing what was happening behind the scenes. We’ve seen this in the domestication of food crops and animal, with evidence going back to at least 10,000 BCE. Much later in the 1850s, Mendel figured out the movement of traits from one generation to the next, but it was 100 years later that we finally figured out what DNA even looked like. Today, knowledge of genetics is progressing rapidly, with so much more to know.

At its core, genetics is about heredity, the passing of traits from parents to offspring. Genetics is concerned with 1) how traits are coded, 2) how they normally remain stable from one generation to the next, 3) how new variants of traits arise, and 4) how some variant traits in organisms are related to their health and adaptability. Genetics is used to study molecular, organismal, and population levels of biological complexity, all with overtones of the evolutionary importance of genetics. As such, genetics is central to all of biology.

![Animation still of DNA replication](https://www.wehi.edu.au/molecular-visualisations-dna)

**Caption:**

Animation still of DNA replication from WEHI Medical Research University. You can view the animation at: [https://www.wehi.edu.au/molecular-visualisations-dna](https://www.wehi.edu.au/molecular-visualisations-dna)

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**Genetics TAs needed**

Genetics Lab: We can accommodate up to 2 undergraduate teaching assistants, one per lab. One upper division credit through BIOL 475. TAs must have taken BIOL 311 lab or equivalent. Please contact Dr. Trybula (trybulj@potsdam.edu) if interested.
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 in-state 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.

These SUNY Potsdam students completed undergraduate and graduate courses at the Gulf Coast Research Laboratory, on the Gulf of Mexico in Ocean Springs Mississippi. The courses have a heavy field-based laboratory utilizing the many research vessels owned by the laboratory.
Profile of a Bio Graduate: Elizabeth Krieger

Hello, my name is Beth Krieger (née Oaks) and I received my BS from SUNY Potsdam from Potsdam in December 2009. Believe it or not, I have been in my first “Big Girl” job as an Attending Physician Assistant Professor of Medicine, for 1 year now. My education and career have taken many turns since I left Potsdam, but if there is one thing that has stayed constant, it has been that the educational base laid while at SUNY Potsdam has been so important to my growth and development.

I grew up near Saratoga NY and received my Bachelor of Science in Biology with a minor in Chemistry from the State University of New York - Potsdam from 2006 to 2009. While at Potsdam I participated in the Presidential Scholars program and completed a project comparing the antibiotic resistance of skin flora on the hand of college and daycare-aged students. This was my first independent project and resulted in my first poster presentation at the Microbio World Conference in Lisbon, Portugal in November 2009. Throughout my undergraduate work I concentrated on medically applicable classes as best I could because I was VERY interested and it helped keep me engaged in the work. I still remember writing one of my papers for Dr. Trybula’s medical genetics class on the 2 major forms of severe combined immunodeficiency (SCID) (this paper will be relevant to my career later). After graduation I went to work as a nursing assistant at Albany medical center on their pediatric hematology and oncology floor. I had known from a young age this was a population and pathology that was of interest to me. This job, while only for a short 6-8 months proved to be very important, giving me a different perspective of how the medical community worked.

After graduation I obtained my Doctorate of Medicine from Ross University. My initial first 2 years were in Dominica in the West Indies and I finished my clinical training at Central Michigan University School of Medicine in Saginaw, Michigan. While in Dominica, besides spending most of my time studying I volunteered stocking and staffing a volunteer clinic providing medical care on the Kalinago reservation. After graduation I moved back to upstate NY and did my Pediatric Residency in Syracuse, NY. I loved taking care of the children of Upstate but knew that I still wanted to pursue pediatric hematology and oncology. Like Residency, Fellowships positions in the USA are applied for as a group and applicants are “matched” to an institution kind of like the Draft for football. I matched for a pediatric hematology and oncology fellowship at Virginia Commonwealth University in Richmond, Virginia. This was a great transition. For one; because the weather was so much better (though at this time of year I really miss Fall, with your beautiful colors and WONDERFUL apples). But also, because all pediatric subspecialty fellows are required over the 3 years to complete a research project. As a first-year fellow I started examining the reconstitution kinetics of natural killer cells in patients after stem cell transplantation. One day one of my new research mentors asked me an offhand question, “What if we could sum up the input of receptors’ interaction prior to transplant for donors and recipients”. That question and day changed the trajectory of my career. I moved forward with this question and have never looked back. This initial project has bloomed into national registry studies in both adults and
pediatrics that are now published and presented internationally as well as functional studies examining natural killer cell receptor reconstitution after transplant and how this affects the cells’ activation.

As my career moved more toward stem cell transplant I chose to continue my education with an intensive year of pediatric bone marrow transplant and cellular therapies including gene therapy and chimeric T cell therapy at the University of Minnesota in 2020 and 2021 (I will forever be the mask wearing fellow to them). Even in this very clinically-heavy year the base knowledge laid down at SUNY Potsdam was constantly applicable; whether the immune system knowledge I gained during Dr. Rhoad’s immunology class, or the biochemistry learned from Dr. Gingrich needed for our metabolic patients. And we can’t forget my SCID paper for Dr. Trybula, I actually remember messaging him telling him I wish there were only 2 types of SCID.

After graduation from the University of Minnesota fellowship in 2021 I returned to Virginia Commonwealth University to help grow their pediatric cellular therapy program and clinical research. I am excited to say we have our first patients on a clinical trial using gene therapy to cure sickle cell anemia. In addition, I have received a Hyundai Hope on Wheels grant to expand my research and will be examining T cell receptor diversity and activation state in patients who receive T cell infusion after transplant for leukemia.

University of Minnesota graduation day 2021!!
Environmental Club

Want to learn more about environmental issues? Want to be engaged in service in your campus and local community? See the Adirondacks and North Country? Build relationships with students, faculty and community members? Join the Environmental Club who meets weekly in Kellas 106 at 7pm-8pm.

Participants must follow COVID-19 guidelines and bring their CORQ event passes.

Send an email to get added to our list and receive info about meetings, events, and opportunities! events: romerga204@potsdam.edu (Club President) or potsdamenvironmentalclub@gmail.com
The Wagner Institute for Sustainability and Ecological Research (WISER) Center is the Biology Department’s unique organization for applied learning and outreach to the campus, community, and the earth! 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! Drop in at Stowell 205 or email wiser@potsdam.edu.

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 from all majors are welcome to be WISER Interns. At the WISER, you’ll learn skills through active learning as you, plan events, practice urban farming and further a culture of sustainability on campus! Although we focus is on plants, internships can include lots of sustainability-related activities like, composting, recycling, service learning and wellness promotion.

Working at the WISER is a great 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.

*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@potsdam.edu or by sending an Outlook Invitation to: bowdisrp@potsdam.edu. Your
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@potsdam.edu for preapproval.
   a. This step may repeat depending on the completeness of your IPT.
   b. Once you have preapproval from the WISER Coordinator you need apply for full approval for academic credit. Full instructions are here.

Off Campus Internship Opportunity
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.
Health Professions

If you are interested in a health profession, enroll in the "Health Professions" Brightspace course, coming soon. 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)

If you are interested in taking a practice MCAT this spring, or other exam needed for professional admission, let Prof Ewy know. There will be a modest cost to you, but the experience of taking a full-length exam under exam conditions will help you as you prepare to take your exam when it counts.

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

WORK STUDY

If you are interested in and eligible for the federal work study program, please see either Rachel Wallace (wallacrm@potsdam.edu, Ph 315-267-4814), or the department secretary, Sara Peabody (peabodsr@potsdam.edu, Ph 315-267-2264).

Responsibilities include laboratory setup and cleanup, plant and animal care, and a variety of secretarial work.
TEACHING ASSISTANTSHIPS

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

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.

As a lab TA you will be helping to prepare and teach the General Biology II 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.

Teaching assistants for General Biology Labs

If you would like to gain some teaching experience and encourage first year Biology students, this is a good opportunity. It is also useful for those students going on to graduate school or to teaching careers. This course, Biology laboratory techniques, counts as a 1 credit upper division biology course. You must have successfully (3.0 or higher) completed Biology 151 and/or BIOL 152 lecture and lab.
If interested contact Rachel Wallace wallacrm@potsdam.edu or Glenn Johnson johnsong@potsdam.edu

Biology Laboratory Techniques; BIOL 475, sec 0001; CRN 80520

Teaching assistants for Principles of Biology (BIOL 100) Labs

I am looking for TAs for Biology100 (non–majors Biology). BIOL 100 lab has (2) two-hour sections, both on Thursdays. See Prof Ewy for more details.

BIOL 311 – up to 2 Teaching Assistants for Genetics labs

Labs: Monday 2:00-4:50p.m., Tuesday 2:00-4:50p.m.
Pre-requisite: BIOL 311 lab or permission of instructor

Teaching Assistants needed for two lab sections. Duties include lab prep, lab breakdown, and attending one of the lab sections to assist the instructor and students. It is preferred that TA applicants have prior experience working with chemicals (e.g., CHEM 105) and willingness to learn lab and chemical safety regulations. Contact Dr. Jan Trybula: trybulj@potsdam.edu
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:**

- Undergraduate Biology majors (BS or BA) at SUNY Potsdam.
- Shall have completed at least 3 semesters of a four-year curriculum.
- 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.
- Shall have a 3.25 GPA in all courses, and in good academic standing.

**Associate members shall:**

- Shall have completed at least 3 semesters of a four-year curriculum.
- 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.
- Shall have a 3.25 GPA in all courses, and in good academic standing.

Any questions about BBB membership should be sent to the advisor Dr. Snyder snyderrl@potsdam.edu

The Eurasian wryneck, a bird related to woodpeckers has a unique appearance and behavior where, when threatened, it assumes the posture seen in this photo and weaves its body around so that it resembles a snake’s head to a would-be predator. It might not fool you, but it might cause a predator to think twice!
**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 will be on the books beginning Spring 2023. Here’s a first look, 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

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 151, General Biology I + Lab</td>
<td>4</td>
<td>ENVR 110, Intro to Environmental Studies</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 152, General Biology II + Lab</td>
<td>4</td>
<td>GEOL 101, Environmental Geology + Lab</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 105, General Chemistry I + Lab</td>
<td>4</td>
<td>MATH 151, Calculus I</td>
<td>4</td>
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<tr>
<td>CHEM 106, General Chemistry II + Lab</td>
<td>4</td>
<td>STAT 100, Probability and Statistics</td>
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### Core Environmental Science Classes (28 credits)

<table>
<thead>
<tr>
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<tr>
<td>BIOL 300, Ecology + Lab</td>
<td>4</td>
<td>GEOL 410, Hydrogeology + Lab</td>
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<tr>
<td>ESCI 200, Environmental Science</td>
<td>4</td>
<td>CHEM 320, Environmental Analysis</td>
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<td>ESCI 301, Soil Science + Lab</td>
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<td>GEOL 425, Scientific Communication or ENVR 490 Senior Seminar</td>
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<td>GEOL 320, Geochemistry</td>
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<td>POLS 414, Environmental Law</td>
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### Elective Courses (14 credits from the following)

<table>
<thead>
<tr>
<th>Course Title</th>
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</thead>
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<tr>
<td>BIOL 310, Marine Biology</td>
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<td>ENVR 391, Field Project¹</td>
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<tr>
<td>BIOL 312, Insect Ecology</td>
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<td>ESCI 495, Env. Science Research¹</td>
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<tr>
<td>BIOL 330 Nat. Hist Lower Verts</td>
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<td>BIOL 331 Nat. Hist Higher Verts</td>
<td>4</td>
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<tr>
<td>BIOL 334, Biology of Woody Plants</td>
<td>3</td>
<td>GEOL 350, Geomorphology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 400, Field Ecology</td>
<td>4</td>
<td>GEOL 380, Climate Change: Past &amp; Present</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 402, Conservation and Wildlife Management</td>
<td>3</td>
<td>GEOL 407, Applied Geophysics</td>
<td>3</td>
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<tr>
<td>BIOL 408, Wetland Ecology</td>
<td>3</td>
<td>GEOL 440, Economic Geology</td>
<td>3</td>
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<tr>
<td>BIOL 409, Freshwater Biology</td>
<td>4</td>
<td>GISC 101, Intro. to GIS</td>
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<tr>
<td>CHEM 311, Quantitative Analysis</td>
<td>4</td>
<td>GISC 302, Remote Sensing</td>
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<tr>
<td>CHEM 321, The Sustainable World or ENVR 120, Intro. To Sustainability</td>
<td>3</td>
<td>SOCI 340, Environment and Society or SOCI 341, Environmental Justice</td>
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<tr>
<td>CHEM 341, Organic Chemistry I</td>
<td>4</td>
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<tr>
<td>CHEM 342, Organic Chemistry II</td>
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<td>PHIL 330, Environmental Ethics</td>
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<tr>
<td>CHEM 415, Instrumental Analysis</td>
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<td>PHYS 325, Energy and the Environment</td>
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<td>ECON 320, Economy and the Environment</td>
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<td>PHYS 330, Meteorology²</td>
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</table>

¹Students can count a total of no more than three credits toward the electives

²Highly recommended for all students
Within the Environmental Science Major, students could elect to take one of the following concentrations through their elective choices. If a student double majors or declares a minor, they cannot do a concentration that is the same as their major/minor.

Biology concentration (15 cr, from the following): BIOL 312 - Insect Ecology (4 cr), BIOL 334 – Biology of Woody Plants (3 cr), BIOL 400 - Field Ecology (4 cr), BIOL 409 - Freshwater Biology (4 cr), BIOL 402 - Conservation and Wildlife Mgmt. (3 cr), BIOL 483 – Agroecology (3 cr)

Geology/GIS concentration (14 cr): GEOL 350 - Geomorphology (4 cr), GEOL 380 - Climate Change: Past & Present (3 cr), GEOL 407 - Applied Geophysics (3 cr) or GEOL 440 - Economic Geology (3 cr), GISC 101 - Introduction to Geographic Information Systems (4 cr)

Chemistry concentration (14 cr): CHEM 311 – Quantitative Analysis (4 cr), CHEM 341 - Organic Chemistry I (4 cr), CHEM 342 - Organic Chemistry II (4 cr), CHEM 415 - Instrumental Analysis (2 cr)

Policy and sustainability concentration (15 cr, from the following): ENVR 120 – Intro. To Sustainability (3 cr) or CHEM 321 - The Sustainable World (3 cr), ECON 320 - Economy and the Environment, SOCI 340 - Environment and Society (3 cr) or SOCI 341 - Environmental Justice (3 cr), PHIL 330 - Environmental Ethics (3 cr), PHYS 325 - Energy and the Environment (3 cr)

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

Revised Environmental Science Minor (24 credits)

<table>
<thead>
<tr>
<th>Level</th>
<th>Course</th>
<th>Credits</th>
<th>Required for:</th>
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<tr>
<td></td>
<td>ENVR 110: Introduction to Environmental Studies</td>
<td>3</td>
<td>all</td>
<td>none</td>
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<tr>
<td>Choose one</td>
<td>CHEM 301: Fundamentals of Environmental Science</td>
<td>3</td>
<td>All majors except GEOL and BIOL</td>
<td>one semester of college-level science</td>
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<tr>
<td></td>
<td>PHYS 325: Energy and the Environment</td>
<td>3</td>
<td>GEOL and BIOL majors</td>
<td>one semester of college-level science</td>
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<tr>
<td></td>
<td>GEOL 101: Environmental Geology</td>
<td>3</td>
<td>non-GEOL majors</td>
<td>none</td>
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<tr>
<td></td>
<td>BIOL 152: General Biology II</td>
<td>4</td>
<td>non-BIOL majors</td>
<td>none</td>
</tr>
<tr>
<td></td>
<td>BIOL 300: Ecology + Lab</td>
<td>4</td>
<td>non-BIOL majors</td>
<td>BIOL 152</td>
</tr>
<tr>
<td></td>
<td>BIOL 312: Insect Ecology</td>
<td>4</td>
<td></td>
<td>BIOL 152</td>
</tr>
<tr>
<td></td>
<td>BIOL 326: Morphology of Higher Land Plants</td>
<td>3</td>
<td></td>
<td>BIOL 152</td>
</tr>
<tr>
<td></td>
<td>BIOL 330: Natural History of Lower Vertebrates</td>
<td>4</td>
<td></td>
<td>BIOL 152</td>
</tr>
<tr>
<td></td>
<td>BIOL 331: Natural History of Higher Vertebrates</td>
<td>4</td>
<td></td>
<td>BIOL 152</td>
</tr>
<tr>
<td></td>
<td>BIOL 334: Biology of Woody Plants</td>
<td>3</td>
<td></td>
<td>BIOL 152</td>
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<td></td>
<td>BIOL 355: Invertebrate Biology</td>
<td>4</td>
<td></td>
<td>BIOL 152</td>
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<tr>
<td></td>
<td>BIOL 402: Conser &amp; Wildlife Manage</td>
<td>3</td>
<td></td>
<td>BIOL 300 or permission of instructor</td>
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<td></td>
<td>CHEM 311: Quantitative Analysis</td>
<td>4</td>
<td></td>
<td>CHEM 106</td>
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<td></td>
<td>GEOL 340: Geographic Information Systems</td>
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<td></td>
<td>Sophomore standing</td>
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<td></td>
<td>GEOL 310: Hydrology and Hydrogeology</td>
<td>4</td>
<td>non-GEOL majors</td>
<td>100-level geology class + either CHEM 105 or MATH 125 or MATH 151 or STAT 100</td>
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<tr>
<td></td>
<td>GEOL 406: Geomorphology</td>
<td>4</td>
<td></td>
<td>100-level geology class + junior standing</td>
</tr>
<tr>
<td></td>
<td>PHYS 330: Meteorology</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CONS 314: Soil Mechanics (SUNY Canton)</td>
<td>3</td>
<td></td>
<td>GEOL 101</td>
</tr>
<tr>
<td></td>
<td>CONS 386: Water Quality (SUNY Canton)</td>
<td>4</td>
<td></td>
<td>GEOL 310</td>
</tr>
</tbody>
</table>
**INTERNSHIPS**

Biology Department Applied Learning Opportunities

**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

**Internships at Great Camp Sagamore, Raquette Lake NY**

Great Camp Sagamore offers seasonal internships in Environmental and Outdoor Education and Historic Interpretation. This National Historic Landmark was the Vanderbilt’s Adirondack camp. Interns live at camp and provide programs for guests that spend a few days or a week at camp. Experiences at Sagamore include canoeing on the lake, hiking the various trails, interacting with a wide variety of guests, enjoying music provided by a variety of folksingers and learning Adirondack history. If interested contact Pat Burdick, burdiepc@potsdam.edu.
Care and Handling of Display Animals in the Biology Department at SUNY Potsdam

- Help care for animals (amphibians, reptiles, and fish) in the department.
- Create learning materials and provide outreach to help others discover the animals in the department.
- Report your work to the campus at the Learning and Research Fair

Please see Dr. Johnson johnsong@potsdam.edu or Rachel Wallace wallacrm@potsdam.edu about Animal Room or Diversity House opportunities

Biology Technician Internship Techniques in the Biology Department at SUNY Potsdam

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

Please see Rachel Wallace wallacrm@potsdam.edu about opportunities
RESEARCH WITH PROFS

Spring 2023 Internship Opportunity

Have you always wondered about the secret lives of wild animals? Are you interested in a career in conservation biology? Dr. Kate Cleary (Environmental Studies) and Dr. Glenn Johnson (Biology) have an opening for 1-2 interns interested in working on a camera trap project on and around SUNY Potsdam campus.

The work: You would be trained on using camera traps, setting up and monitoring camera traps, and analyzing the resulting data.

Credits: This internship can be 1-3 credits, depending on the time you are interested in investing.

Networking opportunities: The project is part of the larger Adirondack Monitoring (AIM) Network camera trapping project, and you will have the opportunity to attend AIM meetings and network with regional biologists.

CONTACT: Dr. Cleary (clearyka@potsdam.edu) or Dr. Johnson (johnsong@potsdam.edu)
Drs. Kate Cleary, Glenn Johnson, Bridget Amulike, and Jessica Rogers

Last Fall (2021), Drs. Johnson and Amulike from Biology joined forces with Drs. Cleary and Rogers from Environmental Studies and proposed a new research project that would be long-term and could involve many students interested in environmental science, wildlife ecology, and human-wildlife dimensions.

We propose to investigate the diversity of wildlife species that are found in proximity to and within the Wildland/Urban Interface (WUI), that zone of transition between areas of anthropogenic development and natural ecosystems; it is sometimes defined more precisely as an area with at least one housing unit per 40 acres. We will use the Village of Potsdam to represent the “urban” zone and use Geographic Information System methods to delineate the WUI and adjacent rural wildlands. The initial focus will be on a representative group of mammals, particularly 1) small mammals (rodents and shrews), 2) larger rodents and rabbits, 3) mesocarnivores (raccoons, fox, skunks) and 4) white-tailed deer. We hope future efforts will expand to include collecting information on bats, birds, amphibians, reptiles, and invertebrates.
Dr. Glenn Johnson – Conservation of Threatened Species
231 Timerman Hall, 315-267-2710, johnsong@potsdam.edu

I have a new project initiated last spring during the beginning of the pandemic that brings many years of research on the conservation of the threatened Blanding’s Turtle to the applied management stage. Perhaps the biggest threat to this species in the North Country, which is a stronghold in New York, is the high mortality to both adult and offspring during the annual nesting season. Females often have to cross roads to get to favored nesting areas (direct mortality threat), or they nest in row crop fields, which look great early in the season (open sites exposed to the sun), but become ecological traps as the corn grows and shades the site, resulting in much reduced nest success (indirect mortality threat). Because predation on nests is so high (90%), this species needs every opportunity for a successful nest just to replace themselves in a long lifetime of breeding. So, we are constructing large potential nesting areas where turtles do not have to cross roads AND that are maintained as open sandy places protected from nest predators by electric fences. To determine success, we are also trapping and tracking many turtles of multiple species and tracking their movements with radiotelemetry and GPS systems. If this sounds interesting to you, please contact Dr. Johnson for details about participating.
Dr. Robert Ewy – Research experience on environmental effects on plants

Research: 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! 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.

Guess the crop. Correct guesses get a free pen. Drop your answers in the box on Prof Ewy’s door.

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 am currently focused on examining 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. Rob Snyder – Speciation**

Dr. Rob Snyder

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.

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.

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).

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**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. Jessica Rogers - Purple Loosestrife Biological Control Research Project

Spring and Summer Research Option
Dr. Rogers is continuing her work looking at the biological control and management of purple loosestrife. She’s hoping to have a research student work with her during the spring semester to analyze previous data and start planning for summer projects.

In addition, Dr. Rogers will be working with Akwesasne to plan for loosestrife monitoring for Summer 2023, and will likely have a volunteer (or hopefully paid) internship for the summer to begin monitoring infestations at Akwesasne St. Regis Mohawk Tribe’s lands.

If you’re interested in the spring research work, for credit, please contact Dr. Rogers ASAP to arrange the class. For 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 reference from a professor on campus (name and e-mail address is all that is required). Students from all majors will be considered. Send the 2 files to rogersje@potsdam.edu with the subject line SUMMER INTERNSHIP by April 1.

If you have any questions about any of the above projects or any other projects Dr. Rogers might help sponsor, please contact her directly or drop by her office hours Wednesdays from 12:30-1:45 in Satterlee 307A.


Looking Ahead

January 2024!

Again, due to COVID Restrictions, travel to Belize is not possible this coming 2022-23 Winterim...BUT plans are afoot to offer this course the following year!

Tropical Ecology and Conservation
(BIOL 352, 3 upper division credits! Prerequisites BIOL 300, 402 OR permission of instructor!)

Travel to Belize

Please see Dr. Johnson in 231 Timerman to sign up AND leave message at johnsong@potsdam.edu

This course involves a trip over Winterim 2023-24 to a variety of field sites across Belize, including a Mayan Ruin, a remote Biological Field Station in the Maya Mountain rainforests and several days on a Caribbean island. If you are interested in this course, you will need to register by early September and attend several meetings prior to the official start of Winterim. Check out this website for information about the BFREE Bio Station:
### REQUIRED BIOLOGY COURSES
(23 hours)

<table>
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<th>Course</th>
<th>Title</th>
<th>Hours</th>
<th>Grade</th>
</tr>
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<tbody>
<tr>
<td>151</td>
<td>Gen Bio: Cell &amp; Genetics Lec</td>
<td>3</td>
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<td>Gen Bio: Cell &amp; Genetics Lab</td>
<td>1</td>
<td></td>
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<tr>
<td>152</td>
<td>Gen Bio: Organism &amp; Ecol Lec</td>
<td>3</td>
<td></td>
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### REQUIRED CHEMISTRY COURSES
(12 hours)

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<td>General Chemistry I Lab</td>
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<td>106</td>
<td>General Chemistry II</td>
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<td>106</td>
<td>General Chemistry II Lab</td>
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<td>341</td>
<td>Organic Chemistry I Lab</td>
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### REQUIRED PHYSICS COURSES
(8 hours)

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<th>Title</th>
<th>Hours</th>
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<tr>
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<td>202</td>
<td>College Physics II</td>
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<tr>
<td>103</td>
<td>University Physics I</td>
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<tr>
<td>104</td>
<td>University Physics II</td>
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### REQUIRED MATH COURSES
(7-8 hours) (Two Semesters)

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<tbody>
<tr>
<td>151</td>
<td>Calculus I</td>
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<td>AND</td>
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</tr>
<tr>
<td>125</td>
<td>Probability &amp; Statistics</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>Probability &amp; Statistics</td>
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</tr>
<tr>
<td></td>
<td>OR</td>
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### BIOLOGY ELECTIVES
(16 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
</table>

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

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

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

**Must have a 2.0 GPA or higher in all major courses.**
### REQUIRED BIOLOGY COURSES
**(22 hours)**

<table>
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<th>Course</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>151</td>
<td>Gen Bio: Cells &amp; Genetics Lec</td>
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<tr>
<td>152</td>
<td>Gen Bio: Organism &amp; Ecol Lec</td>
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<td>Genetics Lecture</td>
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<tr>
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<td>Physiology Lecture</td>
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### REQUIRED CHEMISTRY COURSES
**(12 hours)**

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<tr>
<td>106</td>
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### BIOLOGY ELECTIVES
**(14 hours)**

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</tbody>
</table>

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

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

Biology Required Courses (13-15 hours)  Biology Electives (4-6 hours)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hrs</th>
<th>Grade</th>
<th>Course Number</th>
<th>Title</th>
<th>Hrs</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>125</td>
<td>Biological Concepts Lec &amp; Lab</td>
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<tr>
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<td>Ecology Lab (optional)</td>
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<tr>
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<tr>
<td>311</td>
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</table>

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

**BIOLOGY MINOR REQUIREMENTS**

Biology Required Courses (8 hours)  Biology Electives (15 hours)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hrs</th>
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<th>Course Number</th>
<th>Title</th>
<th>Hrs</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>151</td>
<td>Gen Bio: Cells &amp; Genetics Lec</td>
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<tr>
<td>151</td>
<td>Gen Bio: Cells &amp; Genetics Lab</td>
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<tr>
<td>152</td>
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<tr>
<td>152</td>
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</tr>
</tbody>
</table>

Not available to Biology Majors

- **One non-major biology course may be included** in minor with consultation of Biology chair.
- **At least six** of the 15 credit hours **must be courses with laboratory** (minimum of two courses).
- **At least 12 hours must be completed in upper-division courses.**
- All credits submitted for the minimum departmental credits for the biology minor must be 2.0/S or higher. This does not assume a 2.0 average, but a 2.0 in each course
- You may not count BIOL 475, 480, or 485