Department of Biology Newsletter
State University of New York at Potsdam

Department of Biology

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THIS ISSUE
(the Great Potoo issue)
Fall 2024

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 Honors Society. **Please note:** You must be a matriculated student in the Fall following the award given in January to receive the funds!!!

The successful 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**.

Potsdam
STATE UNIVERSITY OF NEW YORK

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

REGISTRATION

Advising begins Wednesday October 16. *The spring schedule will be available online this day*
Registration *begins:*

- ***Seniors – November 5***
- ***Juniors – November 6***
- ***Sophomores – November 7***
- ***Freshmen – November 8***
- ***Transfer Students – November 22***

Students may adjust their schedules on BearPAWS until midnight, Sunday, Jan. 20th, 2024, which is the day before Spring classes begin (Tuesday Jan 21!).

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.

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 **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.

Above: Back from a whale watch in 2018 on our Cape Cod trip – At right, a group of SUNY Potsdam students in Belize for Tropical Ecology and Conservation…some of the cool things about being a bio major!

TRANSITIONS – NEW DEVELOPENTS IN THE BIOLOGY DEPARTMENT

Reminder: Biology 151 and 152 changes

Biology 151 and 152 will each be taught in both semesters, a change we made beginning back in Fall 2020. We will continue using the Open Stax 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.

Administrative Assistant Changes

As you now know, the Biology Department no longer has an Administrative Assistant (Department Secretary); in fact, no department does. Instead, the School of Arts and Sciences went to a Hub system, where several Administrative Assistants are grouped together and divide up the tasks in a different way than they did before, were one person did all the work for one or a few departments. There is one person whose assignment is to work with most of the STEM disciplines, including Anthropology, Biology, Chemistry, Physics, Computer Science, Earth & Environmental Science and Math. Her name is **Nicole Wilson,** and she is located in **103 Morey Hall.** Stop by and say hello!

Upcoming Biology Seminar (Noon in Stowell 211)!

November 20: Dr. Matt Clemens from Paul Smith's College. He will be presenting a general interest talk on his current project publishing a new genus of Cretaceous nodosaur that touches on the geologic setting, basic anatomy and phylogenetics, radiometric dating, and taphonomy.

Biomedical Sciences is now a major at SUNY Potsdam!

Over the past year and a half we have been working on a new major, Biomedical Sciences and it recently made it through the final step as SUNY Administration in Albany has approved the major. The major is designed for all pre-health students, not just for pre-med students. The key to the major is flexibility: you can select classes that best help you prepare for the career you want. Each profession (PA, MD, OD, DVM, DDS, etc.) requires different classes, so now you can customize your classes for what you need. The degree also requires you to learn how to communicate with patients (it's not as easy as you think) as well as have documented patient interactions. If you are a senior or junior, you are probably better off staying with your current major. If you are interested, Prof Ewy will have an information session on the new major on Friday 18 October at 2 pm.

See page 18 for more details

NEW AND IMPROVED COURSES

BIOL 483 – Current Topics

Please Note: There will be no Current Topics offered in Spring 2025. If you are graduating and still need this course, please see Dr. Johnson to discuss alternatives. It is expected that the course will return to the schedule in Fall 2025

BIOL 301 – Communicating in Biology - CM

Dr. Bridget Amulike

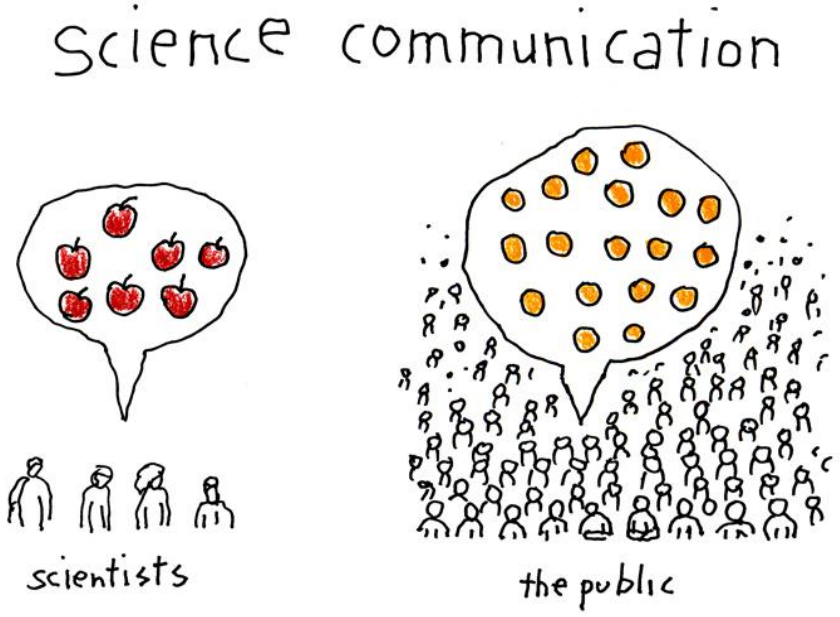
MWF 1000AM−1050AM

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.



ESCI 200 – Environmental Science

Dr. Page Quinton

Lecture: MWF 1100AM−1150AM, Lab: Tu 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!**

BIOL 404 – Human Anatomy and Physiology II

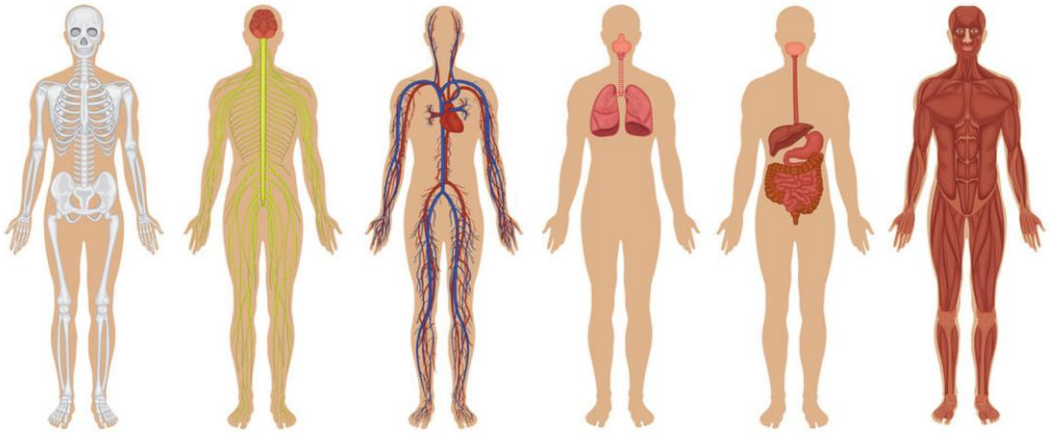
Dr. Sirsat

Lecture Tues, Thurs 11:00-12:15am, Lab Tuesday 1:00-3:50pm.

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. If only there was a way to gain exposure to all of those topics ahead of time?! But, wait!! There is!!

Human Anatomy & Physiology II (BIOL 404) is the second half of a 2-term course (1st term is BIOL 403 offered in the fall) in which students are introduced to different levels of human life: from cells to tissues to organ systems with a special emphasis on preparation for careers in the medical field.

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



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 402 – Conservation and Wildlife Management

Dr. Bridget Amulike

Lecture: MWF 9:00 - 9:50 Lab Tu 2:00 – 4:50

This course has the CT, Connecting Theory to Practice, designator.

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?

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.

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.

BIOL 415 – Virology

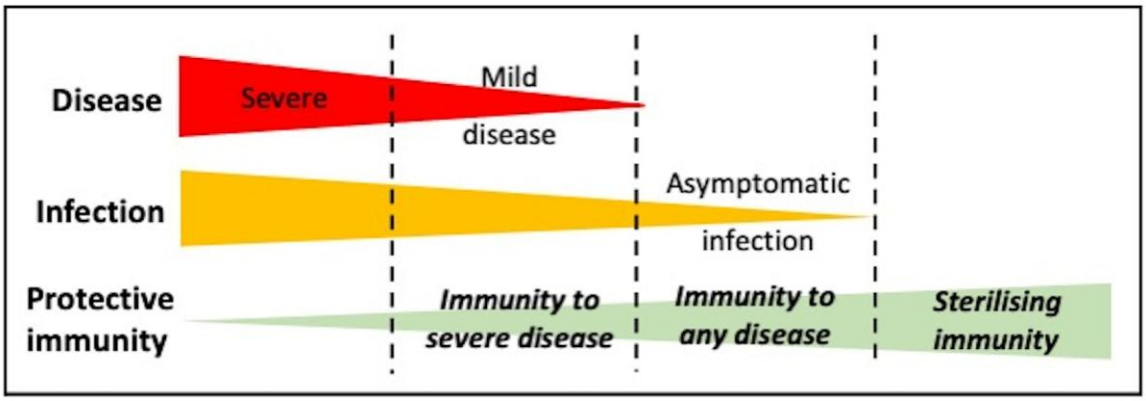
Dr. Jan Trybula

Prerequisites: BIOL 125 or 151, and BIOL 152, and Junior-level standing
General Education: CT, Connecting Theory to Practice,

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!

The world has been dealing with variant after variant of COVID-19 since the pandemic in Spring 2020, so it is basically endemic at this point. Some variants are more deadly, some are less deadly. We also hear talk in the media about Mpox, Marburg, and other viral diseases. This course will look at what viruses are and how they infect cells. We will investigate the different types of viruses, the basics of viral infection cycles, viral medications and vaccinations, and historic pandemics. 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.



From: Caddy, S. 2021. Coronavirus: few vaccines prevent infection – here's why that's not a problem. The Conversation. 5 January 2021. https://theconversation.com/coronavirus-few-vaccines-prevent-infection-heres-why-thats-not-a-problem-152204

New Microcredential in GIS – Starting Spring 2025!

Beginning in the Spring of 2025, SUNY Potsdam is launching a new microcredential in Geographic Information Systems (GIS). The program only requires 2 classes, both can be taken online, and the intro class can be taken in-person in the fall as well. The sequence is GISC 101, Intro to GIS, and GISC 410 – Advanced GIS Applications. In Spring 2025, for those that have already taken GISC 101 (or the equivalent), we're going to begin offering GISC 410 completely asynchronously online. If you're intimidated bytaking a class like this online, don't worry! Dr. Jess Pearson, the professor for the class, will hold in-person office hours in the GIS Lab (Timerman 121) on campus each week on Tuesdays and Thursdays, so you can work at your own pace, but come in for a little help. E-mail Dr. Pearson at rogersje@potsdam.edu if you're unsure or have any questions. If you'd like to get started on this microcredential – really a must for anyone going into field biology to put your resume at the top of the pile – start with GISC 101 online in Spring 2025. You can still come to the same office hours!

BIOL 331 - Natural History of the Higher Vertebrates (Birds & Mammals)

Drs Amulike and Dr. Johnson

Lecture: MWF 1:00-1:50 PM; Lab:Tuesday 1-3:50

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. Jan Trybula

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. It is highly advisable for students interested in future careers in healthcare, medicine, molecular lab work (lab techs, med techs), and others take the lab in Genetics.
Biology minors need to have at least two upper-division lab courses.
For Biochemistry majors, the lab is required.
BIOL 311 meets the requirements for Women's and Gender Studies elective.

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.

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

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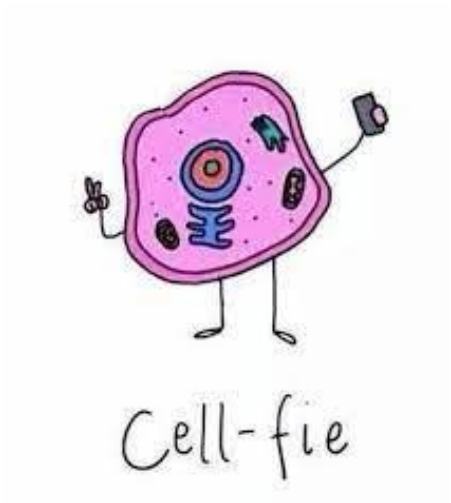
Genetics TAs needed

Genetics Lab: If you did well in Genetics Lab and are interested in helping out, consider signing up to be an Undergraduate Teaching Assistant. 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.

BIOL 151 – Gen Bio: Cells & Genetics

Dr. Snyder

BIOL 151: MWF 9-9:50 Labs: M 2-4:50 or Tu 9-11:50 or Tu 2-4:50



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. You can take BIOL 151 before BIOL 152.

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.

TA's needed

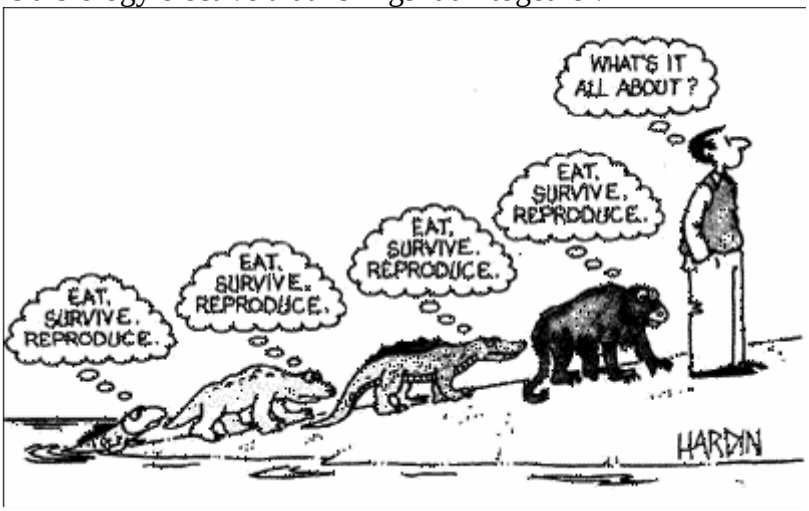
Gen Bio: Cells & Genetics Lab: I am looking for 2 or 3 TA's. TA's must have taken BIOL 151, BIOL 311 preferable. TA's will attend all meetings of their assigned section. Please contact Dr. Snyder (snyderrl@potsdam.edu) if interested.

BIOL 319 – Evolutionary Biology

Dr. Walter J. Conley

Tuesday and Thursday at 11AM

"Nothing in biology makes sense except in the light of evolution." Theodosius Dobzhansky, 1973
Evolutionary Biology examines the mechanisms that have resulted in the rich diversity of life. Students will explore connections between natural selection and Mendelian and molecular genetics, population biology, form and function, sexual selection, development, the fossil record, and human evolution. Evolutionary Biology is a biology elective that "brings it all together."



Marine Biology at SUNY Potsdam

Our College is the only SUNY campus with an undergraduate marine biology option that is focused on ecology and the environment. There are two upcoming opportunities to explore this concentration.

Spring 2025 Marine Biology BIOL 310
Dr. Conley
MWF 11:00 – 11:50

Marine Biology examines the diversity and ecology of organisms that reside in our oceans, bays, and estuaries. We will examine physiological and morphological adaptations of marine life, including the specific adaptations and ecological interactions among organisms that inhabit the plankton, nekton, and benthos. We will also explore marine resources and the impact of humans on the oceans.

Summer 2025
Join the adventure! Several SUNY Potsdam students have been taking biology elective credits at our affiliate institution, the Gulf Coast Research Laboratory (GCRL) in Ocean Springs Mississippi as part of our Marine Biology Program. Courses include Marine Biology, Marine Mammals, Shark Biology, Ichthyology, and a variety of other life science courses with a marine focus. There are also research opportunities available most summers. Classes fill fast so please be attentive to opening dates if interested. As a member of the consortium, SUNY Potsdam student pay in-state tuition, room, and dining. For complete details, please visit the GCRL website http://gcrl.usm.edu/summer_field/index.php
Interested students should also contact our GCRL advisor, Dr. Conley (conleywj@potsdam.edu).

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

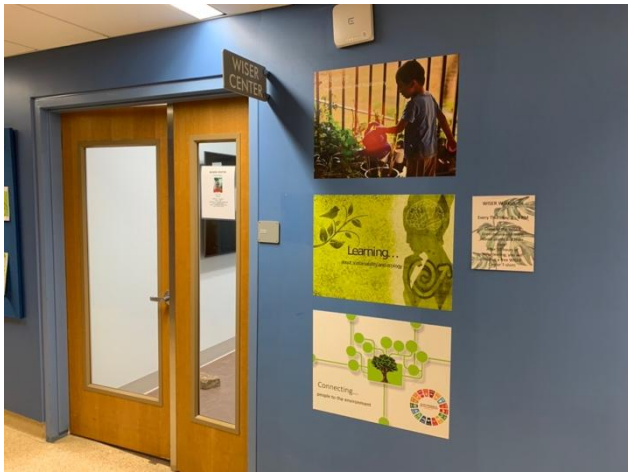
WISER Center News

What *is* the WISER Center?

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

Where's the WISER Center?

Located at 205 Stowell Hall we are in the Biology Department



What's *in* the WISER Center?

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

What goes on in the WISER?

The WISER is an institute with spaces on campus outside of

the Center where there are…

- **Campus and community events**
    - Hosting school trips
    - WISER Open Houses
    - Yoga in the Greenhouse

Join the WISER Staff?

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

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

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

Who coordinates the WISER Center?

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

Harper Barrett – Urban Farmer, Spring 2023

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

Toni Wahl and Sydney LaPlant, Campus Beekeepers

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

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

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

Science is beautiful when it makes simple explanations of phenomena or connections between different observations. Examples include the double helix in biology and the fundamental equations of physics.
Stephen Hawking

POTSDAM GENERAL EDUCATION

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. 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.

WAYS 101 The Ones Without A Voice MWF 11:00AM-11:50AM **Dr. Bridget Amulike**
WAYS 102 WORLD WITHOUT WOLVES TuTh 12:30PM− 145PM **Dr. Kate Cleary**
WAYS 103 BIOLOGY OF SEX AND GENDER MWF 10:00AM−10:50AM **Dr. Jan Trybula**
The Biology Department will be offering more Pathways Courses starting this coming Spring, including:
BIOL 107 and BIOL 125 both carry the Natural World (NW) designator
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)

Health Professions

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

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

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: Applying to Medical School (or any other program that requires a committee letter) for the upcoming cycle? HPAC interviews will be held 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.

All those interested in any type of a Health Professions career: Two must take classes!
HLTH 270 "Health Coaches I" and HLTH 370 "Health Coaches II" (will be offered during Fall Semester 2025). See the description of 270 on page 6!
BIOL 479 "Issues in Health Care" This is a 1 credit course that meets Mondays and Fridays for the first half of the semester. The first four weeks you will discuss and write position papers on four issues in Health Care. The goal is to make you think about ethical issues facing health care professionals. Is health care a right or a privilege? Who gets a say in your health care decisions? In the next four weeks you will work on interview skills that will help you when you apply and interview at the professional programs you want to go to. There are no exams to study for, and it is chance to develop your interview skills. The course meets **M/F at 8:00-8:50**. This is the only time that does not conflict with other Biology, Chemistry, or pretty much any other course on campus (Politics excluded). If you want to go into health care, you better get used to getting up early. See Prof Ewy for more questions.

WORK STUDY

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

TEACHING ASSISTANTSHIPS

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

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

BIOL 311 – up to 2 Teaching Assistants for Genetics labs

Lab: Wednesday 2:00-4:50p.m. Pre-requisite: BIOL 311 lab or permission of instructor

Teaching Assistants needed for lab. 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

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 "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.

BETA BETA BETA

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.

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

New Major in Biomedical Sciences!

The Biomedical Science major at SUNY Potsdam ombines both rigorous academic preparation and the flexibility to customize course content for preparation to any of a number of post-graduate health career programs. Our unique combination of Natural and Social Science courses will prepare students to both understand the disease process and how to effectively relate to patients. Admission to Professional programs in health care require more than just academic mastery in particular subjects. Students need to gain experience with the health care system that is only obtained through Applied Learning opportunities (shadowing, patient, care, etc.). We have included Applied Learning experiences such as Health Coaches and internships as requirements in our major. We also require students to learn how to interact and motivate patients as many health care systems have begun to focus on "Patient-Centered" care. This Patient-centered care requires that health care providers communicate more effectively with patients so that patients can make a more informed decision about their own health care. College students want more choices today, so we have devised a program that allows students to have more choice in the courses they take while maintaining the academic breadth and rigor needed to prepare for intense professional programs. Our major will also provide the flexibility for students who decide to change to career paths part way through their undergraduate education and not require students to take more than four years at SUNY Potsdam. The major has been designed to incorporate both SUNY Potsdam's new Pathways General Education Program and the new SUNY system General Education requirements.

Each student in our new major will have a faculty advisor who is familiar with advising pre-health students. Students will meet with their advisor at least once a semester throughout their time at Potsdam.

Core Classes		
	Credits	**Gen Ed**
BIOL 151 General Biology I: Cells and Genetics	4	
BIOL 152 General Biology II	4	
CHEM 105 General Chemistry I	4	NW
CHEM 106 General Chemistry II	4	
BIOL 301 Communicating in Biology	3	CM
MATH 125 or STAT 100 Probability & Statistics	3	TM
CHEM 341 Organic Chemistry OR	4	
BIOL 307 Cell Biology	3	
Core Credits	**25-26**	
Career Specific Cognates		
BIOL 307 Cell Biology (if not selected above)	3	
BIOL 311 Genetics (Lecture and lab)	4	
CHEM 341 Organic Chemistry (If not selected above)	4	
CHEM 342 Organic Chemistry (If not selected above)	4	
CHEM 425 Biochemistry I	4	
PHYS 101 or 103	4	
PHYS 202 or 203	4	
MATH 141 and 142 sequence or Math 151 Calculus	4	TM
PHTH 221 Death and Dying	3	
PHTH 333 Human Nutrition	3	
PHTH 342 Women's Health	3	
PHTH 430 Human Disease: Patterns/Prevn	3	
PHTH 385 Epidemiology and Biostatistics	3	SW
Cognate Courses Credits	**12-16**	
Patient Communication		
BIOL/PHTH 270 Health Coaches I	2	
Medical Spanish (may be taken online)	1	
DRAM 235 Introduction to Acting	3	TA
PHTH 310 Health Disparities	3	
BIOL 479 Issues in Health Care	1	
PHIL 331 Moral Issues in Mental Health	3	TF
Patient Communication Credits	**2-3**	

Understanding Human Behavior		
PSYC 100 Introduction to Psychology	3	
PSYC 220 Child Development	3	
PSYC 370 Theories of Personalities	3	
PSYC 375 Abnormal Psyc	3	
ANTH 202 Cultural Anthropology	3	GC
Understanding Human Behavior Credits	**6**	
Electives		
Chem 311 Quantitative Analysis (Lec and Lab)	4	
Chem 315 Forensics	3	
BIOL 320 Microbiology (Lec and Lab)	4	
BIOL 403 Human Anatomy and Physiology I (Lec and Lab	4	
BIOL 403 Human Anatomy and Physiology I (Lec and Lab	4	
BIOL 407 Cell Physiology (Lec and Lab)	3-4	
BIOL 410 Human Physiology (Lec and Lab)	3-4	
BIOL 413 Neurophysiology (Lec and Lab)	3-4	
BIOL 415 Virology	3	CT
BIOL 418 Microbial Diseases	3	
BIOL 426 Immunobiology	3	
CHEM 426 Biochemistry II (Lec and Lab)	3-4	
BIOL 431 Developmental Biology	3	
CHEM 444 Advanced Organic Chemistry	3	
BIOL 445 Human Genetic Diseases	3	
CHEM 461 Nanomedicine	3	
EXSC 450 Kinesiology/Movement	3	
Electives Credit Totals	**14**	
At least two courses must have accompaying labs		
Healthcare Experience		
BIOL /PHTH 370 Health Coaches II	2	
Internship Experience	2-4	
Independent Research BIOL 485 or CHEM 497	2-4	
Healthcare Experience Credits	**2-4**	
Total Program Credits	**61-69**	

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

Cognates Classes (30 credits)

Course Title	Credits	Course Title	Credits
BIOL 151, General Biology I + Lab	*4*	*ENVR 110, Intro to Environmental Studies*	*3*
BIOL 152, General Biology II + Lab	*4*	*GEOL 101, Environmental Geology + Lab*	*4*
CHEM 105, General Chemistry I + Lab	*4*	*MATH 151, Calculus I*	*4*
CHEM 106, General Chemistry II + Lab	*4*	*STAT 100, Probability and Statistics*	*3*

Core Environmental Science Classes (28 credits)

Course Title	Credits	Course Title	Credits
BIOL 300, Ecology + Lab	*4*	*GEOL 410, Hydrogeology + Lab*	*3*
ESCI 200, Environmental Science	*4*	*CHEM 320, Environmental Analysis*	*4*
ESCI 301, Soil Science + Lab	*4*	*GEOL 425, Scientific Communication or ENVR 490 Senior Seminar*	*3*
GEOL 320, Geochemistry	*3*	*POLS 414, Environmental Law*	*4*

Elective Courses (14 credits from the following)

Course Title	Credits	Course Title	Credits
BIOL 310, Marine Biology	*3*	*ENVR 391, Field Project*[1]	*1-6*
BIOL 312, Insect Ecology	*4*	*ESCI 495, Env. Science Research*[1]	*1-3*
BIOL 334, Biology of Woody Plants	*3*	*GEOL 350, Geomorphology*	*4*
BIOL 400, Field Ecology	*4*	*GEOL 380, Climate Change: Past & Present*	*3*
BIOL 402, Conservation and Wildlife Management	*3*	*GEOL 407, Applied Geophysics*	*3*
BIOL 408, Wetland Ecology	*3*	*GEOL 440, Economic Geology*	*3*
BIOL 409, Freshwater Biology	*4*	*GISC 101, Intro. to GIS*	*4*
CHEM 311, Quantitative Analysis	*4*	*GISC 302, Remote Sensing*	*3*
CHEM 321, The Sustainable World or ENVR 120, Intro. To Sustainability	*3*	*SOCI 340, Environment and Society or SOCI 341, Environmental Justice*	*3*
CHEM 341, Organic Chemistry I	*4*		
CHEM 342, Organic Chemistry II	*4*	*PHIL 330, Environmental Ethics*	*3*
CHEM 415, Instrumental Analysis	*2*	*PHYS 325, Energy and the Environment*	*3*
ECON 320, Economy and the Environment	*3*	*PHYS 330, Meteorology*[2]	*3*
[1]Students can count a total of no more than three credits toward the electives		*[2]Highly recommended for all students*	

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)					
Level	**Course**		**Credits**	**Required for:**	**Prerequisites**
Required courses: 6 credits	ENVR 110: Introduction to Environmental Studies		3	all	none
	Choose one	CHEM 301: Fundamentals of Environmental Science	3	All majors except GEOL and BIOL	one semester of college-level science
		PHYS 325: Energy and the Environment	3	GEOL and BIOL majors	one semester of college-level science
Prerequisite courses: 3-4 credits for BIOL/GEOL majors, 7 credits for others	GEOL 101: Environmental Geology		3	non-GEOL majors	none
	BIOL 152: General Biology II		4	non-BIOL majors	none
Advanced Courses : 14 credits for BIOL/GEOL majors, 11 credits for all others. Advanced courses must be taken outside of the student's major	BIOL 300: Ecology + Lab		4	non-BIOL majors	BIOL 152
	BIOL 312: Insect Ecology		4		BIOL 152
	BIOL 326: Morphology of Higher Land Plants		3		BIOL 152
	BIOL 330: Natural History of Lower Vertebrates		4		BIOL 152
	BIOL 331: Natural History of Higher Vertebrates		4		BIOL 152
	BIOL 334: Biology of Woody Plants		3		BIOL 152
	BIOL 355: Invertebrate Biology		4		BIOL 152
	BIOL 402: Conservation Biology		3		BIOL 300 or permission of instructor
	CHEM 311: Quantitative Analysis		4		CHEM 106
	GEOL 340: Geographic Information Systems		4		Sophomore standing
	GEOL 310: Hydrology and Hydrogeology		4	non-GEOL majors	100-level geology class + either CHEM 105 or MATH 125 or MATH 151 or STAT 100
	GEOL 406: Geomorphology		4		100-level geology class + junior standing
	PHYS 330: Meteorology		3		
	CONS 314: Soil Mechanics (SUNY Canton)		3		GEOL 101
	CONS 386: Water Quality (SUNY Canton)		4		GEOL 310

INTERNSHIPS

INTERNSHIPS

& Biology Department Applied Learning Opportunities

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

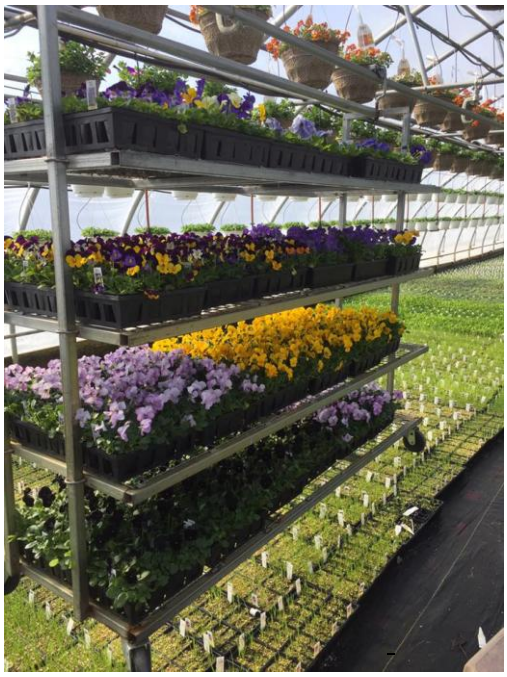
Wagner Institute for Sustainability and Agricultural Research (WISER) Internship, in the Biology Department at SUNY Potsdam

You get to:

- Manage the Healthy Plant Initiative (HPI) program
- Grow microgreens for PACES
- Help Develop our campus composting initiative
- Learn horticultural technique
- Practice Integrated Pest Management
- Report your achievements to the campus at the Learning and Research Fair

Off-Campus Internship Opportunity

Study Horticulture from Never Tire Farm



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

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, Dr. Sirsat sirsatsk@potsdam.edu or Rachel Wallace wallacrm@potsdam.edu about Animal Room or Diversity House opportunities

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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 materialsinventory
- 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

Dr. Glenn Johnson – Conservation of Threatened Species

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

I have a continuing project initiated 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.

Robert Ewy - Research experience on environmental effects on plants

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.

Humpback Whales spotted from shore

Dr. Sarah Sirsat

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 and behavioral differences related to a recessive white pattern. These white-spotted 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

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.

Wanted: I'm looking for two new student researchers, who are interested in building their molecular genetic lab skills. Email me if you are interested. No pay but you can earn BIOL elective credits!

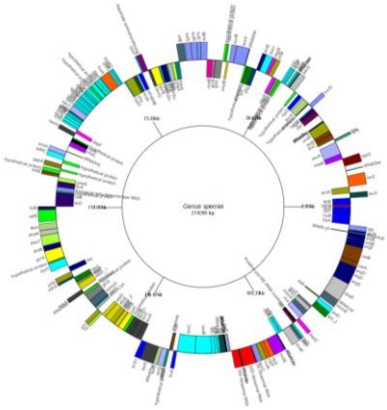

Figure 2: Genome of Sulcia sp. The first novel genome sequenced by SUNY Potsdam students

Figure 1: The two-spotted treehopper Enchenopa binotata

Dr. Jan Trybula Molecular Ecotoxicology & Population Genetics

My research is tied to many aspects of genetics and biodiversity. I'm 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 mayflies, stoneflies, caddisflies, and dragonflies. 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 they may have on susceptibility or resilience to road salt runoff.

I also have a continuing project to develop a new teaching lab experience using CRISPR or other technology to mutate one color variant of fluorescent protein into a different color variant in order to expand and modernize some of the labs in Genetics, BIOL 311.

If you're interested in learning more about any of these projects, please contact me.

Drs. Jessica Pearson/Glenn Johnson- Biological Control Technician

Summer 2025 - Full Time Summer Biological Control Technician Position with the USDA at SUNY Potsdam
Start Date: Mid May- September. Dates are semi-flexible.
Work Schedule: Full Time (40 Hours/Week)
Salary: $20/hr depending on level of education.

Position Description: This position will require independent fieldwork in upstate New York, St. Lawrence County (Brasher Falls, Waddington, Morristown, and Massena, NY). The employee will be hired by the Research and Sponsored Programs Office at SUNY Potsdam, with funding from the US Department of Agriculture, and overseen by Dr. Jess Pearson and Dr. Glenn Johnson. Most work will take place remotely in upstate New York (Brasher Falls, Waddington, Morristown, and Massena NY). This position is designed to support ongoing scientific research into the biological control of the emerald ash borer.

This job involves a balance of both field and laboratory work. It involves releasing small biological control agents that attack emerald ash borer as well as setting up traps to recover adult beetles and the biological control agents. The field portion of the work will be conducted in ash forests and there will be access to the laboratories of the Environment Division of the Saint Regis Mohawk Tribe in Akwesasne, NY to allow the employee access to a laboratory space for beetle trap sample processing. Once during the summer, the employee will collect health data on tagged ash trees. Additional field work to assist with other projects may be required throughout the season. This job will require driving to field sites throughout St. Lawrence County in New York. A valid driver's license and a willingness to drive between sites is essential. Vehicles for field work or mileage reimbursement will be provided. You will be trained in every step of the process. Following training you will then be required to work independently.
This job requires fieldwork that can involve collecting data under adverse weather conditions, as well as laboratory work, which requires good organizational habits. Applicants must be a US citizen.

Application: Please send a short letter of interest and your resume to Dr. Jess Pearson (rogersje@potsdam.edu) Use the email Subject line "Biological Control Technician Position 2025". We will be accepting rolling applications and scheduling interviews as applications are received until the position is filled. If you have any questions, you can contact Dr. Pearson at the email above or call her at 315-267-2522.

The New Biology BS and BA Degree Programs

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

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

BIOLOGY SPECIALIZATION REQUIREMENTS

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

Course Number	Title	Hrs.	Grade		Course Number	Title	Hrs	Grade
125 125L	Biological Concepts	3			300+			
152	Biology II	3			300+			
152	Biology II Lab	1						
300	Ecology Fall Only	3						
300	Ecology Lab (Optional)	1						
311	Genetics Spring Only	3						
311	Genetics Lab (optional)	1						

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