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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 Honors Society.

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.
REGISTRATION

Advising begins October 19. The spring schedule will be available online this day
Registration begins:
  * Seniors – November 12-13
  * Juniors – November 16
  * Sophomores – November 17
  * Freshmen – November 18-19

Students may adjust their schedules on BearPAWS until midnight, Sunday, Jan. 24th 2016, which is the day before classes begin and before the week of Add/Drop.

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

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

DECLARING BIOLOGY AS YOUR MAJOR OR MINOR

Students are strongly encouraged to declare their biology major as early as possible.

Declaring your major or minor early will help you obtain a biology faculty advisor and help you select the best courses toward your degree. It is our wish to match students with advisors with shared interests within life sciences. To declare biology as your major or minor, see Marta Whalen, the Department Secretary (Stowell 208) or Dr. Glenn Johnson, the Department Chair (Stowell 207). Just fill out one form. The entire process takes less than three-minutes, but it can save you a semester or more by insureing that you receive an advisor who understands our program.

Tony Mineo removes a threatened Blanding’s turtle from a trap and both are smiling! Tony is a bio major…the turtle is undeclared …

Above: Humpback whales bubble net feeding on our Cape Cod trip – another cool thing about being a bio major! (Photo: Alex Matte)
NEW AND IMPROVED COURSES

BIOL 483 – Current Topics: Biology of Cancer - SI
Dr. Rhoads
Tuesdays 5:00 – 7:30 pm

Current Topics is a seminar-style class, and satisfies the college-wide requirement for a speaking-intensive course (SI). Our focus will be on the field of cancer biology, which encompasses cell biology, molecular biology, physiology and medicine. Using these various aspects of biology, we will be examining what causes cancer, what the symptoms are for particular cancers, how cancer is treated and the epidemiology of cancer types. Through the course, you will learn how to communicate concepts in cancer biology to your peers, and how to critically evaluate primary and secondary literature in the preparation of your presentation and summary paper.

BIOL 483 – Current Topics – Antibiotics - SI
Dr. Plague
Tuesdays 2:00 – 4:50

Antibiotics have been in clinical use for over 70 years, and in that time have completely altered our relationship with bacterial pathogens. In this Speaking Intensive class, we will explore the biology of antibiotics (e.g., the role of antibiotics in natural microbial communities, the evolution of antibiotic resistance, the use of antibiotics in agriculture). (Prerequisite: BIOL 320.)

NOTE: Dr Schreer will be on sabbatical leave for the Spring 2016 semester; Dr. Ewy will be teaching BIOL 404 Human Anatomy and Physiology II, Lecture and labs!
BIOL 195 – NEW COURSE- Special topics: Bioinformatics Research
Dr. Snyder

Bioinformatics Centered Research Experience is an experiential learning course where students progress through the process of science from basic observation skills to the presentation of novel research findings. This course is for Freshman and Sophomore Science majors and is most applicable to 1) Biology and 2) Biochemistry majors. This course is designed to afford underclassmen an opportunity to do science and not just learn science. As such, students will direct their own personal novel research project centered on the discovery of genetics patterns (Genes and genetic regulatory factors) in a previously unstudied portion of a genome. The results of this research will be included in a co-authored manuscript describing the genome of the organism.

This course is designed for students who:
1) Use(d) AP credit for General Biology
2) Are self motivated to do science

Requires Freshman or Sophomore standing and Permission of Instructor

Contact Dr. Snyder (snyderrl@potsdam.edu or 307 Stowell Hall) if you are interest and want to know more!
Med Bugs aims to highlight the pathogens and pests that plague humans: This course is designed for students who are interested in medicine, microbiology, entomology and evolution. The course will cover pathogen/host and pathogen/host/arthropod interactions, recognition and identification of vectors and disease, and an understanding of epidemiology. Additional topics covered include bioterrorism and forensic entomology. (3 Credits, Prerequisite: BIOL 320)

BIOL 480 – Advanced Topics in Biology – Advanced Topics in Genomics

Dr. Snyder and Dr. Plague

Students in this class will collaborate on one or more novel bioinformatics projects investigating the molecular evolution of parasitic genes. We will go through the entire scientific process, from generating the questions to disseminating the results, and everything in between. Our goal is to have a manuscript at the end of the semester that we will eventually submit for publication, with all students as co-authors. This class would be ideal for anyone considering graduate school. Interested student's should contact Drs. Snyder (snyderrl@potsdam.edu) or Plague (plaguegr@potsdam.edu). (Enrollment is by permission of instructor only.)
**BIOL 303 – Plant Physiology**  
*Dr. Ewy*

Lecture 1:00-1:50 MWF, Lab 2:00-4:50 M  
Plants are dynamic organisms that can move water up 100 meters with no moving parts and no input of energy. We will cover these and other processes unique to plants in both lecture and lab. Experimental design will be stressed as students will design and carry out their own experiments on various plant physiology topics for half the lab exercises. Prerequisites: Biol 151 or 125, and 152. General Chemistry highly recommended. Fulfills Physiology component for both BA and BS degrees.

**BIOL 415 – Virology**  
*Dr. Trybula*

MWF 1:00-1:50  
prerequisites: BIOL 151/152 and Junior-level standing  
Viruses can range from relatively benign like the cold to very deadly indeed. There are outbreaks of viruses everywhere around the world. Experts monitor these trends to see what diseases are in the process of spreading or which version of the flu may find it ways to our area this season.

Human have been battling viruses for millennia and today our toolkit is the better than ever. But we still have a long way to go. Viruses are also starting to be used in our favor as treatments bacterial infections. We also use virus capsules as the vessels to deliver drugs. However, the history of viruses and combating them is a long and arduous one. Even today people there are individuals who do not think that vaccines are a useful tool, but all too often they do not know how devastating these diseases were in the past.

In this course we’ll learn together about various viruses, their disease, and their uses. We will also monitor viruses this season to see what may be coming…

http://www.someecards.com/  
http://www.utexas.edu/features/2005/polio/
**BIOL 426 Immunobiology**  
*Dr. Rhoads*  
TuTh 9:30AM–10:45AM

The immune system of an organism consists of a complex group of both cells and the products of those cells that protect the body against foreign invaders. Immunology is the study of the immune system, and includes a great deal of genetics and cellular biology material. We will address the parts of the immune system and how it functions to protect the body from disease, and what happens when those protective mechanisms fail to keep the body from infection, autoimmunity, or even cancer. Case studies and research material will be used throughout the class and in exams to illustrate the concepts.

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**BIOL 331 - Natural History of the Higher Vertebrates (Birds & Mammals)**  
*Dr. Johnson*

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.
**BIOL 319 - Evolutionary Biology**  
*Dr. 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."

**BIOL 355 – Conservation Biology – 3 Credits**  
*Dr. Johnson*

MWF 900AM– 950AM STW–HL0103

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?
BIOL 355 – Invertebrate Biology

Dr. Romey

Do you suffer from vertebrate-ism (the unnatural focusing of attention on vertebrates)? Truth be told, most species in the world are invertebrates. For example, the majority of the biomass on earth are insects and marine arthropods. About half of what we cover in this course will be marine species (squid, starfish, lobsters, clams, and sponges to name a few). The comparative nature of this course will help you to better comprehend evolution and why humans are the way they are. We will also address the important issue of trophic dynamics, who eats whom. Humans eat many invertebrates and invertebrates “eat” humans (including the organism that causes malaria). Students who take this course will be making a movie on their favorite invertebrate and traveling to Cape Cod for a weekend to: study invertebrates on the beach, go to a museum, and perhaps eat a lobster after naming all of its parts.

4 credits. (Lecture and Laboratory)
**SUMMER TRAVEL COURSES**

**Marine Biology for Summer 2016**

Join the adventure! Several SUNY Potsdam students have been taking biology elective credits at our affiliate institution, the Gulf Coast Research Laboratory (GCRL) in Ocean Springs Mississippi as part of our Marine Biology Program. Courses include Marine Biology, Marine Mammals, Shark Biology, Ichthyology, and a variety of other life science courses with a marine focus. There are also research options available. Classes fill fast so please be attentive to opening dates if interested. For complete details, please visit the GCRL website (http://www.usm.edu/gcrl/) and under “Academics” click on “GCRL Summer Field Program.” Interested students should also contact our GCRL advisor, Dr. Conley.

Marine Biology class of 2014 on Santa Rosa Island, Pensacola Florida; including Potsdam students Ceira Dawson and Matt Nobles.
**Health Professions**

Interested in pursuing a career in a Health Profession? Enroll in the Health Professions Moodle course. There you will find information on all kinds of health-related programs including: MD, DO, PA, PT, Vet, Dental, OT, and Optometry, as well as medical related research programs. You can self-enroll and will receive periodic notices of events both on and off campus that pertain to various health-related careers. Talk to Profs Schreer, Trybula, or Ewy for more information.

**WORK STUDY**

If you are interested in and eligible for the federal work-study program please see either Ray Bowdish (bowdisrp@potsdam.edu, Ph 267-2276), or the department secretary, Marta Whalen (whalenmm@potsdam.edu, Ph 267-2276). 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.

- 5 (five) TAs needed for Bio 311 labs (Genetics) - Contact Dr. Trybula
- Many TAs needed for General Biology II labs – Contact Ray Bowdish – see below

**Teaching Assistant (TA) positions in General Biology 2 labs**

If you are interested in becoming a Teaching As in the General Biology II labs (BIOL 152) please contact me before the end of the fall semester. Basic requirements: 1) successful completion of Biology I lecture and lab courses (3.0 or better) and 2) a willingness to commit at least 2 hours of time outside your regularly scheduled lab section each week.

As a lab TA you will be helping to prepare and teach the General Biology II labs. This is a great way to reinforce you 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.

For more information on anything I coordinate please email (bowdisrp@potsdam.edu).

**Teaching Assistant Opportunities** The department has a number of teaching assistant positions available this coming spring. **Biology 100 needs three TAs**, Contact Prof Ewy, if you are interested in being a TA for Biology 100 (the non-majors will appreciate your help). I am particularly interested in someone who can me help set up the Biology 100 labs which meet on Thursdays. The Biology 100 lab can be set up anytime during the week, so you can easily fit it into your schedule. This is an excellent way to review your introductory Biology, learn some teaching techniques, have some fun, and earn 1 hour of credit.

**Three Teaching Assistants needed for BIOL 311 Genetics…See Dr. Jan Trybula!!**

**Two assistants needed for Biological Concepts Lab (BIOL 125) - please contact Dr. Conley**

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

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**Meet Marta Whalen!**

Marta joined the Chemistry and Biology Departments as secretary in June 2015 and she is off to a great start!

She previously worked in the Student Success Center in Sisson Hall. She enjoys archery, camping, hiking, kayaking, and spending time with her family and friends.
SUNY Potsdam Biology Department to Break Ground in Fall 2015 on a New Greenhouse Facility - *Wagner Institute for Sustainability and Ecological Research (WISER) Center*

The SUNY Potsdam Biology department is excited to announce the construction of a new 3400 square foot greenhouse facility in the spring of 2015. This facility will be known as the WISER Center, the Wagner Institute for Sustainability and Ecological Research.

This new facility will provide an exciting space for initiatives to create a “greener” campus. The WISER mission will be to support creative, science-based research into issues of sustainability and ecology and to serve as a nucleus for the sustainability movement in the North Country. The Center will allow students to engage in experiential learning in classes and programs investigating issues of climate change, sustainable agriculture and biodiversity. The Center will stimulate a broad scope of research possibilities unique to St. Lawrence County.

The Center is comprised of five greenhouse zones, including the Stowell Biodiversity classroom, with a central work area and a commons area. The greenhouse will be integrated into the south side of Stowell Hall. The expanded greenhouse space will allow the newly renovated Stowell Greenhouse to become a Biodiversity Classroom that will be part of the WISER Center facilities. The Center will be utilized by many of our current classes including General Biology, Genetics, Ecology, Plant Physiology, Woody Plants, Botany and Sustainable Agriculture. New courses in Urban Farming, Hydroponics and Aquaculture are also planned for the future.

The commons area will function as an upgraded computer center and will also be a place to initiate tours of the WISER Center for guests from the surrounding community.

This fantastic new space was made available through a generous gift from Robert (Bob) E. Wagner (75’) and his wife Wendy. Their own commitment to sustainability and a love of the natural world is being shared with Potsdam students by creating the WISER Center. The Wagner’s’ thoughtful gift affords students at SUNY Potsdam and members of the surrounding community the opportunity to learn about the importance of social, economic and ecological sustainability.
Revision to Environmental Science Minor!!

Beginning Fall 2015, the Environmental Science Minor will be 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>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required courses: 6 credits</td>
<td>ENVR 110: Introduction to Environmental Studies</td>
<td>3</td>
<td>all</td>
<td>none</td>
</tr>
<tr>
<td></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>
</tr>
<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>
</tr>
<tr>
<td>Prerequisite courses: 3-4 credits for BIOL/GEOL majors, 7 credits for others</td>
<td>GEOL 101: Environmental Geology</td>
<td>3</td>
<td>non-GEOL majors</td>
<td>none</td>
</tr>
<tr>
<td></td>
<td>BIOL 152: General Biology II</td>
<td>4</td>
<td>non-BIOL majors</td>
<td>none</td>
</tr>
<tr>
<td>14 credits for BIOL/GEOL majors, 11 credits for all others</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>
</tr>
<tr>
<td></td>
<td>BIOL 402: Conservation Biology</td>
<td>3</td>
<td></td>
<td>BIOL 300 or permission of instructor</td>
</tr>
<tr>
<td></td>
<td>CHEM 311: Quantitative Analysis</td>
<td>4</td>
<td></td>
<td>CHEM 106</td>
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<tr>
<td></td>
<td>GEOL 340: Geographic Information Systems</td>
<td>4</td>
<td></td>
<td>Sophomore standing</td>
</tr>
<tr>
<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>
</tr>
<tr>
<td></td>
<td>GEOL 406: Geomorphology</td>
<td>4</td>
<td></td>
<td>100-level geology class + junior standing</td>
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<tr>
<td></td>
<td>PHYS 330: Meteorology</td>
<td>3</td>
<td></td>
<td></td>
</tr>
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<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>
Welcome to the SUNY Potsdam Biology Department. I am a proud Alumnus of this campus (‘87) who earned my Masters in Entomology from the University of Maine, Orono, and was fortunate to be able to return and teach in 1993.

My official title is University Instructional Specialist. That’s a fancy way of saying that I teach and help support Biology lab courses. At home, in Lisbon, NY, my wife and I own and operate Never Tire Farm, a commercial greenhouse operation and organic gardens. So, I am a teacher, technician and farmer, all rolled up in a Neanderthal-like package © (Figure 1).

I am really excited to announce the construction of the WISER Center and Greenhouses, next semester. When completed, the new facilities will be a hub of activity supporting biology courses, interns and student research projects. The adjacent WISER Center will be housed in Stowell Hall providing students with space and technology resources to collaborate on projects and to share them campus and surrounding community.

The WISER Center and Greenhouses collaborate with Never Tire Farm in Lisbon, NY, to provide both on- and off-site Internship opportunities. I coordinate both the WISER Center and General Biology labs so please be sure to contact me if you are considering either an internship or TA position. These can be valuable experiences that improve your resume or Curriculum Vitae (C.V.).

**Biology Department Internship Opportunities**

There are several internship opportunities in the biology department that can be attended on campus. The internships are credit based (sorry, no pay) and they are offered through the Experiential Education Department and include:

- **Care and Handling of Display Animals in the Biology Department at SUNY Potsdam**
  - Help care for animals (reptiles and fish) in the department
  - Create learning materials to help others discover the animals in the department
  - Report your work to the campus at the Learning and Research Fair

Figure 1 Homo sapien neanderthalensis captured in a rare selfie atop the ridge to Mount Massive, CO ~ 13,750 ft above sea level. This species is the sworn enemy of Homo sapien sasquashensis.
• **Wagner Institute for Sustainability and Agricultural Research (WISER) Internship, in the Biology Department at SUNY Potsdam.** Responsibilities and opportunities include:
  
  o Running the Healthy Plant Initiative (HPI) program
  o Growing microgreens for PACES
  o Working to develop a campus composting initiative
  o Learning best practices in horticulture
  o Practicing Integrated Pest Management skills
  o Reporting your work to the campus at the Learning and Research Fair

• **Biology Technician internship Techniques in the Biology Department at SUNY Potsdam**
  
  o Help create and maintain chemical inventory lists
  o Learn how to prepare lab materials for various biology labs
  o Develop skills in lab instrument care and maintenance
  o Maintain the lab materials inventory
  o Learn various lab protocols and skills for working in a biology research lab
  o Get trained in chemical safety.

• **Technologies in Teaching**
  
  o Work as a TA in the General Biology Labs (credit only)
  o Learn how to deploy cutting edge technologies in a classroom laboratory setting
  o Create learning materials to help students learn how to use technologies
  o Aid in the development of Unity software to improve its functionality for teaching.
  o Report your work 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 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.
**RESEARCH WITH PROFS**

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

207 Stowell Hall, 267-2710, johnsong@potsdam.edu

The Wood Turtle in the Northeastern United States: A Status Assessment and Conservation Strategy

I am participating in a relatively new turtle project that has begun in earnest last Fall, where students and I are surveying local streams for the presence of wood turtles, considered a Species of Greatest Conservation Need in New York. This project is regional in scope and is being pursued by conservation departments in most northeastern states. In the meantime, we are busy beginning surveys in streams and rivers throughout the region. Wood turtles are most readily found in Fall (late September – mid November) and again in late March to early May, when they are still active and moving about in clear streams that course through woodlands and meadows. Between those dates in winter, they are hibernating in the stream banks and in beaver lodges, while in summer they spend most of their time on land, foraging for invertebrates they love to eat. Six students are participating this Fall and I am hopeful a similar number will be interested next Spring…so, if you like to muck about in wetlands and cruise up and down beautiful creeks and streams, please stop by and see me or email (johnsong@potsdam.edu).

A second, somewhat related project involves a region-wide survey for Blanding’s turtles, a Threatened Species over much of its range. This project is part of a multi-state State Wildlife Grant and we will be cooperating with conservation biologists in Pennsylvania, Massachusetts, New Hampshire and Maine. Our portion involves conducting rapid assessments of Blanding’s turtle populations across the North Country, Saratoga and Dutchess Counties, establishing several long-term monitoring sites, creating artificial nest sites for this species and setting up a Turtle Crossing sign network within parts of New York. If interested in learning more, please contact Dr. Johnson.
Dr. Rob Snyder

Spring 2016: I will be teaching Bioinformatics and Advance Topics in Genomics (with Dr. Plague). Come see me (or read the courses section of the newsletter) if you want to know more about these courses.

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).

Check out my website for news and information about the Snyder Lab
http://www2.potsdam.edu/snyderrl/

Dr. Gordon Plague – Research Opportunities in the Plague Lab

Transposable elements are the most abundant and most ubiquitous genes in nature. In my lab, we study the molecular evolution and ecology of transposable elements using both laboratory experiments and data mining/bioinformatics approaches. I’m looking for several motivated students to participate in this research. If you’re contemplating graduate school, this is a great way to gain hand-on research experience. Please contact me if you’re interested (plaguegr@potsdam.edu).

Robert Ewy - Research experience on environmental effects on plants

The research in my lab focuses on how plants respond to environmental stresses at the cellular and molecular levels. I have several different projects to work on including: studying shrub willows as a potential biofuel, co-evolution of proteins, and isolating antibacterial compounds from plants. There are a number of subprojects available through the willow test plot, including growth measurements, soil analysis, and herbivory damage (both insect and other pests) and even watching ants farm aphids! You’ll learn a number of techniques that transverse may disciplinary boundaries. Its never to early to think about doing research, so even if you’ve only had Biology 151 or 152, stop by Stowell 202, call x2191, or email ewyrgr@potsdam.edu for more information.
**Dr. Jan Trybula**

My lab involves many student-led and student-assisted research projects. Two of the current projects in the Trybula lab include studies on the effect of antioxidants on DNA. It is well known that oxidants cause damage to DNA and we can track this damage through gel electrophoresis. Students are studying many different antioxidants in both prokaryotic and eukaryotic models. Two other projects include identifying antibiotic resistant bacteria from different sources. One group of students is studying how to genetically identify *Staphylococcus aureus*, bacteria found naturally on human skin, but which may be the antibiotic resistant variant known as MRSA. The other group is similarly trying to genetically identify antibiotic resistant bacteria on vegetables, which relates to many of the food-borne illness concerns that are often in the news. I also have students involved in population genetic studies of certain dragonfly species. And finally, a group of students have begun to investigate aspects of forensic biology by looking at DNA stability over time in degrading tissues as analyzed by forensic extraction methods.

**Ms. Ningyun Cai, Adjunct Professor, M.S., M.L.A.**

Ning teaches labs for Genetics, General Biology and Principles of Biology. Her interests include Sustainability, Landscape Architecture and Ecotourism. She also teaches Chinese 101-103 for the Modern Languages Department.
### REQUIRED BIOLOGY COURSES (23 hours)

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<th>Course</th>
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### REQUIRED CHEMISTRY COURSES (12 hours)

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### REQUIRED PHYSICS COURSES (8 hours)

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### REQUIRED MATH COURSES (7-8 hours) (Two Semesters)

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### BIOLOGY ELECTIVES (16 hours)

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</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 co requisites 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)**

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### REQUIRED CHEMISTRY COURSES
**(12 hours)**

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### BIOLOGY ELECTIVES
**(14 hours)**

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* 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)

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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 DEPARTMENT

Pre-requisites: BIOL125 or BIOL151 and BIOL152

NOTE: Lecture required.

Pre-requisites: BIOL125 or BIOL151 and BIOL152

NOTE: Lab required.

Pre-requisites: BIOL125 or BIOL151 and BIOL152

NOTE: Lecture required.

Pre-requisites: BIOL125 or BIOL151 and BIOL152

NOTE: Lab required.

Pre-requisites: BIOL125 or BIOL151 and BIOL152

NOTE: Lecture required.

Pre-requisites: BIOL125 or BIOL151 and BIOL152

NOTE: Lab required.

Counts towards Environmental Studies Major and Minor.

Counts towards Environmental Studies Major and Minor.
NOTE: Lab Required.
80572 BIOL 311 002* GENETICS-LAB 1 M 200PM–450PM STW–HL0214 J TRYBULA 18 0 18
Pre-requisites: BIOL125 or BIOL151 and BIOL152
NOTE: Lecture Required.
$25.00 Lab Fee assessed by Biology Department.
80735 BIOL 311 003* GENETICS-LAB 1 Tu 900AM–1150AM STW–HL0214 G PLAGUE 18 0 18
Pre-requisites: BIOL125 or BIOL151 and BIOL152
NOTE: Lecture Required.
$25.00 Lab Fee assessed by Biology Department.
80573 BIOL 311 004* GENETICS-LAB 1 Tu 200PM–450PM STW–HL0214 N CAI 18 0 18
Pre-requisites: BIOL125 or BIOL151 and BIOL152
NOTE: Lecture Required.
$25.00 Lab Fee assessed by Biology Department.
80574 BIOL 311 005* GENETICS-LAB 1 W 200PM–450PM STW–HL0214 N CAI 18 0 18
Pre-requisites: BIOL125 or BIOL151 and BIOL152
NOTE: Lecture Required.
$25.00 Lab Fee assessed by Biology Department.
80354 BIOL 319 001* EVOLUTIONARY BIOLOGY 3 TuTh 1100AM–1215PM STW–HL0211 W CONLEY 40 0 40
Pre-requisites: BIOL125 or BIOL151 and BIOL152
80002 BIOL 331 001* NATURAL HIST HIGHER VERT–LEC 3 MWF 1100AM–1150AM STW–HL0103 G JOHNSON 20 0 20
Pre-requisites: BIOL125 or BIOL151 and BIOL152
NOTE: Lab required.
80003 BIOL 331 002* NATURAL HIST HIGHER VERT–LAB 1 Tu 200PM–450PM STW–HL0103 G JOHNSON 20 0 20
Pre-requisites: BIOL125 or BIOL151 and BIOL152
NOTE: Lecture required.
$25.00 Lab Fee assessed by Biology Department.
81598 BIOL 355 001* INVERTEBRATE BIOLOGY–LEC 3 TuTh 900AM–1045AM STW–HL0103 W ROMEY 20 0 20
Pre-requisites: BIOL125 or BIOL151 and BIOL152
NOTE: Lab required.
81599 BIOL 355 002* INVERTEBRATE BIOLOGY–LAB 1 Th 200PM–450PM STW–HL0103 W ROMEY 20 0 20
Pre-requisites: BIOL125 or BIOL151 and BIOL152
NOTE: Lecture required. $25 lab fee assessed by Biology Department