ENVS NEWSLETTER

College of the Holy Cross
Environmental Studies Department
Worcester, MA 01610
508-793-2288

October 2023
Vol. 3

This newsletter provides environmental studies majors and minors with important updates including registration information for Spring 2024 and happenings in the department.

SPRING 2024 COURSES

For schedule of classes and course descriptions, refer to the College Catalog or STAR online.

ENVS 118-01	Environmental Perspectives	TuTh 9:30-10:45am
ENVS 118-02	Environmental Perspectives	TuTh 11-12:15pm
ENVS 199-01	Intro to Climate Change	MWF 9-9:50am
ENVS 199	Intro to Environmental Narratives	Th 9:30-12:00pm
ENVS 247	Intro to Geographic Info Systems	TuTh 2-3:15pm
ENVS 220	Environmental Psychology	MTR 2-2:50pm
ENVS 299-05	Sustainable Energy	MWF 11-11:50am
ENVS 299-04	Urban Ecosystems	TuTh 12:30-1:45pm
BIOL 117	Environmental Science	**(4 Sections)**
BIOL 163	Intro Biol Diversity & Ecology **w/Lab**	**(3 Sections)**
BIOL 299	Plant Ecology **w/Lab**	MWF 10-10:50am, **W 2-5pm**
BIOL 275	Biological Stats	TuTh 8 am & 9:30 am
BIOL 331	Ecosystem Ecology	WF 12-1:15pm
CHEM 231	Equilibrium & Reactivity **w/Lab**	**(2 Sections)**
CHEM 325	Environmental Forensics	Tu 2-3:15pm, **Th 2-5pm**
ECON 110	Principles of Economics	**(6 Sections)**
ECON 224	Environmental Economics	MWF 10-10:50am MWF 11-11:50am
ECON 319	Urban Economics	TuTh 12:30-1:45pm TuTh 2-3:15pm
GEOS 210	Geomorphology **w/Lab**	TuTh 9:30-10:45am
GEOS 350	Oceanography	MWF 12-12:50pm
PHIL 249	Environmental Ethics	MWF 1-1:50pm
POLS 248	US Environmental Policy	MW 3-4:15pm
RELS 255	Ecology & Religion	TuTh 12:30-1:45pm
STAT 220	Statistics	TuTh 11-12:15pm TuTh 6:30-7:45pm

ENROLLMENT SCHEDULE

Spring 2024 Advising: OCT. 24
Enrollment: Nov. 6 - Nov. 17

Expected Grad.	STAGE 1	STAGE 2	Open Enrollment
Spring 2024 & Fall 2024	Mon, Nov. 6 7 am - 2 pm	Tues, Nov. 7 7 am - 11:59 pm	Tues, Dec. 5 8 am
Spring 2025 & Fall 2025	Thurs, Nov. 9 7 am - 2 pm	Fri, Nov. 10 7 am - 11:59 pm	Tues, Dec. 5 8 am
Spring 2026 & Fall 2026	Mon, Nov. 13 7 am - 2 pm	Tues, Nov. 14 7 am - 11:59 pm	Tues, Dec. 5 8 am
Spring 2027	Thurs, Nov. 16 7 am - 2 pm	Fri, Nov. 17 7 am - 11:59 pm	Tues, Dec. 5 8 am

FOR PROGRAM QUESTIONS CONTACT:

Prof. Justin McAlister
Program Director

jmcalist@holycross.edu
Swords 232

Please check STAR for any additional course information or updates

STUDY ABROAD

Prof. Justin McAlister is the ENVS study abroad advisor

Please contact him with any questions about how you can incorporate a study abroad experience into your ENVS major or minor.

jmcalist@holycross.edu ***Swords 232***

LINKS FOR STUDY ABROAD OPPORTUNITIES:

- **HOLY CROSS STUDY ABROAD WEBSITE**
- **THE SCHOOL FOR FIELD STUDIES (SFS) WEBSITE**

STUDY ABROAD EXPERIENCE

Esme Garcia '24

Location:
Atenas, Costa Rica
Program:
School for Field Studies

This past spring, I had the opportunity to study abroad in Costa Rica with the School for Field Studies. Not only did I learn about the development of the country as an ecotourist destination and as a prominent agricultural force but I also got to see it firsthand through our field trips. Almost every week, we either visited organic coffee and chocolate farms or hiked in the rainforest. We became involved in the community we lived in and did outreach such as surveying residents on their experience with the water management system and organized outdoor activities for students in elementary school. The knowledge and skills I've accumulated during my time abroad are something I could not have gained in a classroom. I highly recommend SFS to anyone who wants to step out of their comfort zone and be more connected not only to nature but also to the community that they are living in.

HOW TO GET AN ENVS DEGREE

MAJOR REQUIREMENTS

14 required courses

- BIOL 117 Environmental Science
- ENVS 118 Environmental Perspectives
- ENVS 404 Capstone Seminar
- Two of these introductory science courses (BIOL 163, CHEM 141 (w/ lab) or CHEM 181, GEOS 150, PHYS 115)
- Two environmental humanities courses, one of which must be 200-level or higher
- One environmental economics course (ECON 224)
- One additional environmental social science course
- Two additional environmental science courses, one of which must include a lab
- A quantitative or spatial analysis course (GIS or Statistics or MATH 303 Mathematical Modeling)
- Two more upper level environmental electives in any area. One of the upper level course requirements can be fulfilled by undergraduate research (e.g., BIOL 401 or college honors thesis) for academic credit with prior permission of the ENVS Director.

MINOR REQUIREMENTS

7 required courses

- BIOL 117 Environmental Science *or* BIOL 280 General Ecology
- ENVS 118 Environmental Perspectives
- One environmental humanities course
- One environmental social science course
- Two additional environmental science courses
- One environmental course in any area

FACULTY INTERVIEWS: **KEITH SEITTER**

Dr. Keith Seitter

Distinguished Visiting Lecturer
Environmental Studies

Fields: Climate Science, Meteorology, and Climate Change Communication

1. What discipline did you get your PhD in and what led you to first pursue this field of study?

My Ph.D. is technically in "geophysical sciences," but most of my academic background and research is on atmospheric processes within that broader geosciences framework. Growing up in rural Ohio provided ample opportunities to experience all kinds of weather, and as early as when I was in kindergarten I was fascinated with trying to understand the weather I was seeing around me. (Interestingly, it is very common for meteorologists to have decided on that as their career path around elementary school age.)

2. What was your 'aha' moment when you knew you wanted to pursue an environmental-related career?

I'm not sure I had a single "aha" moment, but living through several severe weather events when I was young moved me more fully in the direction of pursuing meteorology. There were a couple of serious tornadic thunderstorms that hit our region, and seeing the power of these storms and the destruction they are capable of inflicting left a big impression and certainly contributed to my Ph.D. research being focused on thunderstorm dynamics. Later, while working at the American Meteorological Society on issues related to climate change science and policy, I gained a much greater appreciation for the need to have strong interdisciplinary and cross-disciplinary efforts to address the "wicked problem" of climate change. That was a slowly evolving "aha" moment that led to me wanting to contribute to an interdisciplinary program like the ENVS program here at Holy Cross.

3. Where do you call home?

Home is Littleton, MA, where I have lived since the mid-1980s. Despite having grown up in the Midwest, New England felt like the right fit for me as soon as I moved here for a post-doc opportunity and I have never wanted to leave. Littleton is a nice small town and was a great place to raise our two kids.

4. What have you been working on? (projects, research, etc.)

My recent work has involved studying various aspects of how government, academic, nonprofit, and private sector organizations can work together to best serve the public in the provision of weather and climate services. Collectively, this is known as the weather, water, and climate enterprise. Ideally, each sector does what it does best in a mutually beneficial framework that leverages and reinforces the value of those efforts. So in the weather enterprise, for example, the government agencies deploy and maintain the infrastructure to observe the atmosphere, land, and oceans, and produce numerical model output that can guide lifesaving forecasts, making all the resulting data freely available. Private sector companies use that freely available data to develop specialized forecasts and other products for businesses (like specialized routing forecasts for shipping companies) and the public (like the weather app on your phone). Academic institutions train the workforce necessary for the enterprise but also do research that is used to improve the observations, models, and forecasts. Each sector can bring its unique strengths to the effort and build on the strengths of the others. But tensions can arise when one sector steps on the role of another one, such as if the National Weather Service begins providing a forecast product for free that can replace one that had been offered by the private sector at a cost. Experience has demonstrated that developing the appropriate policy frameworks and communications structures within the enterprise can reduce or eliminate those tensions, but those frameworks and structures need to evolve as new and potentially disruptive technologies emerge (with AI being a key example). The weather enterprise is fairly mature and has been successful in providing excellent value to the public. The climate enterprise is more recently emerging, and the necessary policy frameworks and communications structures are not yet in place, so there is a lot of work to do.

5. Tell us about your experience at Holy Cross so far.

My experience at Holy Cross so far has been terrific. The Holy Cross mission and the ENVS program both align well with my values and goals and the faculty and students are outstanding. I'm sure I will eventually get used to all the stairs on campus!

FACULTY INTERVIEWS: **CHRIS AMANTE**

Prof. Chris Amante

Visiting Lecturer
Environmental Studies

Fields: GIS, Coastal Elevation Modeling, and Flood Risk

1. What discipline did you get your PhD in and what led you to first pursue this field of study?

I received my Ph.D. in Geography from the University of Colorado Boulder. I was first introduced to this field of study when I was a student at Holy Cross (Class of 2009) through Environmental Studies courses. In Geomorphology and especially Introduction to Geographic Information Systems (GIS), I began to realize the power of GIS as both a tool and a scientific framework to address complex environmental issues through spatial analysis.

2. What was your 'aha' moment when you knew you wanted to pursue an environmental-related career?

I have always enjoyed science and math, being outdoors, and observing the natural world. Growing up, I was fascinated by forecasting snowstorms in Massachusetts and had aspirations of becoming a meteorologist by the time I started high school. I was planning for a career in meteorology when applying to colleges. Ultimately I decided to attend Holy Cross after visiting my older brother Dan (Class of 2007), and I initially planned to attend graduate school in meteorology after studying Physics at Holy Cross. Introduction to GIS was a life-changing course that led me to become an Environmental Studies Major, and then pursue graduate school in Geography and have an environmental career focused on modeling coastal elevations to determine flood risk.

3. Where do you call home?

I call Central Massachusetts home. I grew up in North-Central Massachusetts, attended Holy Cross, moved to Colorado, and recently moved back to the greater Worcester area. I enjoyed my decade of exploring Colorado and the Mountain West but was excited to return home to Central Massachusetts.

4. What have you been working on? (projects, research, etc.)

I was a National Oceanic and Atmospheric Administration (NOAA) Ernest F. Hollings Undergraduate Scholar at Holy Cross. This scholarship program brought me to Boulder, Colorado for an internship the summer before my senior year at Holy Cross. During this internship, I learned how to generate computer models of Earth's seafloor and land topography known as digital elevation models (DEMs), which are used for numerous environmental applications including flood risk modeling. In addition to teaching Introduction to GIS at Holy Cross, I am a Research Scientist at the Cooperative Institute for Research in Environmental Sciences (CIRES), a partnership of NOAA and the University of Colorado Boulder. I still work in the same group at NOAA and my research focuses on generating DEMs of coastal regions to determine flood risk from storm surges, tsunamis, and sea-level rise. I am especially interested in quantifying the uncertainty in coastal DEMs and incorporating that uncertainty and uncertainty in flood models in probabilistic, future flood risk assessments.

5. Tell us about your experience at Holy Cross so far.

It has been a wonderful experience being back at Holy Cross. To see all the progress and recent developments in Environmental Studies as it becomes its own department is amazing. The growth of Environmental Studies at Holy Cross is a testament to the dedication and enthusiasm of the administration, faculty, and students over the past decade since I graduated. It's especially fulfilling to be teaching Introduction to GIS this semester, the course that had such a big impact on my life and career trajectory. Coming full-circle from student to teacher with this course is very rewarding personally, and I hope I can contribute to further strengthening Environmental Studies at Holy Cross.

FALL '23 EVENTS

SEP. 28 HC Green Fund Deadline

OCT. 3 Working Writers Series: Rosanna Xia
7:30 PM Booth Media Lab, Prior Performing Arts Center

OCT. 19 Data Deconstruction Day
10:00 AM - 2:00 PM O'Kane Front Steps
Recycle your old hard drives, USBs, DVDs, VHS, CDs, film and papers

OCT. 23. Eco Action Meeting
6:00 PM Hogan 320
Come paint pumpkins and chat about how we can all reduce waste on Halloweekend

OCT. 27 ENVS Fall Fest
2:00 PM - 4:00 PM

OCT. 29 Eco Action Trash Pickup
1:00 PM

NOV. 3 ENVS Fireside Chat with Faculty
8:00 PM - 9:30 PM Hoval Firepits
Informal gathering with ENVS faculty, majors, and minors. Come eat s'mores and chat with friends and faculty!

NOV. 6 Mary-Jane Rubenstein - Infinite Canaan: The NewSpace Race in Colonial Context
4:30 PM - 5:30 PM Rehm Library
Discuss if there is a way to visit or even to live on multiple planets without ransacking them.

NOV. 8 Simplifying Sustainability Concepts Workshop
5:00 PM - 6:00 PM Online Event
Nicole Kelner will share techniques on how to turn a complicated climate concept Into a simple visual.

NOV. 19 Eco Action: Trip to Burncoat Refillery
5:00 -6:30 PM

ITALIAN FILM SERIES: Migration and Environmental Displacement
7:00 PM Stein 120

September 25th: *Terraferma*
October 16th: *Bangla*
November 13th: *Maka*
December 4th: *Shun Li and the Poet*

NEW CLASS: SPRING 2024

ENVS 299-S05: Sustainable Energy
Professor Seitter
MWF 11-11:50 am

Minimizing the impacts of global climate change requires society to transition to non-fossil-fuel energy sources as quickly as possible. This course will explore the issues associated with developing our carbon-free energy future through renewable and other sustainable energy sources such as wind, solar, hydropower, and geothermal. Topics will include the use of climatological data to project potential generation from renewables, siting issues, dealing with the variability of wind and cloud cover (and on longer timeframes, the rain needed to maintain hydropower reservoirs), and the complex interplay between generation and storage that need to be addressed to ensure reliable delivery of the energy we need now and in the future.

NEW CLASS: SPRING 2024

ENVS 299-S04: Urban Ecosystems
Professor Burmester
TuTh 12:30-1:45 pm

This is a seminar-style course exploring interdisciplinary and transdisciplinary approaches to understanding ecosystems in an urban context within Worcester and across the globe. As human populations continue to grow, the greatest expansions are predicted to occur within cities. This means we live in a time of increasingly rapid urbanization. This course aims to explore the shared relationships between human systems and natural systems, focusing on the role of human societies in nature, the role of nature in human societies, and building urban resilience for humans and natural systems alike.

NEW CLASS: SPRING 2024

ENVS 199: Introduction to Environmental Narratives

The study of the environmental humanities applies the methods and approaches developed in the humanities to gain new insights into key environmental issues and concerns. With more than half of the world's population now living in cities, it is more urgent than ever to rethink how we understand these places. How does the emergence of an urban world challenge the culture-nature dualism, the gulf that we have long assumed separates the "natural" from the "artificial," and how does this offer us new perspectives on the ways we think about nature? How do the stories we tell about these places shape not only our environments, but our interactions with each other, and how we understand and appreciate the "more-than-human" beings around us? By exploring such questions, we may better recognize the many challenges and opportunities we face today in our rapidly urbanizing world.

FACULTY PUBLICATIONS

Wang, W., **DuBois, B.**, Lu, Z. (in press). Home Triad: A New Exploration of Home for People Living with Dementia Based on Lefebvre's Spatial Triad. *Health Environments Research & Design Journal*.

LaCasse, K., **DuBois, B.** & Ley, A. (2023). Ugly Yet Healthy: Place-Related Symbolic Meanings Alter Residents' Perceptions of Coastal Infrastructure. APA Division 34, Virtual Conference.

DuBois, B. & Unni, S.S. (2023). The Production of 'Differentiated States' in Beach Management. Re-Imagining Coastal Transitions: Diverse Blue Economies. UCONN, Avery Point, CT.

FACULTY INTERVIEWS: **MIKE TIERNEY**

Mike Tierney

Visiting Lecturer
Environmental Studies

Fields: Privacy, Cybersecurity, and Environmental Law

1. What discipline did you get your degree in and what led you to first pursue this field of study?

I received my law degree from Boston College Law School. I was living in the UK, working in an American law firm's London office when I decided to pursue my juris doctorate. I enjoyed the work that I was doing and the people I was working with. It was on that basis that I thought a career in law would be right for me.

2. What was your 'aha' moment when you knew you wanted to pursue an environmental-related career?

My practice is not solely focused on the environment, but it is a large part of my pro bono practice. My day job is actually working as a privacy and cybersecurity lawyer. To your question, the law is a powerful tool that can be used to shape the world around us and affect human behavior. As someone who is deeply concerned for the future of our planet and who wants to do something about it, it only made sense to incorporate the environment into my practice.

3. Where do you call home?

I live in Boston with my wife, Elisabeth, and a baby daughter, Eleanor.

4. What have you been working on? (projects, research, etc.)

This semester, the Environmental Law class will be working on a series of rulemaking petitions. We will be petitioning the federal government to draft regulations that require manufacturers to remove ingredients from sunscreen that can cause coral bleaching and other harmful effects; reducing the occurrence of forest fires by rethinking how forests are thinned and easing the regulatory burden to make controlled burns more feasible; and removing acephate from pesticides due to its harmful effects on helpful pollinators.

5. Tell us about your experience at Holy Cross so far.

So far, my experience at Holy Cross has been everything I could hope for. The students are passionate, intelligent, and eager to make a mark on the world. What more could you ask for as a teacher?

FACULTY INTERVIEWS: **CLARE GAFFEY**

Clare Gaffey

Visiting Lecturer
Environmental Studies & Biology

Fields: Geography, GIS, Environmental Science

1. What discipline did you get your degree in and what led you to first pursue this field of study?

I have a B.S. in Environmental Science with a concentration in Biology, two M.A. degrees in Geography, and this year I will complete the requirements for my doctorate in Geography at Clark University. I spent a lot of time outside as a kid and as far as I can remember, I've always appreciated nature and felt compelled to preserve it. Nature, and particularly pristine nature (if there is such a thing) is incredibly complex and develops over long periods of time. Within a relatively short timescale, human actions have altered many components of the environment including physical landscapes, species distribution, and introduced compounds into the hydrosphere and atmosphere that have triggered consequences that will continue into the future. Considering my discipline choice, Geography complements the discipline of Environmental Studies in that it provides tools to analyze large-scale environmental processes.

2. What was your 'aha' moment when you knew you wanted to pursue an environmental-related career?

Unfortunately, I do not have a specific 'aha' moment I can call upon. Though it makes a less interesting story, I've seemingly innately known that I wanted to pursue an environmental-related career.

3. Where do you call home?

I have been living in Worcester since 2018 but I am originally from Albany, NY. I love living in the northeast for its culture and amazing seasons (including the snow!)

4. What have you been working on? (projects, research, etc.)

I previously worked on adapting drones for monitoring the health and life events of spruce trees in New York. Since moving to Worcester in 2018, I've switched my focus to Arctic marine ecosystems by looking at their foundational food source - phytoplankton. Every summer I collect different types of data onboard U.S. and Canadian icebreakers that travel throughout the Pacific side of the Arctic Ocean. I relate what we find within the ocean to satellite remotely sensed imagery of sea ice and chlorophyll (a proxy for phytoplankton). I use these two data sources to improve methods on how we can measure phytoplankton growth cycles and better understand recently observed changes in phytoplankton growth patterns. Climate change has led to many changes in the Arctic Ocean and Subarctic Seas such as warming temperatures, decreased sea ice extent, and increased freshwater runoff from melting glaciers and permafrost. How these changes will continue to impact the marine Arctic ecosystem is not well understood.

5. Tell us about your experience at Holy Cross so far.

I am so happy to be here! The Holy Cross community has been incredibly welcoming and I feel at home. I am most impressed by the students in my classrooms. Through their continued engagement with both the material as well as with each other, we have managed to develop a supportive classroom community. As a first-time teacher instructing many first-time (first year) students, I sense that we are all adopting a growth mindset and are enthusiastic to take on new challenges. I hope these students build on their momentum and apply it to environmental issues now and into the future.

GET YOUR GREEN LIVING CERTIFICATION

The Green Living Certification, hosted by the Office of Sustainability, recognizes students for their positive environmental choices.

Certification is simple. Complete at least one action item in each of the six categories on the MyHC checklist and submit the form. Every student who gets certified receives a snazzy sticker in their mailbox!

https://tr.ee/7WjOFdp2yA

CALL TO STUDENTS

Student groups and ENVS students!
If you wish to be featured
in the Spring 2024 Newsletter under a
"STUDENT HIGHLIGHT" section

Please contact
envsstudentworker@holycross.edu

HOLY CROSS
ENVIRONMENTAL
STUDIES

This newsletter was created by the ENVS Publication Committee: Prof. McAlister, Prof. DuBois, Paula Hall, and Eliza Koorbusch '24

October, 2023