ENVS NEWSLETTER

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

March 2023
Vol. 2

This newsletter provides environmental studies program majors and minors with important updates including registration information for Fall 2023 and happenings in the program.

ENROLLMENT SCHEDULE

Fall 2023 Advising: MAR. 21
Enrollment: APR. 17 - APR. 25

Expected Grad.	STAGE 1	STAGE 2	Open Enrollment
Fall 2023, Spring 2024 & Fall 2024	Mon, April 17 7 am - 2 pm	Tues, April 18 7 am - 11:59 pm	Wed, May. 3 8 am
Spring 2025 & Fall 2025	Thurs, April 20 7 am - 2 pm	Fri, April 21 7 am - 11:59 pm	Wed, May. 3 8 am
Spring 2026 & Fall 2026	Mon, April 24 7 am - 2 pm	Tues, April 25 7 am - 11:59 pm	Wed, May. 3 8 am
1st Year Students	Tues, Aug. 1		

Open Enrollment Ends May. 26

FOR PROGRAM QUESTIONS CONTACT:

Prof. Justin McAlister
Program Director
jmcalist@holycross.edu
Swords 232

FALL 2023 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 247	Intro to Geographic Info Systems	TuTh 2-3:15pm
ENVS 252	Urban Forestry	F 3-5:30pm
ENVS 299- S01	Contested Waterscapes	W 11-1:30pm
BIOL 117	Environmental Science	(3 Sections)
BIOL 163	Intro Biol Diversity & Ecology	(3 Sections)
w/ Lab		**(4 Lab Sections)**
BIOL 235	Marine Biology	MWF 10-10:50am
w/ Lab		**M 2-5:00pm**
BIOL 275	Biological Statistics	MWF 11-11:50am
BIOL 280	Ecology	WF 12:30-1:45pm
w/Lab		**W 2-5:00pm**
BIOL 281	Conservation Biology	MWF 11-11:50am
CHEM 181	Atoms & Molecules	(4 Sections)
w/ Lab		**(7 Lab Sections)**
CHEM 231	Equilibrium & Reactivity	MWF 8-8:50am
w/ Lab		**W 1-5:00pm**
CHEM 300	Instrumental Chem/Analytical	MWF 9-9:50am
w/ Lab	Methods	**(2 Lab Sections)**
ECON 110	Principles of Economics	(6 Sections)
GEOS 150	Introduction to Geology	TuTh 9:30-10:45am
w/ Lab		**Th 2-5:00pm**
HIST 275	U.S. Mexican Border	(2 Sections)
HIST 299-F23	Knowing Nature in the Early Modern World	MW 3-4:15pm
PHYS 115	Intro Physics 1: Mechanics, Fluids and Waves	MWF 9-9:50am Th 9:30-10:45am
PHYS 146	The Physics of Energy	MWF 10-10:50am
STAT 220	Statistics	(2 Sections)
VAHI 111	History of Global Architecture	TuTh 12:30-1:45pm

Please check STAR for any additional course information or updates

FACULTY PUBLICATIONS TO READ

Finstein, Amy D. "A Gropius-Breuer House Like Notable Others: Consumerism, Copying, and Connoisseurship in an Unsung Commission." Winterthur Portfolio 56.1 (Spring 2022): 3-36. (pandemic-delayed publication, January 12, 2023)

Tao, S., Rogan, J., Ye, S., & **Geron, N.** (2023). Mapping photovoltaic power stations and assessing their environmental impacts from multi-sensor datasets in Massachusetts, United States. Remote Sensing Applications: Society and Environment, 100937.

Geron, N. A., Martin, D. G., Rogan, J., & Healy, M. (2023). Residents' roles as environmental policy actors using an urban governance framework: A case study of a tree planting program. Cities, 135, 104201.

Karmon, David and Thaïsa Way, eds. JSAH Roundtable: "Rethinking the Urban Landscape." Journal for the Society of Architectural Historians 81, 3 (September 2022).

Karmon, David. "Architectural History and the Environmental Humanities: A Call for an Expanded Approach." Platform (8 August 2022)

Lewis, Todd T. "Catholic Connections to Japanese Gardens Through Tea: Insights from a Campus Garden Initiative at Holy Cross College," Journal of the North American Japanese Garden Association 7, 2020, 32-42.

Luria, Sarah and Ricardo Campos (2022). "Greening a Post-Industrial City: Applying Keyword Extractor Methods to Monitor a Fast-Changing Environmental Narrative." In: Unlocking Environmental Narratives: Towards Understanding Human Environment Interactions through Computational Text Analysis. Ed. by Ross S. Purves, Olga Koblet, and Benjamin Adams. London: Ubiquity Press, pp. 109-132. DOI: https://doi.org/10.5334/bcs.f. License: CC-BY 4.0

Nazzaro, Alex & Mitchell, Sara. et al. "Beaver Removal Impacts On Low Flow Hydrology." *Geological Society of America: Abstracts with Programs*. Vol 54, No. 5. doi: 10.1130/abs/2022AM-380927

Rodrigues, Maria Guadalupe Moog. "Assessing Prospects For Transcalar Activism Against The Global Oil Industry." *Beyond the Boomerang: From Transnational Advocacy Networks to Transcalar Advocacy in International Politics*, University of Alabama Press, 2022, pp. 110-124.

Sobczak, William V. et al. "Degrading permafrost river catchments and their impact on Arctic Ocean nearshore processes". *Ambio* 51, 439-455 (2022). https://doi.org/10.1007/s13280-021-01666-z

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

SPRING 2023 EVENTS

FEB. 15 Revolutionary Harbor
6:30-8:00pm Online
Environmental Justice and the Boston Harbor Islands

MAR. 2 Scouting Sustainability Internships & Jobs
2:00-3:00 pm Smith 201
Career Development and Office of Sustainability help students identify resources to locate summer internships and post-graduate jobs.

MAR. 22 World Water Day
4:30pm Meet at Kimball Quad
Join ENVS on a walk through the Gateway Park. Free pizza!

MAR. 27 Newsletter & Sticker Distribution
11am-1 pm Science Atrium

MAR. 29 HC Green Fund Proposals Due

APR. 10 NWF EcoCareers Summit Begins
Holy Cross is a campus sponsor so faculty, staff & students can attend for free

APR. 11 Author on the Hill: Leila Phillip
4:30-5:30pm Location TBA
Reading Beaverland

APR. 12 Green Fund Review Board Application Deadline

APR. 14 Site Visit to Redemption Rock

APR. 14 Fireside Chat
8-9:30pm Jo Patio

APR. 17 - APR. 22 Purple Goes Green Week!

APR. 22 Earth Day Clean-Up at Cookson Field
Lead by Jodi Rymer

APR. 22 Earth Day!

APR. 26 Academic Conference
ENVS Session Time 11:10-1:10 Stein 124
Shawarma Palace catering

APR. 26 Celebrate the Trees
w/ Prof. Nick Geron

APR. 27 ENVS Annual Senior Dinner
5-7:00 pm Hogan Suite B/C 4th Floor

JAIRAM MIGUEL RODRIGUES RAO PRIZE

The ENVS Program announces the annual Jairam Miguel Rodrigues Rao Prize, named for Professor Maria Rodrigues' late son Jairam, who had worked toward environmental justice from an early age.

This Prize is awarded annually for the best paper, project, or presentation that addresses **environmental racism and justice** written by a student, as an individual or in collaboration with others, at the College. The competition is open to all students regardless of major. All submissions are due by **March 31, 2023.** Work will be judged by a committee comprised of ENVS faculty. The winner(s) will be announced in May and will receive $500.

2022-2023 Lecture Committee
Prof. Daina Harvey, Chair
Prof. Cristi Rinklin
Prof. Justin Poche

2022-2023 Paper Committee
Prof. Daina Harvey, Chair
Prof. P. J. Torres
Prof. Chris Staysniak

Questions should be sent to RaoPrize@holycross.edu.

NEW CLASS: FALL 2023

ENVS 252 - Urban Forestry
Nick Geron
F 3-5:30pm
In this course, you will examine the urban forest – one of the most important natural systems in cities to increase the quality of life and health of residents. Students will learn how to identify trees, best practices in planting and stewardship and how to model ecosystem services as well as the urban theory that explains the governance and "rules of the game" behind green space distribution in cities.

ACADEMIC CONFERENCE

Multidisciplinary Socioecological Perspectives on Rivers and Waterways

Wednesday, April 26, 2023
Location: Stein 124 *(capacity 45)*
Time: 12:00 to 2:30 pm

Professor DuBois: Moderator

Ian Fernandez '23	*Reconstituting a Hydrocommons of the Kittacuck*
Lucia Ardizzone '23	*Dam Politics and Building Community around Fish Migration on the Kittacuck*
Julia Barton '25	*Social Sustainability and Cultural Values of a Conserved Urban Park Space*

Professor Sobczak: Moderator

Griffen Hill '23	*The Melting Point: How Decreasing Ice Cover Affects Dimictic Lakes in Rhode Island*
Kieran Reiley '23	*Legacy Effects of Industrial Dams on Urban Riparian Ecosystems*
Elyse Cote '23	*Ecological legacy effects: pros and cons of dam removal on the Blackstone River*
Cloe Bridge '23	*Ecological Legacy Effects of Industrial Cities: Urban Ecosystem Ecology*

** Titles may change*

Academic Conference continued

Margaret O'Leary '23; Margaret Plomin '23; Marguerite Gilmore '23 ; Nicholas Geron	*Legacy Effects of Invasive Species on Street Trees*
Margaret O'Leary '23	*The Relationship between Contaminated Land Sites and Adjacent Rivers: The Blackstone River and Tobias Boland Way*
Jordyn Brown '24	*Fires to Infernos: How California's Forest Fires are Turning Up the Heat in response to Climate Change*

Photo From Film:
Pakachoag: Where the River Bends

SPRING 2023: CONTESTED WATERSCAPES

Contested Waterscapes is a new (Spring 2023) interdisciplinary Environmental Studies course designed by Professor Bryce DuBois (Visiting Assistant Professor). By taking a waterscapes perspective, this Community Based Learning (CBL) course focuses on critically examining the worldviews, technologies and cultural specifics that dictate why we manage waterscapes in the way we do. This semester, the class has read about the social, political and toxic colonial legacies of contemporary waterways, approaches for building community beyond technoscientific and Eurocentric river management regimes (e.g. hydrocommons), as well as the politics of fish passage and dam removal. Partnering with the Blackstone Watershed Collaborative (Stefanie Covino) as a project based CBL course, the class has spent the semester supporting fish migration efforts on the Kittacuck (aka Blackstone River).

Part of a larger Blackstone River Commons project (PI- Emily Vogler, RISD; of which DuBois is a collaborator), the class is supporting a renewed push to build herring and shad fish passage on the Kittacuck. This effort is led by members of the Narragansett Indian Tribe and the Hassanamisco Band of Nipmuc, aided by the Blackstone Watershed Collaborative along with several other organizations and state agencies. The collective situates the endeavor by explaining that, "Prior to European colonization, the Blackstone River had abundant populations of migratory fish including shad, herring and salmon that lived and migrated between fresh and saltwater habitats. The construction of 39 dams on the mainstem of the Blackstone River prevented migrating fish from reaching historic breeding habitat and led to a significant decline in the fish populations.

CBL Project Day, meeting at Blackstone River Valley Heritage Center at Worcester, February 22, 2023. (Photo by Avanell Chang/College of the Holy Cross)

Nineteen dams still remain on the mainstem of the river, many of which do not serve a purpose and are in varying states of disrepair.

We are working to provide fish passage around the lower four dams in Rhode Island to enhance aquatic connectivity and restore the balance between humans and the river. These dams are the Valley Falls in Cumberland, Elizabeth Webbing in Central Falls, Slater Mill & Main Street Dams in Pawtucket."

(https://www.blackstonecollaborative.org/kittacuck)

Figure of the lower four dams on the Kittacuck (Blackstone) River. (Adapted from, https://www.blackstonecollaborative.org/kittacuck)

A primary aspect of the student's project has been to learn from artists, designers and activists working on the Kittacuck and nearby waterways. Together, the students are building and broadening fish passage archives, creating alternative timelines and narratives around the benefits of fish passage, and supporting communication and community dialogue about the dams themselves. Finally, the class is enthusiastically supporting a fish migration community parade on May 21, 2023!

FACULTY INTERVIEWS: **PROF. ELIZABETH BURMESTER**

Prof. Elizabeth Burmester

Visiting Assistant Professor
Biology

Fields: Conservation; Marine Ecology; Restoration; Organismal Resilience; Symbiosis

Tell us about your academic journey

I started off my academic journey at a small liberal arts college called Franklin and Marshall in Pennsylvania. I had always been interested in nature and science, but I wasn't quite sure how I could go about pursuing that professionally. In college, I had the opportunity to study abroad through The School for Fields Studies in Turks and Caicos where I studied coral reefs. Around this time, I had also been doing summer research with a professor about mussels' protein expression. Because of those experiences, I decided to pursue grad school, so I ended up going to Boston University researching how corals respond to stress.

What would you like HC students to know about you?

Most of the time when you are an academic in this field there is the traditional route from grad school to postdoc. But rather than doing that, I decided to work at a nonprofit called the Billion Oyster Project based in New York City where I worked with students and community groups. So I love talking to students about that experience and other extensional or applied opportunities in science.

Do you have any hobbies outside of academia?

Yeah, honestly I think that my hobbies are pretty basic. More than anything, I love spending time with people. I especially love spending time with my family, the people I care about, and my dog.

Tell us a little bit about your on-going research

I study a particular species of coral called *Astrangia poculata* (northern star coral). It is native to the waters off of New England, in fact, the ones in our lab here are from Rhode Island. *Astrangia poculata* is the only species of coral that make it this far north and is a species of non-reef-building coral. In facultative symbiosis, some exist without maintaining a large number of symbionts. Tropical corals heavily rely on algal symbionts. The process of coral bleaching is when those tropical corals lose those necessary algae. But these northern star corals are happy without those symbionts and can exist without them. I'm really interested in their unique resilience. My research involves seeing how they react to small-scale stresses or large-scale stresses. Their reactions to various stresses can inform us how they heal and how their tropical counterparts are doing.

How would you describe your teaching style?

My preferred method of teaching so far is to use a combination of lectures and student-led discussions. There are a lot of topics and concepts to talk about in our classes, so I believe that it's a helpful experience for the class to be able to display what they've learned and communicate their understanding with each other.

How do you enjoy interacting with the environment?

That's definitely a complex question for me! Inside and outside of work, I love diving and interacting with the ocean. Another thing that I love to do is finding little spots of green space when I'm in urban areas.

Would you say you have a sense of humor?

I think I'm overall just a joyful person. I enjoy laughing with people. But I would certainly hope that people think I have a sense of humor!

FACULTY INTERVIEWS: **PROF. PJ TORRES**

Prof. PJ Torres
Assistant Professor
Biology

Fields: Ecology, Freshwater and Tropical Biology

Tell us about your academic journey

I attended the University of Puerto Rico - Rio Piedras campus. I earned a BSc in Environmental Sciences, and my original plan was to focus on policy to eventually apply for Law school. However, my interests shifted toward ecology after taking a field course and working in an aquatic ecology lab as a research technician. After completing my undergraduate studies, I moved to Athens, GA to pursue a Ph.D. in Ecology at the University of Georgia, where I worked with the Luquillo Long Term Ecological Research project on a project examining the effects of large dams on headwater streams across Puerto Rico. During my last year of graduate school, I was a Consortium for Faculty Diversity fellow at Denison University, where I worked as a Visiting Assistant Professor of Biology. This experience exposed me to small liberal arts colleges and undergraduate research, which I enjoyed and pursued further by accepting visiting faculty positions at Queens University of Charlotte, Colgate University, and Allegheny College. During this time, I taught 16 different courses, mentored 8 senior research theses, and gained valuable experience in teaching and mentoring students. I am thrilled to be joining the Holy Cross community, where I can continue to teach and mentor students, engage them in research, collaborate with colleagues on campus, and build partnerships with other state and federal agencies in Massachusetts. I am looking forward to being part of this vibrant community and contributing to the mission of the College.

How would you describe your teaching style?

I emphasize the application of course concepts to everyday life and reinforce how to use them as tools. To prepare my students for real-life tasks they may encounter after completing my courses, I like to introduce concepts through simulated exercises. By doing so, my students gain practical experience and become more competitive candidates for future jobs and graduate school positions. It is important to give my students enough practice and have them figure things out through troubleshooting, rather than simply presenting concepts in a repetitive manner. Office hours are part of the learning process, and I encourage students to use them when needed. This allows me to provide tailored mentoring and assistance to each student, based on their individual needs. I strive to create a welcoming and inclusive learning environment that accommodates all students, regardless of their backgrounds or interests. By offering diverse perspectives on the course concepts, I aim to encourage participation from all students, making them feel that they belong and can contribute to the class.

How do you enjoy interacting with the environment?

Since I spend a lot of time in nature while conducting research and teaching field courses, I usually prefer urban hiking and other city activities during my free time. However, I have been hiking in nature since last summer while scouting locations for class field trips. It has been fascinating to see the diversity of the New England ecosystems, and I am now really enjoying being out on the trails again. I also enjoy flatwater kayaking and flipping rocks in streams to look for macroinvertebrates every time I get a chance.

What would you like HC students to know about you?

I want students to know that in addition to teaching and research, I am also available to assist them in navigating their academic path. Change is a natural part of the academic journey. I have personally changed my plans several times from high school to where I am now at Holy Cross. I enjoy discussing opportunities available to students, such as internships and jobs, and I have experience as a mentor and teaching assistant for the Research Experience for Undergraduates (NSF REU) program. As a first-generation college student, it took me some time to acclimate and understand the purpose of being in college. Even after a few years, I can still empathize with feeling lost sometimes. That is why I am happy to help my students navigate these challenges to ensure that they enjoy their time here and feel accomplished and prepared for their future after graduating from Holy Cross. Lastly, feel free to stop by my office if you want to learn more about streams, Puerto Rico, or any other of my interests

Tell us a little bit about your on-going research

My main research projects are in Puerto Rico, where I am assessing how large dams affect stream community structure and function. For my Ph.D. research, I focused on ecosystem processes such as organic matter decomposition, nutrient cycling, and metabolism, but now I mainly study communities of organisms. My current project investigates how dams facilitate the establishment and spread of an invasive crayfish species, *Cherax quadricarinatus*. Dams in Puerto Rico block the migration of native freshwater shrimps, creating habitats that may be invasion hotspots for *C. quadricarinatus* and other aquatic invaders. We are assessing the extent of invasion across habitats that are accessible and inhibited to shrimp, using cutting-edge technology environmental DNA (eDNA). Additionally, I am studying how dams with spillway discharge can facilitate the migrations of native communities, compared to having no connection between upstream and downstream. Currently, I am assessing differences in fish and invertebrate communities between these two types of habitats. This project is particularly exciting for me because most of the field sampling is being done in my hometown of Villalba, Puerto Rico. In addition to my Puerto Rico projects, I am exploring the Blackstone River headwaters here in Worcester. I am interested in how in-stream physical barriers, such as culverts and dams, and road salt addition affect the community structure of invertebrates and fish. My research students are currently investigating what is already being done by local agencies and other research groups, and our goal is to start sampling for fish next month. Let me know if you would like to tag along and help!

Do you have any hobbies outside of academia?

My main hobby is watching baseball both on TV and by attending games. One of my goals is to visit all 30 MLB stadiums, and I have already visited 17 of them! The traveling associated with this goal always leads to other fun things to explore. Since moving to New England, hockey and the Boston Bruins have also caught my interest, and I am now considering a similar goal for visiting all 32 NHL stadiums (only TD Garden so far). In addition to sports, I am really interested in outdoor cooking. I spend a lot of my free time BBQing, smoking, cold smoking, or grilling, even during the winter! I recently made 100 wings on New Year's Eve. Another hobby is music and drumming, especially from the late 70s to the 80s era of punk rock. If you see me with earbuds on, it's a guarantee that I'm listening to bands like Descendents, Bad Brains, Black Flag, or ALL.

Would you say you have a sense of humor?

A bilingual one!

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.

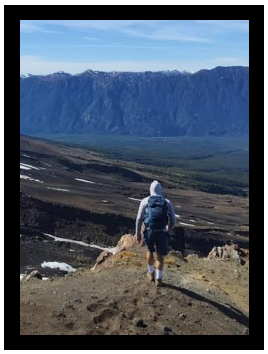
jmcalist@holycross.edu
Swords 232

FOR STUDY ABROAD OPPORTUNITIES:

HOLYCROSS STUDY ABROAD WESBITE

THE SCHOOL FOR FIELD STUDIES (SFS) WEBSITE

STUDY ABROAD EXPERIENCE



Levi Cass '24

Location: Puerto Natales, Chile
Program: School for Field Studies

Last fall I was fortunate enough to study abroad in Puerto Natales, Chile at the School for Field Studies' Center for Climate Studies, with 22 other students living and learning in Patagonia's iconic landscapes. For two months we took classes six days a week, combining classroom lectures with field lectures and labs in and around Puerto Natales and Parque Nacional Torres del Paine. We visited local estancias, while learning about private conservation initiatives within the Chilean political framework. We observed burn patterns among the Nothofagus trees of Parque Nacional Torres del Paine and witnessed the majesty of Glaciar Grey, and the bare rock that has been left in the wake of its rapid retreat. We observed how life has adapted to live at the end of the world, how king penguins endure harsh westerly winds, and how these communities have been altered by the intensifying effects of climate change. We stargazed on the tephra fields of active volcanoes under a blanket of southern constellations and studied how life rebounds in a seemingly desolate post-eruption landscape. Our travels took us all over Patagonia, but many of my favorite memories were shared with the Puerto Natales community, from composting and gardening to playing plenty of football and running in town-wide 5Ks.

I am especially grateful for the last month of my time in Puerto Natales, when I worked with SFS Chile's glaciologist and earth and climate scientist, Dr. Francisco Aguirre, to obtain ground truth data of vegetation types in Patagonian watersheds and develop a tool that extracts spectral signatures from satellite imagery to create 10-meter resolution subpixel maps. This project was only one of many that contributed to Dr. Aguirre's ongoing research of finding a location in a local watershed near Puerto Natales where an automatic weather station could be placed to more accurately downscale climate models to help communities in Southern Patagonia respond to the effects of climate change.

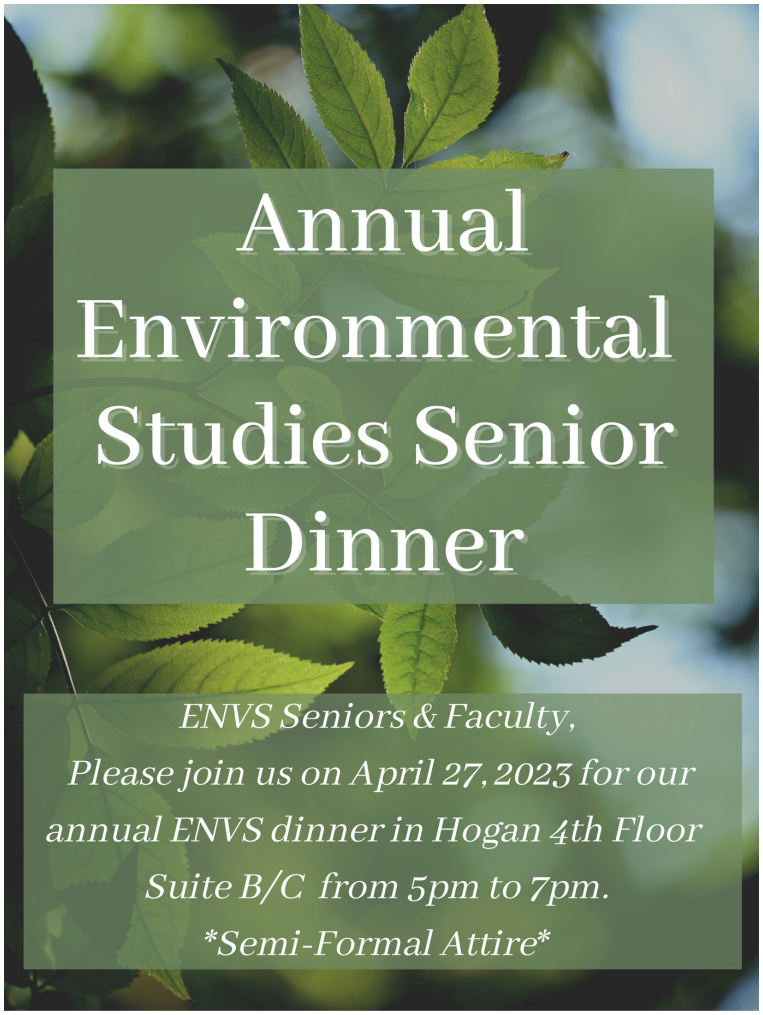
If you are a student interested in studying abroad and are passionate about environmental justice and climate research, especially field research, then SFS Chile is certainly the program for you!

I would like to thank Professor Mitchell, Professor Shertzer, and the office of study abroad for helping make this program possible, as well as the staff and faculty of SFS Chile for the friendships and memories I will cherish for years to come.

CALL TO STUDENTS:

Student groups and ENVS rising seniors!
If you wish to be featured
in the Fall 2023 Newsletter under a
"STUDENT HIGHLIGHT" section

Please contact
envsstudentworker@holycross.edu



The Senior Dinner is free to students and faculty

HOLY CROSS ENVIRONMENTAL STUDIES

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

March, 2023