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2016 Casper**Award Winner:**

Drew Higgins' superior academic achievement and energy and leadership in support of understanding and protecting the environment led her to win this year's Casper. Click her photo to see past recipients.

**2015-2016 ENTS****Images:**

Students in Australia studying ecology and studio art.

ENTS seniors celebrating the completion of their COMPS seminar.

Students assembling stoves for communities in Ethiopia.

Hiking in the Grand Canyon with Professor Vrtis

Studying agriculture from above in Yangshuo, China.

Picture from an ENTS student studying in Myanmar.

Environmental Studies Program Annual Newsletter 2015-2016

Letter from the Director:

Welcome to the 2016 ENTS Program Newsletter! Maybe it's the presidential election, or the Paris Climate Agreement, or just Spring Term, but it seems like change is in the air. That's nothing new for Environmental Studies, of course; we're all about confronting and managing change.

This year we've welcomed Assistant (soon to be Associate) Professor Aaron Swoboda (Economics) to the ranks of the tenured faculty, and Assistant Professor Stephanie Fried (also Economics) has joined our growing gang of environmental policy wonks. We're also managing a change in leadership, as Associate Professor Tsegaye Nega steps down from the Director's chair to focus more of his attention on his cookstove program in Ethiopia. I'm happy to step in for next year, because we'll be introducing some very cool new programs—including Professor of Physics Arjendu Pattanayak's Sustainable Energy Principles and Practice program in India, Professor of Art History Kathleen Ryon's Gardens, Landscape, and the Built Environment program in Japan, and Professor of English Mike Kowalewski's reboot of his long-standing California program.

This year our senior majors pursued comps projects exploring changing practices around animal husbandry and changing landscapes of biodiversity conservation. We also pursued internships, civic engagement projects, and research fellowships that changed our perspectives. For example, Professor of Chemistry Trish Ferrett took her freshmen seminar students to the Boundary Waters region to study environmental and social effects of mining; Professor of Biology David Hougen-Eitzman took his students to China to study agricultural practices; and Professor of Religion Mike McNally is back with his Native American Religious Freedom course, in which students learn about land-based religions and engage in service projects of importance to native communities.

And that's just a small selection of the places our students have gone, to learn from and for our changing world. For more on all our adventures, read on!

Alumni Updates:

We asked alums to keep us updated on what they were doing after graduation, and we were excited by the number of responses!

The 17 responses show the interdisciplinary range of ENTS alums. In fields ranging from law to medicine and public health to agriculture, our alums have put their ENTS degrees to good use!

[Click here](#) to read all of the responses and see what your former classmates are up to!

Also, please create and update your Alumni Profile and add your photo. We are curious and excited to know what you're up to! Click here to find out how to create a profile.

ENTS**Off-Campus****Studies:****Urbanization and Conservation in Ethiopia and Tanzania:** Professor

Tsegaye Nega led a group of 14 students to Ethiopia and Tanzania this winter term. The students spent eight weeks in Ethiopia, with most of their time spent in Addis Ababa studying household energy consumption in urban condominiums. Students were each assigned 4-8 families, and they worked with these families daily for three weeks to monitor and understand the household's energy use patterns. At the same time, the group converted their living area in Addis Ababa to stove production, building 88 energy-efficient pyrolytic cookstoves. The research project allowed students to explore the complexities surrounding the introduction of new technologies and the challenges of field work. The students also studied urban agriculture through literature review and visits to local urban agricultural areas, culminating in the construction of large urban agricultural beds for use in the condominium sites. A short trip to the Bale Mountains allowed the students to see more of Ethiopia and to gain insights into its ecosystems and the challenges of conservation. The group also took a trip to Northern Ethiopia, where they visited Gonder and Lalibela to gain insight into the history of Ethiopia, and then to the Simien Mountains to study biodiversity, conservation, and urbanization. In the last two weeks of the program, the group traveled to Tanzania to study how tourism and conservation interact in Arusha. Before their return to the U.S., the students went on safari in Arusha National Park, Serengeti National Park, and the Ngorongoro Conservation Area.

Wilderness Studies at the Grand Canyon:

This spring break, 12 students traveled with Professor George Vrtis to the Grand Canyon to study how we think about and value wilderness. The program is an extension of the winter term American

Wilderness course, in which the students studied the history of the concept of wilderness throughout the US. The trip offered students a chance to work on individual research projects while getting a unique perspective on the visitor experience at the park. At the beginning of the trip, students participated in a 4-day backpacking trip into the Grand Canyon back country, an experience very few visitors are lucky enough to have. During the second week of the trip, the students got an opportunity to meet with various park administrators, including wilderness managers and the park superintendent. Students also presented their research projects at a poster presentation in May in the Library Athenaeum.

Comparative Agroecology of the US and China.

This winter break, Professor David Hougen-Eitzman led a group of 12 students on a three week journey to China to study sustainable agriculture. The trip was part of a class that took place during fall and winter terms at Carleton. In the fall, students studied various definitions of agricultural sustainability, as well as many of the biological processes at work on a farm. Students chose four indicators of agricultural sustainability—soil, air, water, and biodiversity—and created a survey

designed to evaluate the sustainability of a given farm based on these indicators. Throughout the fall, the class visited a diverse group of farms around Minnesota, learning about different farming practices and also administering the survey. During the winter break trip, students visited more than twenty Chinese farms, from large-scale corn operations, to 1-acre permaculture plots, and conducted a survey and interviewed farmers about their practices and beliefs regarding sustainability. Students were also able to meet with NGO representatives and eat lots of farm-fresh produce. In spring term, students compared the data from US and Chinese farms and completed group comparative projects built around specific questions in the survey. This research was not the only goal of the trip to China. Students traveled to three cities—Beijing, Chengdu, and Guilin—learned a great deal about Chinese history and culture and visited historic sites such as the Great Wall and the Dujiangyan Irrigation Project. In Chengdu, the class was hosted by a Chinese university—U.E.S.T.C. where the Carleton students quickly formed friendships with their Chinese peers. Food was also a central theme of the trip—students ate meals on many of the farms they visited and had the chance to try a huge variety of delicious Chinese cuisines. Back at Carleton, the students presented their experiences and research in a final presentation: "From Sayles to Sichuan: In Search of Sustainable Agriculture."

ENTS eVENTS:**From Trash to Treasure: Why the Green Economy is Good for Business**

How can we best encourage businesses to adopt sustainable practices? Make it profitable!

That's the message delivered by Elizabeth (Lizzy) Shephard (PSYCH/ENTS '06). Lizzy Shephard was passionate about sustainability during her time at Carleton, concentrating in Environmental Studies and working as the ENTS 5th year intern. After her time at Carleton, Shephard moved to New Orleans just after Hurricane Katrina, where she became interested in sustainable development and green business practices. She started her company, LifeCity, with the hope that she could help businesses not only make positive social and environmental impacts, but make these impacts in a way that was also profitable. We were thrilled to welcome her back to Carleton this January.

Lizzy's New Orleans-based company, LifeCity, breaks away from the typical idea that businesses maximize profit and that the government and NGOs maximize social and environmental impact. Instead, LifeCity falls into an emerging sector in the economy where both profit and social benefit are maximized and "money meets meaning." Working with businesses to help them become more sustainable and save money, Shephard's company aims to transform the New Orleans business community into environmental leaders. As millennials are increasingly looking for jobs where they can not only make a living but make an impact, LifeCity is a perfect example of "money meeting meaning."

Visions of California: A Retrospective

Twenty years ago, professor Michael Kowalewski, Lloyd McBride Professor of English & Environmental Studies and Associate Director of American Studies, loaded up two vans and embarked on an off-campus studies trip that was nothing like Carleton had ever seen. While every previous program utilized

international travel to immerse students, Professor Kowalewski began a new program with the goal of inspiring students to look critically at the U.S. itself. The location for this new endeavor was California, which Wallace Stegner famously said "is like the rest of America, only more so."

Professor Kowalewski has been teaching and writing about California for more than a quarter of a century at Carleton and at Princeton University. His seminar, "Visions of California", began as a course exploring the literature, history, art and visual culture of the Golden State, and has garnered national attention both as an on-campus and an off-campus seminar. Kowalewski's "study abroad" program ran for a decade, transporting almost a hundred Carleton students to the Golden State. Excitingly, after a 13 year hiatus, Professor Kowalewski will be starting the program back up again next year! Students will be meeting with artists, conservationists, historians, tribal leaders, and even surfers to break down the stereotypes that many associate with California. As an alumnus of the program described it; "Taking off to California changed my life... I can't claim to have figured California out, but I learned to think about it as a place of contradictions; a place of dashed hopes, and a place of possibility."

Rivers: An Interdisciplinary Exploration

This fall, Professor Professor Mary Savina teamed up with History

Professor Victoria Morse to explore how we have perceived rivers over time. Together they curated a Fall-term exhibit at the Perlman

Teaching Museum: Mediterranean Rivers: Chained and Unchained. The exhibit focused on the elaborate

and elegant renderings of river systems in books and maps from Renaissance Italy. To complement

the exhibit, they invited Professor Emeritus Ed Buchwald to present a talk on "The Cannon River, Tamed and Untamed":

When a coal-fired power plant was proposed to be built on the Cannon in 1970, Professor Buchwald and his class fought back using data and geology. Buchwald and his students were able to show through data analysis (a process that at the time required thousands of punch cards to be "inserted" into a computer) that the Cannon's "total water flow" was too variable to provide reliable deliverance of cooling water to the plant. The young Buchwald and his class presented their research at a hearing about the plant, and eventually were cited as the major reason for development not being considered further. In his talk, *The Cannon River, Tamed and Untamed*, Professor Buchwald described his research and how it led him to be appointed to the Minnesota Council on Environmental Quality and eventually to chairing the Environmental Congress of Minnesota. Professor Buchwald was very humble in his deliverance and urged "the young people in the crowd" to understand the importance of geology and its power to help us solve environmental problems.

Click the photo for more event info.

Haze in China

Professor Mei Zheng visited Carleton on

October 9th of this year, the Friday of Parent's

weekend, all the way from Peking University,

where she is a professor at the College of

Environmental Sciences

and Engineering. Her talk focused on air pollution and health impacts in China, particularly haze. She also discussed the complexities behind China's emissions and enacting policy to mitigate haze problems.

Her talk focused on Particulate Matter 2.5 (PM 2.5), particles suspended in air less than 2.5 microns in size. These particles are linked to visibility, so a higher particulate matter concentration means haze for the area. The concentration of PM 2.5 is especially high in East China, where there are no regional

environmental offices to govern this problem. Her talk focused on the sources of PM2.5 as well as its chemical properties. She then discussed what scientists can do to affect policy changes. This talk was sponsored by Luce LIASE grant, ENTS, and Chemistry.

2015 COMPS Symposium:

For their comprehensive exercises, the Class of 2016 explored the environmental, social, and economic aspects of animal governance.

Topics:

- "Russia's Grizzly Coast: A Case Study of Decision Making at the Minnesota Zoo" Molly Ellsworth and Kathryn Phillips
- "Spatial Optimization in Tallgrass Prairie Restoration: Tradeoffs between Ecosystem Services and Restoration Costs" Michelle Hoge, Caroline von Klemperer, Chris Nootenboom
- "The Backyard Bird: Motivations Behind Backyard Chicken Keeping on the Urban Edge, a Case Study of Northfield, Minnesota" Anna Cich, Drew Higgins, and Andre Miller
- "Beefing Up Local Meat Production: Studying Constraints on Local Meat in Southern Minnesota" Brent Murcia and Jacob Wasserman

[Click here for a recap of each presentation along with a copy of the studies.](#)

Faculty Interviews:**Meet Stephanie Fried!**

Stephie Fried is a new professor in the Economics

Department, teaching exciting new classes like Growth and Development and the Economics of

Climate Change. Check out our interview with her on her first year at Carleton and how she got interested

in environmental economics. (Her time working in a commune might not have been the most traditional path!). Click her photo for the interview transcript.

Interview with Arjendu Pattanayak

Arjendu Pattanayak, a professor of physics at Carleton, will be leading an off-campus program to

India during winter break of 2017 on sustainable energy principles and practice. We interviewed

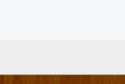
Arjendu on the program, energy issues in India, and his thoughts on some environmental topics. Click his

photo to read the interview!

Looking to Next Year:

Next year promises to be rich in opportunity. While some of our regular faculty (George Vrtis, Constanza Ocampo-Raeder, and David Hougen-Eitzman) will be enjoying well-earned sabbaticals next year, we have a very deep bench. Professor of Chemistry Will Hollingsworth is offering a new course on the science of earth systems, and Geology is also offering a new introductory course on climate change and paleoclimatology. We're pleased that Assistant Professor Sarah Jansen is back from her sabbatical, to offer her popular Animal Ethics course. Our students will also have the option to study environmental problems on six Carleton OCS programs, in India, South Pacific, California, Tasmania, Australia, or Japan. Meanwhile, comps projects will focus on issues of local and regional interest, from Carleton's Climate Action Plan to the air quality effects of controlled burning of grasslands. And we have eleven new majors bringing new interests and enthusiasms to our program.

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