




# Environmental Science Graduate Program (ESGP)



## **annual report academic year 2013 - 2014**

Nicholas Basta, Gil Bohrer, Co-Directors  
Michelle Smith, Program Coordinator

3138 A Smith Lab  
174 W. 18th Ave.  
[esgp.osu.edu](http://esgp.osu.edu)



# Environmental Science Graduate Program (ESGP)

## Table of contents

1	Introduction
2	Executive Summary
3	Program Accomplishments and New ESGP Faculty
4	ESGP Organization
5-6	Graduate Studies Committee Updates
7-9	ESGP by the Numbers
10	New Admits and Why ESGP?
11-12	Degrees Awarded and Placement
13-17	Seminar

## Graduate Studies Committee (GSC) 2013 - 2014

Co-Directors  
Dr. Nicholas Basta  
*basta.4@osu.edu*  
Dr. Gil Bohrer  
*bohrer.17@osu.edu*

GSC Chair  
Dr. Mark Moritz,  
*moritz.42@osu.edu*

Dr. Bryan Mark  
*mark.9@osu.edu*

Dr. W. Berry Lyons,  
*lyons.142@osu.edu*

Dr. Jiyoung Lee  
*jlee@cph.osu.edu*

Dr. Paula Mouser,  
*mouser.19@osu.edu*

Kristin Jaeger  
*jaeger.48@osu.edu*

Student Representative  
Jennifer Harrison,  
*harrison.497@osu.edu*

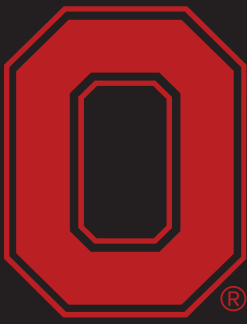
## Introduction

Environmental Science Graduate Program (ESGP) has more than 95 faculty and 68 students across four colleges--Arts and Sciences; Engineering; Food, Agriculture and Environmental Sciences and Public Health. The program is now administered through the Environmental Sciences Network (ESN), which serves the university community in promoting and furthering disciplinary and interdisciplinary environmental sciences across the university.

Nick Basta is Professor of Soil and Environmental Chemistry in the School of Environment and Natural Resources. Dr. Basta was a Professor at Oklahoma State University for 12 yr before joining the faculty at Ohio State. He holds Ph.D in Soil Chemistry (minor Analytical Chemistry) and a M.S. in Soil Science from Iowa State University and a B.S. in Chemistry from The Pennsylvania State University. He has been an active member of ESGP since his arrival at Ohio State in 2003. He has a very active research program focused on risk-based environmental chemistry and bioavailability of contaminants and nutrients in soil with emphasis on human, agronomic, and ecosystem pathways. Dr. Basta has more than 400 career publications including 96 peer-reviewed manuscripts. He has been PI or co-PI on \$19M in grants and contracts. He has delivered 130+ invited presentations including 39 at international scientific meetings. He has served on several Editorial Boards including 12 years for the Journal of Environmental Quality. Dr. Basta is an active member of several international and national scientific committees focused on bioavailability and environmental fate of soil contaminants including the Bioavailability Research Group of Europe (BARGE), the Bioavailability Research Group of Canada (BARC), the International Society for Trace Element Biogeochemistry. He is a Fellow of the Soil Science Society of America (SSSA) and the American Society of America and is past chair of the Soil Chemistry division of SSSA.

Gil Bohrer is an associate professor in the Department of Civil Environmental and Geodetic Engineering. He holds a PhD in Civil and Environmental Engineering from Duke University. Before arriving to OSU he held the French post-doctoral Fellowship from the Harvard University Center for the Environment. He is active in ESGP since he started his faculty appointment at OSU at 2008, and served as a GSC committee member and GSC chair, and as a mentor to PhD and MS ESGP students. His research program is interdisciplinary and involves plant-atmosphere-hydrology interactions, turbulence and movement through the air. He has 66 career publications, including in journals such as Nature, Proceedings of the National Academy of Science USA, Ecology Letters and Global Change Biology. He provided hundreds of conference and seminal presentations, to science peers and to the broad public. He currently serves on 3 editorial boards – for the journals PLoS One (where he is also an editor), Advance in Water Resources, and was one of the founders of the new journal Movement Ecology. He has been PI or co-PI on \$7M in grants and contracts, including research funded by NSF, NASA, NOAA, USDA, USGS, the US Department of Energy and the Ohio Water Development Authority and the Arid Land Consortium. He won the College of Engineering 2014 Lumley Award for Interdisciplinary Research for his long collaboration and on-going research work with Peter Curtis from the department of Ecology, Evolution and Organismal Biology, studying how disturbance and forest structure affect the forests role in recycling carbon and water.

A new GSC chair will be announced in Summer 2014.



# Environmental Science Graduate Program (ESGP)

## Executive Summary

This annual report is the culmination of the Environmental Science Graduate Program (ESGP) student and faculty data for the 2013-2014 academic year. The report is presented annually at the ESGP Autumn Faculty meeting. The 2014 meeting will be held Friday, August 29, as the Ohio Union in the Barbie Tootle Room. The data within is current through August 29 and will be updated as the 2013-2014 academic year closes in the Summer 2014.

Under the executive leadership of the Environmental Sciences Network (ESN), the Environmental Science Graduate Program is a part of broader University effort to enhance cross-cutting multidisciplinary research to investigate global environmental issues. Two specialization tracks have been added to the ESGP curriculum (through a combined effort with ESN): Water Issues; and Climate Change Science. ESGP faculty and students from six colleges (Arts and Sciences, Food, Agricultural, and Environmental Sciences, Engineering, Law, Public Health, and Veterinary Medicine). ESGP is continuing to increase the number of affiliated faculty in many departments across 6 Colleges: Arts & Sciences (29 faculty), Food, Agricultural, and Environmental Sciences (38), Engineering (20), Law (1), Public Health (2), Public Affairs (2), and Veterinary Medicine (1).

Students held Graduate appointments in Arts & Sciences (11%), Engineering (25%), Environmental Sciences Network (7%), Food, Agricultural, and Environmental Sciences (50%), and Public Health (7%). 1,076 hours of coursework were taken from the following Colleges: Arts & Sciences (25%), Education and Human Ecology (2%), Engineering (19%), Food, Agricultural, and Environmental Sciences (52%), and Public Health (2%).

Fourteen students were admitted into the ESGP program for Autumn 2014: 7 Masters and 7 Ph.D. students. Acceptance rate into the ESGP program was 26 percent in 2014 and incoming student quality continue to improve, with mean 2014 GRE scores at the 79.5 percentile, and GPA at 3.4. Over half of the 14 incoming ESGP students received fellowships. Eight current ESGP students were supported with University Fellowships, including the University (3), OARDC (3), Fay (2), and NSF GK-12 (2). International students comprise 42 percent of the 2014 cohort. Students are advised by faculty appointed in the following colleges: Arts & Sciences, FAES, Engineering, and Public Health. Three Masters and six Ph.D. ESGP students graduated during 2013-14, 8 of which currently work at reasrach or academic positions, including a faculty position. 2013-14 graduates published seven peer-reviewed articles or during the past year in Ecological Engineering, Journal of Physical Chemistry A, Microbial Ecology, Microbial Biotechnology, and Wetlands.

During the past year, we have completed a structural transition and are now affiliated with the ESN. We have completed an update of the graduate handbook. We have joined several departments as the representative IGP in a pilot program assessment. An assessment plan is being prepared and it will improve the way by which we evaluate our performance and continually seek to improve our learning and training outcomes. A new core interdisciplinary course is being developed for Master's and Ph.D. students to gain experience developing an environmental project and managing it by working in teams to solve an issue and report results to stakeholders.

## ESGP Accomplishments

- Led several Discovery Theme proposals
- Served as the Interdisciplinary Graduate Program (IGP) candidate of the Pilot Program Assessment
- ESGP faculty have been key players in helping to start the Environmental Shale Researchers Team
- Academic Affairs Council approval of two new ESGP specializations
- Increased support by the Council of Deans and integration of the program into the mission of the Environmental Science Network (ESN)
- Revised the Environmental Science Graduate Program Handbook
- Received 10 fellowships for 2014 incoming graduate class
- Exiting students have a 90% placement within first year of graduating
- Recruitment of new Graduate Program Coordinator
- Establishment of Moonlight on the Marsh seminar series with extended donation
- Recruitment of seven new faculty members

## Welcome New ESGP Faculty 2013 - 2014



**Michael Bevis,**  
*mbevis@osu.edu*  
Geodesy and  
Geodynamics group  
- Division of Geodetic  
Science



**Michael Durand,**  
*durand.8@osu.edu*  
Earth Sciences  
- land surface  
hydrology



**Christopher Jekeli,**  
*jekeli.1@osu.edu*  
Earth Sciences -  
Physical geodesy  
with emphasis on  
the measurement



**Shaurya Prakash,**  
*prakash.31@osu.edu*  
Mechanical and  
Aerospace Engineering



**C.K. Shum,**  
*ckshum@osu.edu*  
Geodetic Science,  
School of Earth  
Science



**Mark Sulc,**  
*sulc.2@osu.edu*  
Horticulture and Crop  
Science - Forage  
management issues



**Anna J. Willow,**  
*willow.1@osu.edu*  
Anthropology,  
American Indian  
Studies

## Environmental Science Graduate Program Organization

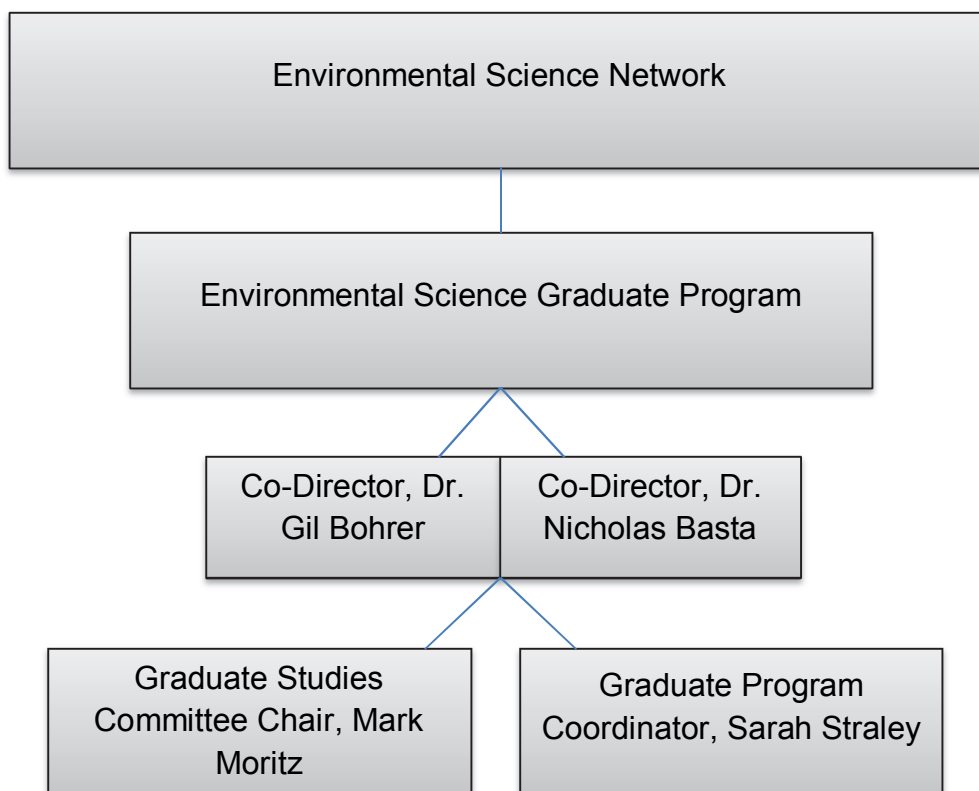
The Environmental Science Graduate Program (ESGP) is the Interdisciplinary Graduate Program (IGP) of the Environmental Sciences Network (ESN). The budget and organizational reporting for the Environmental Sciences Network and the Life Sciences Network (LSN) is the Graduate School, which leads the Program Council of Deans in oversight and funding of the program. The co-directors of ESGP report to the Executive Director of ESN who in turn reports to the Dean of the Graduate School.



**Nicholas Basta,**  
*basta.4@osu.edu*  
*Co-Director*  
Environment and  
Natural Resources



**Gil Bohrer,**  
*bohrer.17@osu.edu*  
*Co-Director*  
Civil, Environmental  
and Geodetic  
Engineering





## From the Desk of Mark Moritz, GSC Chair

The members of the Graduate Studies Committee were Jiyoung Lee (Public Health), Bryan Mark (Geography), Berry Lyons (Earth Sciences), Jennifer Harrison (student representative), Kristin Jaeger (Environment and Natural Resources), and Paula Mouser (Civil, Environmental and Geodetic Engineering), and myself. Next year, Jennifer Harrison, Berry Lyons, Bryan Mark, and myself are no longer serving on the GSC in the coming academic year. We will be replaced by Jeffrey Bielicki (Glenn School), Anne Carey (Earth Sciences), Gaj Sivandran (Civil, Environmental and Geodetic Engineering), and Brooke Stevens will serve as the graduate representative.

The main task of the GSC is to review applications for incoming graduate students and decide whether they meet the requirements for the program and the graduate school and whether they are a good fit with the ESGP program. This year the GSC reviewed 54 applications (33 MS and 21 Ph.D.). We conditionally admitted 31 applicants (18 MS and 13 Ph.D.) of which 14 applicants found an advisor committed to mentoring and supporting them (7 MS and 7 Ph.D.). Two of our incoming students received Fay Fellowships, three received University Fellowships, one OARDC fellowship, one OARDC directors fellowship and one FAES fellowship. Our incoming students were very successful in getting financial support from the university.

This year the university approved two new specializations: Climate Change Science and Policy (contact: Dan Herms) and Water Issues (contact: Berry Lyons). Together with the Agroecosystems Science specialization (contact: Casey Hoy) that was approved last year, we have now three specializations that provide focus in a particular area under the broad umbrella of the environmental sciences. More information can be found on our website (<http://esgp.osu.edu/index.php?id=435>).

The GSC also welcomed many new ESGP faculty from across the university: Mark Sulc (Earth Sciences), Christopher Jekeli (Earth Sciences), CK Shum (Earth Sciences), Anna Willow (Anthropology), Michael Durand (Earth Sciences), Shaurya Prakash (Mechanical and Aerospace Engineering), Michael Bevis (Earth Sciences).

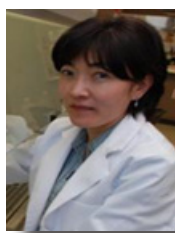
### Graduate Studies Committee (GSC) 2013 - 2014



*Mark Moritz  
Environmental Science  
Graduate Studies  
Committee Chair*



*W. Berry Lyons*



*Jiyoung Lee*



*Kristin Jaeger*



*Bryan Mark*



*Paula Mouser*



*Jennifer Harrison*

The GSC has also been working on the program's learning goals and associated changes in the curriculum, and practicing with the Graduate School's Assessment Pilot Project.

The learning goals of the Environmental Science Graduate Program (ESGP) emphasize that students will be able to collaborate effectively as an environmental scientist in interdisciplinary projects and that they are able to draw from the biological, physical, and social sciences, and environmental engineering to contribute to the interdisciplinary study of these problems and their solutions.

However, we currently do not have a course (or other way) to ensure that students achieve those learning goals. Therefore, we propose to develop a core course that ensures that graduates from our program are able to work effectively as environmental scientists. Both the external reviewers of the ESGP program (2005) and the ESGP Task Force (2009) have identified the need for such a course. In addition, the survey of ESGP faculty (2010) showed that there was widespread support for a required core course that trained students in the fundamentals of environmental science and conducting environmental research (including literature review, research design, writing grant proposals, communicating findings). We have followed their suggestions in the design of this new core course.

The change involves adding one required core course to the curriculum that will train incoming MS and Ph.D. students in collaborating effectively as environmental scientists in interdisciplinary projects and ensure that they are able to draw from the biological, physical, and social sciences, and environmental engineering to contribute to the interdisciplinary study of environmental problems and their solutions.

All incoming MS and Ph.D. students would be required to complete this course in their first year in the program. In the course, all incoming students will work collaboratively on a research project that examines an environmental problem at the OSU campus. Over the course of two semesters, students will go through all the steps of an interdisciplinary research project: identify the problem, review the literature, design research, collect data, analyze data, interpret results, write up findings, and communicate with stakeholders. We will invite ESGP faculty to participate and will explicitly integrate all fields of the ESGP program (social sciences, natural sciences, and engineering).

The core course would be an ESGP course and span two semesters and be 3 credits each semester (6 credits in total). The expected enrollment would be approximately 15 students each year. We envision that the course would be taught by ESGP faculty and that their respective departments would be compensated by the ESGP program.

We have submitted a course proposal for approval to the graduate school and hope to make changes in the curriculum in the coming academic year. The goal is to teach this course for the first time in Autumn 2015.

Finally, the GSC was ably assisted by our graduate program coordinator Sarah Straley in the 1.5 years. Sarah has accepted another job and has been replaced by Michelle Smith. I want to thank Sarah very much for all her work. It was a pleasure working together and I warmly welcome Michelle to the ESGP.

Mark Moritz



# ESGP By the Numbers

## 2014 University Fellowships

Julia Laudick - Advisor Brian Gardner  
Jonathan Ogland-Hand - Advisor Jeff Bielicki  
Hannah Whitehead - Advisor Casey Hoy

## OARDC Fellowships

Julia Laudick - Advisor Brian Gardner  
Frederick Reppun - Advisor Casey Hoy  
Hannah Whitehead - Advisor Casey Hoy

## Fay Fellowships

Andres Camilo Rey Sanchez - Advisor Gil Bohrer  
Seungjun Lee - Advisor Jiyoung Lee

## NSF GK-12 Fellows

Jennifer Harrison - Advisor Richard Moore  
Jon Bosley - Advisor Susan Fisher

## 2013 University Fellowships

Janani Hariharan - Advisor Parwinder Grewal  
Andrew Lin - Advisor Craig Jenkins

## OARDC Fellowships

Janani Hariharan - Advisor Parwinder Grewal  
Long Lin - Advisor Yebo Li

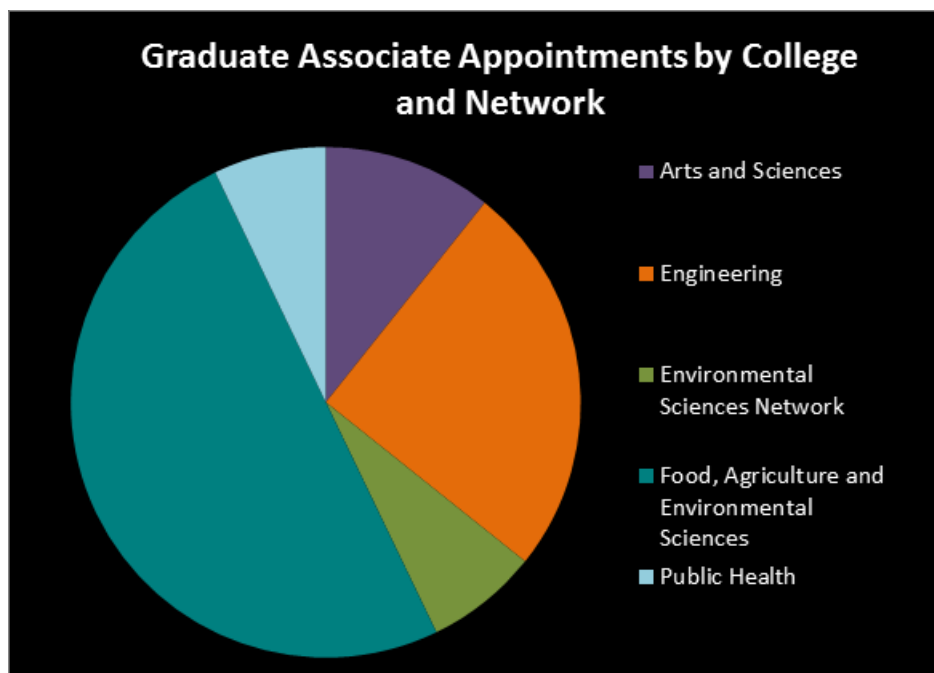
## Fay Fellowships

Yanting Guo - Advisors Charles Goebel and Richard Moore  
Zhenfei Liang - Advisor Nick Basta

## NSF GK-12 Fellows

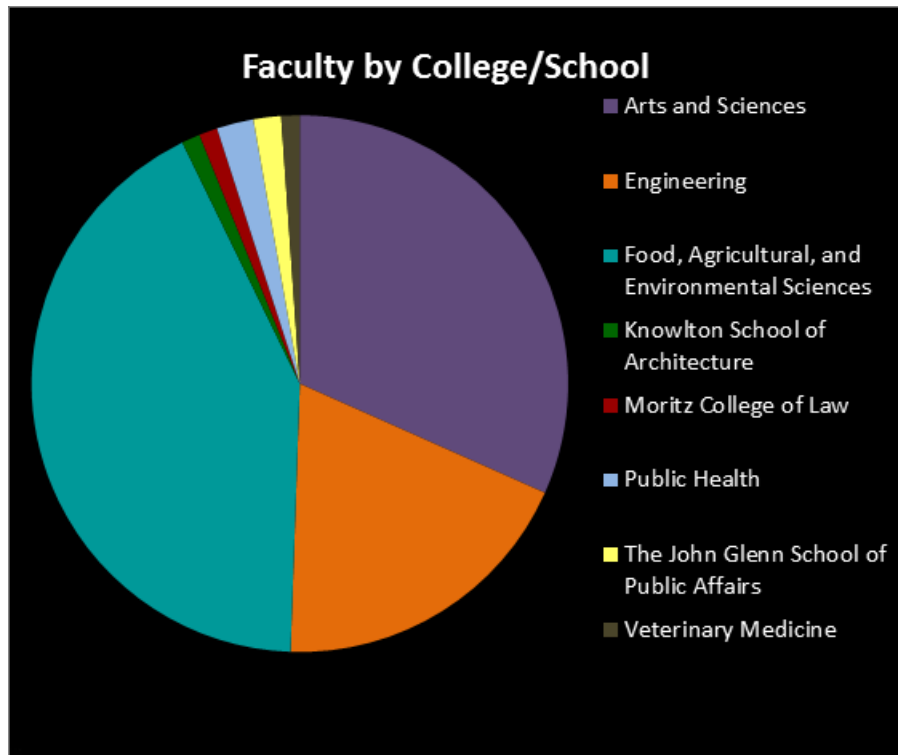
Jonathan Bossley - Advisor Susan Fisher  
Jennifer Harrison - Advisor Richard Moore

## Autumn 2013-2014 Graduate Associate Appointments by College and Network



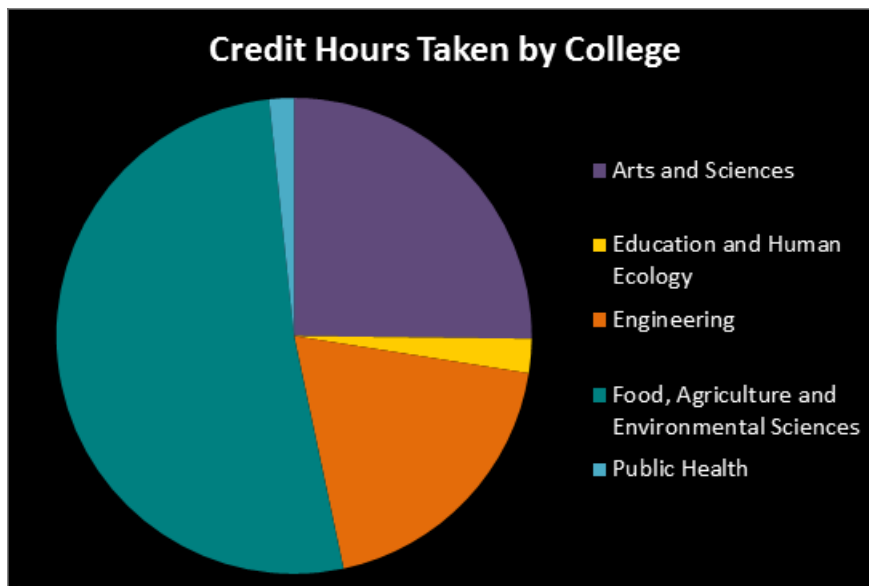
GTA - 9
GRA - 3
GAA - 2
<b>Total - 14</b>

## Autumn 2013-2014 - Students Colleges



Food, Agr. & Env. Sci.	40
Engineering	12.5
Arts & Sciences	12.5
Public Health	3
<b>TOTAL</b>	<b>68</b>

## Autumn 2013-2014 Semester Credit Hours Taken By College



Academic Group	Credit Hours
FAES	556
ASC	271
EH	25
ENG	206
PBH	18
<b>Total</b>	<b>1,076</b>

# Autumn 2013-2014 Semester Credit Hours Taken By College

## Total Applicants - 54

MS - 33  
PhD - 21

## GSC Accepted Applicants - 31

International - 15  
Domestic - 16  
MS - 18  
PhD - 13

## GSC Denied Applicants -23

International - 13  
Domestic - 10

## Students Accepted with Advisors - 14

MS - 7  
PhD - 7

## Average GRE - Accepted Students

MS - 323 (Quant. 77%, Verbal 89%)  
PhD - 316 (Quant. 78%, Verbal 75%)

## Average GRE - All Applications

MS - 314 (Quant. 75%, Verbal 59%)  
PhD - 310 (Quant. 64%, Verbal 75%)

## Incoming Average Undergraduate GPA

MS- 3.43  
PhD- 3.38

## University Fellowships

Awarded - 3  
Accepted - 3

## New Student Totals

ESGP funded TA for first year: 4  
Advisor funded RA for first year: 3  
Self funded for first year: 1

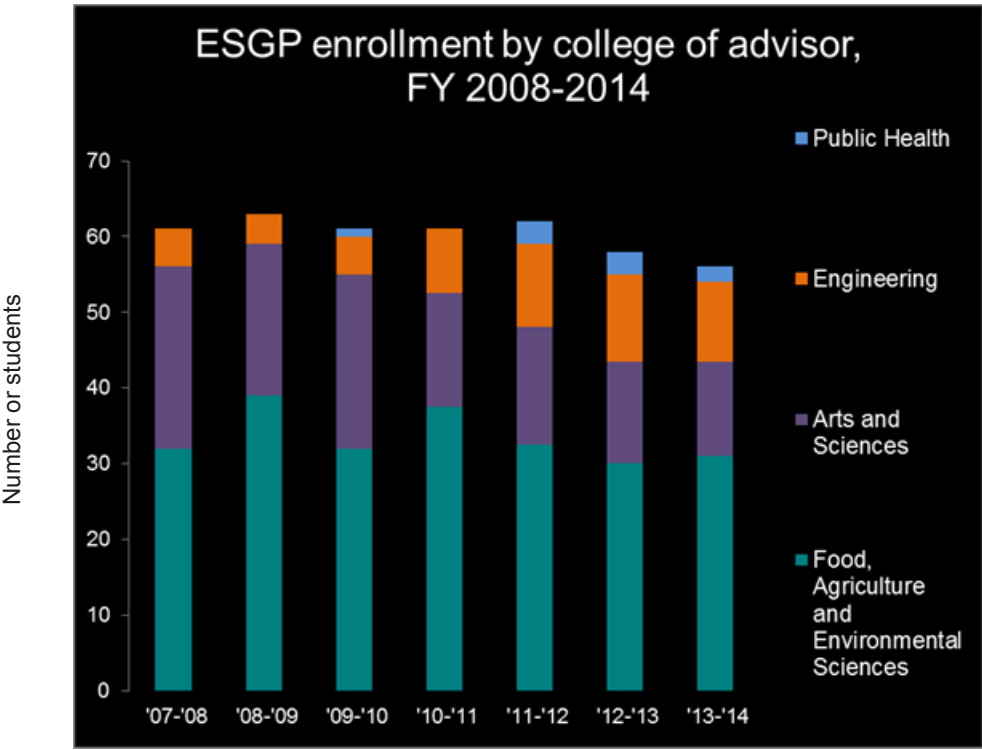


Table 1: ESGP Students Colleges (as determined by advisors), 2008 - 2014

# Newly Admitted Applicants - Arrival Autumn 2014

Name	Degree	Advisor	College
Laura Bond	MS	Elizabeth Toman	Food, Agr., and Env. Sciences
Reed Johnson	MS	Rattan Lal	Food, Agr., and Env. Sciences
Julia Laudick	MS	Brian McSpadden Gardner	Food, Agr., and Env. Sciences
Seungjun Lee	PhD	Jiyoung Lee	Public Health
Scott Mayhew	MS	Rattan Lal	Food, Agr., and Env. Sciences
Hiroko Mori	PhD	Jeff Bielicki	Engineering
Jonathan Ogland-Hand	PhD	Jeff Bielicki	Engineering
Frederick Reppun	MS	Casey Hoy	Food, Agr., and Env. Sciences
Andres Rey Sanchez	PhD	Gil Bohrer	Engineering
Ted Saltos	PhD	Brett Sohngen	Food, Agr., and Env. Sciences
Glenn Sutula	MS	Jeff Bielicki	Engineering
Ryan Trexler	PhD	Paula Mouser	Engineering
Stephen Tuozzolo	PhD	Michael Durand	Arts and Sciences
Hannah Whitehead	MS	Casey Hoy	Food, Agr., and Env. Sciences

## Why ESGP?

### Faculty

- Access to high quality graduate students of diverse backgrounds
- Interdisciplinary training for graduate students
- Meaningful interdisciplinary collaboration with other faculty from across OSU colleges
- Create new interdisciplinary specialization tracks with diverse faculty consistent with the one University concept and discovery themes
- Flexibility in designing the students' curriculum
- Additional resources for their home department and research program in the form of fellowships, Graduate Teaching Associate support and course credits

### Students

- Interdisciplinary education and training
- Access to resources and collaboration with faculty and peers across campus and the full breath of environmental research at Ohio State University
- Pursue new specialization degree tracks: Agroecosystems, Water Issues, Climate Change Science and Policy
- Financial support through fellowships, GTA, GAA appointments and awards for travel to scientific conferences

## Autumn 2013

1. Liel Naor Azrieli (M.S.)

**Thesis:** "Determining the Meteorological Forcing that Affects the Dynamics of Methane Emissions from Wetlands" Dr. Gil Bohrer

**Publications:** Morin, T.H., Bohrer, G., Naor-Azrieli, L., Mesi, S., Kenny, W.T., Mitsch, W.J., Schafer, K.V.R. (2014) The seasonal and diurnal dynamics of methane flux at a created urban wetland *Ecological Engineering*, In Press

2. Michael Brooker (M.S.)

**Thesis:** "The Wetland Dilemma: Nitrogen Removal at the Expense of Methane Generation" Dr. Paula Mouser

**Publications:** Brooker, M.R., Bohrer, G., Mouser, P.J. (2014) Variations in potential CH<sub>4</sub> flux and CO<sub>2</sub> respiration from freshwater wetland sediments that differ by microsite location, depth and temperature *Ecological Engineering*, In Press.

**Current Position:** Ph.D. Graduate Research Assistant, The Ohio State University; Advisor: Paula Mouser

3. Wei Hua (Ph.D.)

**Thesis:** "Interfacial Water Organization and Ion Distributions Investigated with Vibrational Sum Frequency Spectroscopy: Answering Fundamental Questions for Environmental Chemistry" Dr. Heather Allen

**Publications:** Hua, W., Verreault, D., Allen, H.C. (2013) Surface prevalence of perchlorate anions at the air aqueous interface *Journal of Physical Chemistry Letters*, 4 (24):4231-4236.

Huang, Z., Hua, W., Verreault, D., Allen, H.C. (2013) Influence of salt purity on Na<sup>+</sup> and palmitic acid interactions *Journal of Physical Chemistry A*, 117 (50):13412-13418.

Hua, W., Verreault, D., Adams, E.M., Huang, Z., Allen, H.C. (2013) Impact of salt purity on interfacial water organization revealed by conventional and heterodyne-detected vibrational sum frequency generation spectroscopy, *Journal of Physical Chemistry C*, 117 (38):19577-19585.

Huang, Z., Hua, W., Verreault, D., Allen, H.C. (2013) Salty glycerol versus salty water surface organization: Bromide and iodide surface propensities, *Journal of Physical Chemistry A*, 117 (29):6346-6353.

**Current Position:** Post-Doctoral Researcher, Dr. Heather Allen's lab in the department of Chemistry and Biochemistry, The Ohio State University

(Wei Hua had additional 9 peer reviewed articles)

4. Yueh-Fen Li (Ph.D.)

**Thesis:** "An Integrated Study on Microbial Community in Anaerobic Digestion Systems" Dr. Zhongtang Yu

**Publications:** Li, Yueh-Fen, Shan Wei, and Zhongtang Yu (2013). Feedstocks Affect the Diversity and Distribution of Propionate CoA-Transferase Genes (pct) in Anaerobic Digesters. *Microbial Ecology* 66 (2): 351-362.

Li, Y. F., Chen, P. H., & Yu, Z. (2014). Spatial and temporal variations of microbial community in a mixed plug-flow loop reactor fed with dairy manure. *Microbial Biotechnology*, 7 (4):332-46.

**Current Position:** Post-Doctoral Researcher in Animal Science at The Ohio State University

5. Julia Deniro (M.S.)

**Thesis:** "Airborne Transport of Foodborne Pathogens from Bovine Manure to Vegetable Surfaces" Dr. Douglas Doohan

**Current Position:** Research Assistant in Food Safety at The Ohio State University (OARDC)

## Spring 2014

1. Mengling Stuckman (Ph.D.)

**Thesis:** "Biotic Arsenic Mobilization in Natural and Anthropogenic Systems from Redox Transformations of Arsenic, Iron and Sulfur" Dr. John Lenhart

**Publications:** Stuckman, M.Y., Lenhart, J.J., Walker, H.W. (2011) Abiotic properties of landfill leachate controlling arsenic release from drinking water adsorbents. *Water Research*, 45 (16):4782-4792.

**Current Position:** Post-doc Researcher, National Energy Technology Lab

2. Mark Nye (M.S.)

**Thesis:** "Microbial Community Structure in Soils Amended With Glyphosate Tolerant Soybean Residue" Dr. Richard Dick

**Current Position:** Touring Rock Band; Bass Guitarist, Erica Blinn Band

3. Jorge Villa Betancur (Ph.D.)

**Thesis:** "Carbon Dynamics of Subtropical Wetland Communities in South Florida" Dr. William Mitsch

**Publications:** Villa, J.A. and Mitsch, W.J., (2014). Methane emissions from five wetland plant communities with different hydroperiods in Big Cypress Swamp region of Florida Everglades. *Ecohydrology & Hydrobiology*, In Press

Villa, J.A., Mitsch, W.J., Song, K. and Miao, S., (2014). Contribution of different wetland plant species to the DOC exported from a mesocosm experiment in the Florida Everglades. *Ecological Engineering*, 71:118-125.

**Current Position:** Assistant Professor at the Engineering Faculty at Corporacion University Lasallista, in Antioquia, Colombia

4. Evan Waletzko (Ph.D.)

**Thesis:** "Carbon Budgets of Created Riverine Wetlands in the Midwestern USA" Dr. William Mitsch

**Publications:** Waletzko, E.J., Mitsch, W.J. (2013) The carbon balance of two riverine wetlands fifteen years after their creation *Wetlands*, 33 (6):989-999.

Waletzko, E.J., Mitsch, W.J. (2013) Methane emissions from wetlands: An in situ side-by-side comparison of two static accumulation chamber designs. *Ecological Engineering*. In Press.

**Current Position:** Post Doctoral with Bill Mitsch at Florida Gulf Coast University

*ESGP graduates had a total of 12 peer review articles in the past academic year.*



# ESGP Events 2013-2014

## ESGP and ESGP-Student Association (SA) Events

- ESGP Welcome Event - "Year Opener"
- ESGP Incoming Student Orientation
- ESGP-SA Hocking Hills State Park trip
- ESGP-SA MadMex Social
- ESGP-SA Social and Seminar, *Johnny Wilson, NC State*



ESGP Welcome Event - "Year Opener"



Dr. Peter F. Sale

- "Solving our global crisis: The most serious crisis for humanity since the Pleistocene", *Dr. Peter F. Sale* Professor, Institute for Water, Environment & Health, United Nations University ; *an Ohio Union event - co-sponsored with the Department of Evolution, Ecology and Organismal Biology*

- ESGP-SA Potluck
- Earth Day Volunteer Event at Glen Echo Park, *River clean-up and invasive species removal*
- ESGP End of Year Party, Blackwell Lounge
- ESGP Graduation Celebration and End-of-semester Social at the Round Room, Ohio Union



## Environmental Science 7899 - Seminar 2013-2014

The 2013-2014 ESGP seminars were coordinated in partnership with the Environmental Sciences Network (ESN), which is focused on connecting researchers in the environmental sciences at Ohio State. Great synergy emerges from the combined efforts of the Graduate Program and Network, which are also now housed in the same office suite in Smith Laboratory.

For its part, the Network provides ESGP seminar students a broader pool of potential speakers as well as a thematic basis reflecting university and national conversations (e.g., climate change, the recent Ecosummit, university Discovery Themes). And ESGP helps with the ESN's bridge-forming mission as well, providing a forum for university-wide, non-departmental seminars that allow both OSU and external researchers to participate in broad and interdisciplinary conversations.

### Autumn 2013 ESGP Seminar Series -

#### *Characterizing Vegetation Drag in Aquatic Systems*

Mitul Luhar, Postdoctoral Scholar in Aerospace, Caltech

#### *Wetlands and Water Quality: Two large-scale, long-term watershed projects in Midwestern and Florida Everglades USA*

William J. Mitsch, Eminent Scholar and Director, Everglades Wetland Research Park; Juliet C. Sproul, Chair for Southwest Florida Habitat Restoration and Management, Florida Gulf Coast University

#### *Energy Sustainability and Emerging Uses of the Subsurface*

Jeffery M. Bielicki, Assistant Professor of Energy Policy, Dept. of Civil, Environmental and Geodetic Engineering and The John Glenn School of Public Affairs

#### *Drought as a Driver of Tropical Tree Species Distributions and Dynamics*

Liza Cornita, Assistant Professor, Department of Evolution, Ecology and Organismal Biology

#### *Community Genomics: Unraveling Tangled Microbial Metabolic Networks that Impact Subsurface Biogeochemical Cycling*

Kelly C. Wrighton, PhD, Assistant Professor, Department of Microbiology

#### *Animal Migration in the World of Big-Data*

Gil Bohrer, PhD, Assistant Professor, Department of Civil, Environmental and Geodetic Engineering

#### *In the Twilight of Trenbolone: The Vampire Steroid*

Edward P. Kolodziej, PhD, Assistant Professor, Dept. of Civil and Environmental Engineering, University of Nevada, Reno



*In this photo:  
ESGP Students  
gather for the  
Environmental  
Science 7899  
Seminar.*

## **Spring 2014 ESGP Seminar Series -**

*Designing Environmental Policy that Works: A Case Study of Decision Making in Agr. Landscapes*  
Robyn Wilson, Associate Professor, School of Environment and Natural Resources

*Surviving in Antarctica: An Insect Perspective*  
David Denlinger, Distinguished University Professor, Department of Entomology

*Ecology in the Workplace*  
Jennifer Nietz, Ecologist, Stantec Consulting, Columbus, Ohio

*Solving Our Global Environmental Crisis: the Most Serious Crisis for Humanity Since the Pleistocene*  
Peter F. Sale, Professor, Institute for Water, Environment & Health, United Nations University

*Projecting the Combined Impact of Habitat Loss and Climate Change*  
John W. Wilson, Teaching - and Research Assistant, Department of Biological Sciences, North Carolina State University, Raleigh NC

*Self-Care, Balance, and Wellness for Graduate Students*  
Lindsay Varkula, Clinical Fellow of Counseling and Consultation Service and Robyn Steiner, Social Work Intern of Counseling and Consultation Service

# Student Proposal Presentations 2012-2013

Yaoping Wang, (M.S.)  
*Statistical Downscaling of 21st Century Precipitation*

Tsung-Ta Hsu (M.S.)  
*Understanding the Ecosystem Services Provided by Urban Wetlands in Reducing Waterborne Pathogens*

Krystaal McClain, (M.S.)  
*Forest Succession: Party Through the Generations*

Nall Moonilall (M.S.)  
*The Impact of Biochar and Other Soil Amendments on Soil Quality for Some Soils in Guyana*

Lindsey Boaz (M.S.)  
*Stream Geomorphology and Contaminant Export*

Mark Nye (M.S.)  
*Microbial Community Structure in Soils Amended With Glyphosate Tolerant Soybean Residues*

Christopher Eidson (M.S.)  
*Soil Quality Index: A Tool for Assessing Resilience of Midwestern Maize Production*

Peter McDonough, (M.S.)  
*Food Aid and Agricultural Practices in the Karnali Region of Nepal*

Guannan Ding (M.S.)  
*Winter Irrigain by Reclaimed Wastewater*

Janani Hariharan (M.S.)  
*Metatranscriptomic Analysis of Soil Microbes Under Varying Tillage and Depths*

Mitul Luhar (Ph.D.)  
*Characterizing Vegetation Drag in Aquatic Systems*

Patrick Bell (Ph.D.)  
*Climate Change and Mitigation for Smallholder Farmers in Tanzania*

Yueh-Fen Li (Ph.D.)  
*An Integrated Study of Microbiocommunity in Anaerobic Digestion Systems*

Yina Xie (Ph.D.)  
*Coupled Watershed Modeling and Land Tenancy Analysis to Assess Water Quality Trading in the Upper Scioto Watershed, OH*

Jennifer Harrison (Ph.D.)  
*The Sustainability of Organic Agriculture and the Factors that Influence Long-Term Success of Organic Production: A Comparative Study of Bhutan and the United States*

Timothy Morin (Ph.D.)  
*Methane Emission Patterns from the Olentangy River Wetlands Research Park*



*Michael Brooker (Ph.D.)*

*The Biogeochemical Control of Nutrient Flux in Agricultural Drainage Systems*

*Thalia Chatziefstratiou (Ph.D.)*

*The Effects Modeling: Simulation of Tree Stem Injury and Heat Dispersion in Wildland Fires*

*Mary Evert (Ph.D.)*

*Influence of DOM Amendment & Molecular Form on Uranium Reduction Rates in U-Contaminated Sediments*

*Jorge Villa Betancur (Ph.D.)*

*Carbon Dynamics of Subtropical Wetland Communities in South Florida*

*Michal Wojno (Ph.D.)*

*Improved Diet Utilization of Intensively Cultured Fish to Address Environmental Sustainability - Amino Acid Requirement in Carp (*Cyprinus carpio*)*

---

## **ESGP Student Association Board Members**

The Environmental Science Graduate Program - Student Association (ESGP-SA) organizes events for students, faculty and alumni to network and share ideas. These gatherings provide meaningful opportunities for ESGP peers to come together as the board (listed below) is interested in hearing from faculty, students and alumni and welcomes your emails with suggestions about bringing an even larger social interaction component to the program.

President: Tim Morin (morin.37@osu.edu) – A PhD student with Gil Bohrer as his advisor in Civil and Environmental Engineering, Tim plans to arrange more social events as the new president of the ESGP-SA with the hopes of more student-faculty networking and research collaboration. Tim studies the causes of methane emissions from swamps using an eddy covariance tower deployed at the Olentangy River Wetland Research Park. Before his time at OSU, he served in the Peace Corps for three years and earned a MS in Environmental Engineering from Georgia Institute of Technology.

Vice president: Krystaal McClain (mcclain.247@osu.edu) - Currently working on an internship in Panama examining spatial variability of soil respiration, Krystaal is a MS student working with Gil Bohrer on animal movement analysis using Movebank. As an undergraduate she served as secretary for the Council of Green Affairs and was the main organizer for the 50th anniversary party hosted at her school. She hopes to use these skills to help the ESGP community grow stronger through socials, parties and off campus trips. She also plans to assist in the creation of an ESGP-SA webpage, which will provide an opportunity to share student ideas with the community.

Treasurer: David Hsu (hsu.389@osu.edu) – A PhD student, working with Jiyoung Lee in Environmental Health Sciences. As treasurer, David's goals are to make the best use of money to benefit each member of ESGP as well as maintain the financial wellness of the organization.

Secretary: Yaoping Wang (wang.3866@osu.edu) – Yaoping recently graduated with her MS and her research is going so well she is continuing on to pursue her PhD. With Gajan Sivandran (CEGE), as her advisor, Yaoping is researching spatial and temporal downscaling techniques to global climate model output and hopes to assist with ESGP-SA's interdisciplinary mission by representing the physical sciences.