Colgate Environmental Studies

How exactly does this program work?

Environmental Studies is an interdisciplinary program within the Division of University Studies. The program depends upon the generous contributions from faculty in other departments. The program is administered by a director (Dr. Tim McCay) with guidance from a steering committee: Bob Turner, Beth Parks, Frank Frey, Jason Kawall, April Baptiste, Paul Pinet, Chris Henke, and Pete Scull. Invaluable help is provided by our Program Assistant, Theresa Evans, and Administrative Assistant, Sarah Marcellus. The Environmental Studies Program administers five majors: Environmental Biology, Environmental Economics, Environmental Geography, Environmental Geology, and Environmental Studies. Department-affiliated majors are administered jointly with departments. Additionally, students may also minor in Environmental Studies.

Fall 2012 ENST Course Offerings

Courses offered in Fall 2012 that can be used to satisfy requirements of majors or the minor in the Environmental Studies Program (see course offerings booklet for details).

ARTS 201 Digital Studio I
ARTS 211 Drawing I
ARTS 221 Video Art I
ARTS 231 Painting I
ARTS 241 Photography I
ARTS 251 Printmaking I
ARTS 263 Sculpture I
BIOL 101 Topics in Organismal Biology
BIOL 211 Ecol, Ecol, Diversity
BIOL 212 Molecules, Cells, Genes
BIOL 255 Vertebrate Zoology
BIOL 311 Comparative Environmental Physiology
BIOL 328 Field Ecology of Plants
BIOL 364 Population Biology

CHCM 101 General Chemistry I
CHCM 11 Chemical Principles
ECON 151 Intro to Economics
ECON 228 Environmental Economics
ECON 251 Intermed. Microecon.
ECON 252 Intermed. Macroecen.
ECON 375 Applied Econometrics
ENST/PHIL 202 Environ. Ethics
ENST 232 Environmental Justice
ENST 390 Community-based Study of Environmental Issues
GEOL 101 Environmental Geology
GEOL 135 Oceanography
GEOL 201 Mineralogy
GEOL 203 Stratigraphy and Sedimentation
GEOL 302 Stratigraphy and Sedimentation

GEOG 111 Global Shift: Economics, Society, and Geog.
GEOG 121 Human Impact on Env
GEOG 131 Physical Geography
GEOG 251 Environmental Risk Communication
GEOG 320 Globalization, Development, and the Environment
GEOG 326 Environmental Hazards
GEOG 336 Biogeography
GEOG 401 Geography Senior Seminar
GEOL 101 Environmental Geology
GEOL 135 Oceanography
GEOL 201 Mineralogy

GEOG 251 Environmental Risk Communication
GEOG 320 Globalization, Development, and the Environment
GEOG 326 Environmental Hazards
GEOG 336 Biogeography
GEOG 401 Geography Senior Seminar
GEOL 101 Environmental Geology
GEOL 135 Oceanography
GEOL 201 Mineralogy

In this Issue:

- Are we Cool with the Warmth?
- Message from the ENST Director
- Living Sustainability at Colgate in 2012
- Joe Mendelson, “Climate Change: Advocacy, Career, and Stories from the Frontlines”
- Colgate’s Clean Water Coalition and the Pipeline Debate
- Fall 2012 ENST Course Offerings
- How Does the ENST Program Work?
Are we Cool with the Warmth?

Profs Adam Burnett and Peter Klepeis  
Department of Geography

How about the recent warm weather!

In most years, spring at Colgate seems to arrive just in time for final exams. But this year students returning from Spring Break just kept working on their tans.

It must be global warming, right? But is it?

The winter of 2011-12 in Hamilton, NY will be remembered as one of warmth and low snowfall. Since 1902, the average winter temperature (December-February) for nearby Syracuse is 26.3°F. This past winter, the average temperature was 33.1°F, a full 6.8°F above average and nearly 10°F above last winter’s average. In fact, this year ranks as Syracuse’s third warmest on record. And snowfall was equally unusual, with the city having received 50.6 inches as of March 26 compared to a normal amount of 118 inches by the same date.

Central New York was not alone in its unusual weather. With the exception of a few western locations, most of the lower 48 United States experienced abnormal warmth, making the winter of 2011-12 the fourth warmest on record for the contiguous US.

Although warmer winters are projected to become more common as atmospheric greenhouse gas concentrations grow, it’s impossible to blame any single winter anomaly on the enhanced greenhouse effect (EGE).

In an oft-used analogy (see http://dotearth.blogs.nytimes.com/2012/02/13/on-home-runs-and-steroids-heat-and-co2/) this winter’s weather is akin to a baseball slugger on steroids (with the steroids being the EGE). Is any one home run linked to steroid use? Hard to say. But the probability of the slugger hitting a home run is certainly higher if the player is using steroids.

What is clear is that this year the jet stream was not in its typical winter configuration. The jet stream is a region of fast moving wind-flow aloft that sits at the boundary between cold air to the north and warmer air to the south. Changing from day-to-day, it affects weather and the movement of storm systems. Sometimes it moves north and allows warm air to flow into Hamilton. At other times, it moves south and enables cold, polar air to influence our region. The flow of polar air is often accompanied by larger storm systems that produce snowfall. During the past winter one of the jet stream’s northward bulging waves (called a ridge) set up over the eastern US, making Central New York relatively warm. During the same winter, however, there were other places — including Alaska and parts of Europe — where the southward bulging wave (called a trough) of the jet stream caused extremely cold conditions.

What caused the change in the jet stream this year? The first culprit, La Niña, developed in the tropical Pacific Ocean leading to abnormally cool sea surface temperatures in the eastern Pacific. Although the tropical Pacific Ocean is far from Central New York, La Niña can influence the jet stream and is historically associated with warmer winter temperatures throughout much of the eastern US. The second culprit, the North Atlantic Oscillation (NAO), is one of several different “flavors” of jet stream variability that occur periodically. During a strong positive NAO, as we had this past winter, cold air is prevented from flowing into the eastern US.

For what it’s worth, the jet stream is the technical explanation of why we experienced a warmer winter. But, in the end, what should we make of it? Among many possible take-away points, we’ll make three. First, year-to-year as well as spatial variability in the weather is normal. Second, a warm winter certainly helps with heating bills and can boost the spirits, but there are also downsides, ranging from the potentially serious (robust tick populations) to the more benign (a bummer of a skiing season). Finally, don’t forget that 2010 is the hottest year on record, followed by 2005, 1998, 2003 and 2006: the larger trend of anthropogenic global warming marches on.
The Environmental Studies Program, like all departments and programs, struggles with how to best evaluate its success in educating students. One measure of the success of any educational program is how successfully its students are able to move on to productive careers. And by that metric, I am pleased to report that we are doing well. Colgate is fortunate to have alumni placed in important environmental positions around the nation, and we are doubly fortunate that they are generous enough with their time to return to campus and share their stories – many of them as part of the Environmental Studies Brown Bag Seminar Series.

Dr. Lisa B. Cleckner ’86 will give a brown-bag seminar about her work as director of the Finger Lakes Institute, which is affiliated with Hobart and William Smith Colleges and dedicated to the promotion of environmental research and education about the Finger Lakes and surrounding environments. She has worked on a variety of research and outreach initiatives since leaving Colgate. For example, she led a research group investigating mercury cycling in the Great Lakes. Lisa also has held a variety of positions in the environmental administration, including serving as Assistant Director of Operations at the Syracuse Center of Excellence in Environmental and Energy Systems.

Dr. Angela Brandt ’03 returned to campus this spring to tell us about her work in ecology. Angela is studying how invasive plant species affect the trajectory of plant succession and the environmental conditions that allow the persistence of exotics and natives together. Her work is challenging some commonly-held beliefs about exotic species. For example, she has observed that in many cases, native species are able to prosper alongside exotics. Angela is now a post-doctoral scientist at Case Western University. Dr. Beth DiCesare ’05 will be returning to Colgate to give the last Brown Bag Seminar of the year on April 27. Beth is an environmental microbiologist and has been studying the presence of the human pathogen Cryptosporidium in Pennsylvania waterways. Beth is currently a Lecturer in Biological and Environmental Sciences at the Rochester Institute of Technology.

So, let’s extend kudos to our successful graduates and thank them for sharing their time with us!
Joe Mendelson: “Climate Change: Advocacy, Career, and Stories from the Front Lines”

Kathryn Bacher
Colgate Class of 2014

“The scale of what we have to do with renewable energy is monstrous.”

- Joe Mendelson,
Colgate Class of 1988

On Friday March 23rd, the Colgate community was delighted to welcome back Joseph Mendelson, class of ’88. Mendelson, the Director of Global Warming Policy at the National Wildlife Federation, has established a fascinating environmental law career, which developed from his time at Colgate. Mendelson’s lecture was a valuable time to hear about the implications of the Massachusetts vs. EPA Supreme Court decision as well as Mendelson’s opinions on how to direct our future sustainable efforts.

When Mendelson attended Colgate, there were no environmental groups like Students for Environmental Action, there was no Campus Sustainability Coordinator, and there was no Climate Action Plan. Nonetheless, Mendelson was still able to develop his passion for the environment and sustainability efforts when he took a summer political science course taught by Senator Gaylord Nelson. The main idea that stuck with Mendelson was the importance of connecting factors in our society such as human health and the economy with the environment. From this relation, Mendelson recognized that he could amalgamate his interests of political science and international studies with the environment.

For the majority of the lecture, Mendelson recalled his time serving as co-counsel assisting the Massachusetts Assistant Attorney General in the Massachusetts vs. EPA case. His determination and persistence resulted in a 5-4 decision stating that all greenhouse gasses are air pollutants under the Clean Air Act and thus need to be regulated. He recalled that when the case started back in 1999, he had absolutely no idea that it would gain enough momentum to go to the Supreme Court; he remembers this experience to be one of a kind.

After discussing this significant court case, Mendelson focused on steps for the future. He warned us that, “The scale of what we have to do with renewable energy is monstrous.” He argued that the implementation of renewable energy sources such as wind turbines is crucial for our future, even if some habitats and forms of wildlife must suffer in the short term. Just how Mendelson learned about how the environment intersects with all aspects of our society in his course with Senator Nelson, he advocated this same interconnectedness with society and the environment when advising Colgate students on their future career paths. Mendelson advised that no matter what field a student enters, whether it is business, investment, or teaching, environmental issues must be addressed. He ended his lecture by encouraging all students to get engaged in some way since climate change will be our situation to deal with in the future. I know I can say on behalf of everyone that hearing from such a prominent and successful alumni was an extremely valuable and rewarding experience.

Elisabeth Muehlemann
Colgate Class of 2014

Water pollution is an issue that affects people all over the world in America, in Europe, in Africa and even in Hamilton NY. The Clean Water Coalition, a COVE-group, was founded in 2011 to raise awareness about water pollution and work with the Chenango Canal Association to maintain a section of the Chenango Canal. We were recently emailed by a woman from town asking us to help her get signatures for a petition to ban a pipeline that would run through Hamilton New York. This pipeline would bring natural gas from Pennsylvania to New York providing Colgate, Hamilton Central Schools, and the Memorial Hospital with the means to switch from fuel oil to natural gas.

Initially, we were very excited to support the petition and the banning of the pipeline, but as we continued to talk to professors, administrators and members of the community, the implications of the pipeline became more complicated and merit was found in both sides of this issue. I am going to let you decide your own opinion about the pipeline by giving you an outline of the arguments for both sides of the issue.

Individuals who are proponents of this pipeline are excited about the prospect of Colgate, the hospital, and the central school district having the ability to switch over to natural gas. Natural gas burns cleaner and more efficiently than coal and for the University specifically it would reduce our carbon footprint. Our oil burners are going to need to be replaced shortly so this is a perfect opportunity to transition to a cleaner energy option. The town of Hamilton is also taking into consideration the possibility of members of the town being able to tap into the pipeline and switch to natural gas. This pipeline will provide opportunities for major institutions and community members to make a switch to a cleaner and more locally sourced fuel which is a step in the right direction towards lowering our negative environmental impact.

While the pipeline has many benefits there are also some problems that it could create, that need to be taken into consideration as well. Natural gas is cleaner than oil but it still releases greenhouse gases into the atmosphere so it is not an entirely clean fuel. The use of natural gas would delay the switching of renewable energies such as wind or solar energy which would reduce our carbon footprint significantly. Further, the process of natural gas extraction, hydraulic fracturing is highly controversial so even though hydraulic fracturing wouldn’t necessarily be occurring in New York, it would be the process used to extract the natural gas we would be using. The company would need to ensure that they are communicating with the residents whose land the pipeline would run through and prepare them for the potential risks of the pipeline and informing them of all the positives and negatives that it would create.

Individuals need to make informed decisions and ensure they understand all sides of a situation before deciding how they feel about it, so that ignorance is avoided and people will respect each other and their environment. If you are interested in this topic I suggest you look up more information because the more knowledge you have the better equipped you are to raise awareness about the topics that you are passionate about.