

downstream

A NEWSLETTER FOR FRIENDS OF WILLIAM & MARY AND THE ENVIRONMENT

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COLLEGE ANNOUNCES THE JOY ARCHER MEMORIAL ENDOWMENT

Environmental Science and Policy benefits

The College's environmental programs have received two very generous gifts, both from the estate of former professor Joy Archer. With the funds, the College's Board of Visitors established the Mary Joy Archer Environmental Science Fund (the Joy Archer Endowment) at their meeting on February 3, 2005.

The endowment's principle will be preserved with interest from the endowment used for student awards to fund student/faculty research teams and for other special projects. Donations to the endowment can be added at any time and will directly benefit our exciting programs.

Joy Archer joined the faculty at William and Mary in 1968 as an activity-class instructor in the department of physical education for women. She became a full professor in 1983 in the kinesiology department, retiring in 1994 after becoming department chair.

Joy was an avid bird-watcher; involved in the Williamsburg Bird Club and was a board member for the Coalition for Quality Growth and the Historic Rivers Land Conservancy (now the Williamsburg Land Conservancy).

She was diagnosed as having amyotrophic lateral sclerosis—Lou Gehrig's disease—and died on July 4, 2002.

Professor Dan Cristol, bird specialist in the Department of Biology and a friend of Joy's, explained her gift this way. "Joy was a leader in the local birding community for many years, and she wasn't just into it for her own pleasure. She loved birds, but she wanted to give something back. She was always trying to organize conservation projects through the Williamsburg Bird Club."

"Some people love birds because they're beautiful. Joy loved them because they're bellwethers of the environmental problems we face," said Professor Cristol.

Joy Archer at a tree planting ceremony in her honor in October 2001.



MELLON FOUNDATION RENEWS COMMITMENT TO ENVIRONMENTAL SCIENCE AND POLICY AT W&M

With generous matching funds from the College, the Andrew Mellon Foundation renewed its funding of our Environmental Science and Policy program for the next three years, 2005-2008. The funding, totaling \$300,000, will enhance the undergraduate program in environmental science and policy. We used a similar grant from Mellon in 2001 to build our program from a curriculum composed of courses from other departments and an introductory and capstone course offered by a single professor (Greg Capelli in biology). Today, nearly two dozen faculty from nearly every division of the College—law, kinesiology, Hispanic studies, chemistry, math, School of Marine Science—economics, biology, philosophy, and geology—are now engaged in the program. In addition, our new capstone courses draw on environmental experts in our community who use case studies to teach about real issues. Students are declaring majors under the new program in record numbers. Majors are up from 17 in the class of

2003 to 29 in the class of 2005—a 70 percent increase in just two years. Minors are up from zero to nine in 2005.

“William and Mary is truly grateful for the generous support of the Mellon Foundation, and for this new opportunity to further enhance our program in environmental science and policy,” said Timothy J. Sullivan, president of the College of William and Mary. “Thanks to the Mellon Foundation’s support and the College’s matching commitment, we are emerging as a national leader in undergraduate environmental education and student-faculty team research.”

With the new monies the program will continue to develop new and exciting courses, provide greater opportunities for undergraduate research, and strengthen the program’s ties with the Virginia Institute of Marine Science. Most importantly, the new funding has allowed us to hire two new faculty—Matt Evans, an aqueous geochemist; and Maria Ivanova, an expert in international environmental policy and politics.

Matt and Maria are tremendous additions to our Environmental Science and Policy program and will offer new courses in the fall.

Geology Professor Greg Hancock leads a group of students on a fact-finding mission.



NEW STUDENT AWARDS ANNOUNCED

On May 14, 2005 our seniors received the first awards for students in the Environmental Science and Policy program.

Two academic prizes for students who have excelled in their environmental courses—one focusing on science and the other on policy—were honored. The awards honored academic achievement and students who have “contributed significantly to class dynamics and brought genuine intellectual rigor to the program.” Katie Andres, a biology and ENST major, received the Award for Academic Excellence in Environmental Science. Economics and ENST major Scott Johnson received the Award for Academic Excellence in Environmental Policy.

The Award for Excellence in Environmental Research honors a student who exhibits long-term (at least two semesters) excellence in research and demonstrates “a significant contribution to the inception, design, and analysis/interpretation of the project.” Biology and ENST major Breanna Korsman received the honor for her long-time research on marine community ecology with Emmett Duffy at William & Mary’s Virginia Institute of Marine Science (VIMS).

The Community and Environmental Service Award recognizes a student who has shown “significant, long-term commitment and achievement in community outreach and service.” Government and ENST major Darcy Newsome has worked for four years as an organizer of the Student Environmental Action Coalition (SEAC) and “Roots and Shoots,” an environmental education group on campus. Last year she served as one of two Sharpe Fellows, leading a group of six first-semester freshmen through the process of developing an outreach and service project with the Williamsburg/James City schools.



ENVIRONMENTAL PROGRAMS BLOOM AT W&M

New courses and faculty added

THE ENVIRONMENTAL

Just some of the pros who teach interdisciplinary ENST 101. L to R: Randy Chambers (biology), Dennis Taylor (marine science), Mark Fowler philosophy, Timmons Roberts (sociology), Rob Hicks (economics).



Both the Environmental Science and Environmental Policy majors have undergone substantial revisions and expansions. There will be a new core course (ENST 101), team taught by five core faculty and a series of guest lecturers, offered for the first time in the fall of 2005. New integrative second tier courses will give students experience addressing environmental issues and help them develop new skills.

Two offerings will begin this fall. First, Professor Greg Hancock and Tim Russell, our GIS specialist, will teach a GIS (Geographic Information Systems) in the Environmental Sciences. Professors Dennis Taylor and Jim Kirkley from VIMS will teach Marine and Environmental Science.

Next spring we will introduce one-credit seminars that will bring together top national and international environmental experts and

William & Mary faculty to discuss current, integrative environmental topics. We will invite three recognized experts, each from a different perspective or discipline, to present a formal lecture and host informal discussion sessions with students. Each seminar will focus on a specific topic. In consultation with program faculty, experts will assign primary readings and faculty will host a discussion class in the week before and following each visit. Each faculty member will host a discussion section of 10-15 students and assign a substantial written assignment that integrates the topic from several perspectives.

Professor Taylor is developing a new environmental issues workshop course that will launch next spring. With support from the College's service learning program, the Sharpe Community Scholars Program, Professor Taylor will supervise a team cohort-building community research project. Undergraduates will work side-by-side with students from the law, business, education and marine science schools.

THE FUTURE OF THE PROGRAM

We have identified priorities for the further development of our program, for which we seek internal and external financial support. In the coming years, we intend to establish:

- *Expanded course offerings in the humanities*
- *An annual student environmental research symposium*
- *Named student environmental awards*
- *Endowed student research scholarships*
- *Permanent local environmental internship and shadowing opportunities*
- *A student-led school outreach program*
- *Long-term, local environmental monitoring sites and programs to foster faculty-student integrative research*
- *Increased involvement in improving campus and community environmental performance*
- *A "Center for the Environment" with housing for students and space for integrative teaching and research*

PERSPECTIVES ON THE ENVIRONMENT

Students introduced to interdisciplinary approaches in ENST 101

Environmental Science and Policy (ENST 101) is the flagship course of the newly revamped environmental studies program, introducing students to the interdisciplinary perspectives on environmental issues. A year and a half in the planning by faculty members from across the academic spectrum, the core course is taught by faculty who represent marine science, sociology, biology, government, geology, philosophy and economics. During the semester, the class tackles three main environmental issues and examines them from different perspectives: pollution, ecosystems and the Chesapeake Bay, and biodiversity.

"You absolutely cannot view the environment in a vacuum," said Scott Johnson, a senior majoring in economics and environmental policy, of the introductory ENST 101. "In the last 30 years, the environment has become so politicized and weighted down by ideology that to study it in an academic setting provides a breath of fresh air. We get a number of highly specialized, unembellished perspectives so that even if we don't see the whole picture, we have an idea of what the most important parts are."

Sophomore Matthew Rowe, a Sharpe Community Scholar, took oceanography, marine science and environmental science in high school and was conversant with many of the issues the class studied. "I am a registered commercial waterman who crabs, gill nets and oysters," he said. "I am on the Bay all year round. This class and others like it give me a chance to learn and take my knowledge back home with me where each one directly affects the Chesapeake Bay."

"It's been an interesting kind of experiment in education. It's sort of the essence of a liberal arts education, embodying all kinds of thinking," said VIMS Professor Dennis Taylor, a co-teacher of the course. "I think the whole question of the environment is fundamentally a question about our place in the world," Professor Taylor continued. "It's a question of how we view ourselves and relate to other living things on earth. One of the things I am always trying to do is look for any kind of vehicle to get students to ask very basic questions about what their ideas are, where do they come from and how do they relate to the human condition."



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I’m so glad we did this project! It’s a very effective teaching tool to use classroom data to produce real-life, worthwhile results. Promoting community involvement is always appreciated--especially when it is tied into the crucial issues we discuss in class.

The report was released on April 19, 2005, at a press conference at the College’s Morton Hall. The study was reported on by the Virginia Gazette, the Daily Press, and the William & Mary News.

For further information go to:
faculty.wm.edu/jtrobe

STUDENT/FACULTY RESEARCH TRACKS CAR DEPENDENCY IN WILLIAMSBURG

Study provides directions for improved accessibility

A new report, developed by nearly 70 students and faculty in William & Mary’s environmental sociology class, looked at transportation accessibility and reasons for car dependency in the Williamsburg area. The study provides a lens on a critical national issue.

Teams of two or three students interviewed and measured behaviors of six different groups of people living in Williamsburg, each of which has relatively distinct transportation needs—single family home-owners, owners/renters of apartments and town homes, students, tourists, seasonal/migrant workers, and residents of retirement communities.

For three weeks in early spring, students scientifically observed transportation choices at 27 locations in Williamsburg, James City and York counties. Next they rated over two dozen neighborhoods in the region—from suburban Queens Lake and Governor’s Land to locations on and near campus—how easy or difficult it is to walk or bicycle. They interviewed 395 residents, students, tourists and seasonal workers.

The core finding was that the overall layout of Williamsburg essentially mandates a dependence on cars for transportation to most destinations. The lack of safe, efficient, and convenient transportation to and from these sites leaves the automobile as the only viable alternative for most residents.

Aside from the environmental effects of car dependency (like smog and runoff to the Chesapeake Bay), a car-dependent society is generally less physically active. Obesity and high rates of a series of physical ailments have been tied to the “inactivity epidemic.”

Residents were asked what improvements would be most important to them. Among the many responses were “access to public transportation,” “access to school, shops, work,,” “bike lanes” and “sidewalk improvement.” In particular, respondents called for local governments to “make it safe to walk,” “make roads safer for bicyclists,” add “more bus stops,” “more curb cuts” and “more street crossings.”

The project has led to a cooperative relationship between William & Mary students and Williamsburg Area Transport. During the summer, two students will study the transit needs of tourists and the large number of international seasonal workers who come to work in Williamsburg’s service industry and then develop outreach materials to inform visitors of local transit options.

“This research fills a gaping hole in what we know about Williamsburg’s citizens’ actions and their opinions on mobility,” said Stephanie Smith, coordinator, Active Williamsburg Alliance. “It’s inspiring that students are working on something that’s going to potentially benefit the community long after they’re gone.”

BRINGING UP BABY BLUE

Study details mixed blessings of development for bluebirds

Tradition tells us that the feisty little bluebird brings instant happiness wherever it goes. I can personally testify that there are few greater joys than to witness these striking birds raise a family of bouncing chicks and watch them take their first flight. Students in my lab experience this excitement every spring and summer, as we monitor an extensive network of eastern bluebird populations across the Williamsburg area. We are monitoring breeding bluebirds to get a handle on how human-induced disturbance and habitat change affects the health of local bird populations.

What have we found so far? The hard work of a dozen students over the last two years has uncovered some surprising results. One focus of our study has been whether conversion of woods and farmland to golf courses is hurting bluebird populations. After two years of monitoring, we discovered that golf courses attract a lot of bluebirds and adults raise more young in these nest boxes than on control sites (farms and recreational facilities). But the young that are produced on golf courses are scrawnier and less fit. This seems to indicate that living on a golf course for bluebirds, at least, is a mixed blessing—lots of neighbors but unhealthy young ones.

We are also studying the effects of human traffic and disturbance on bluebirds. Preliminary patterns, again,

suggest some intriguing results. Bluebird chicks don't suffer because of increased disturbance, but their parents do. In situations of high human traffic, parents maintain their feeding of the chicks but reduce their own self-maintenance behaviors—such as preening and feeding themselves. Like many animal parents will buffer their chicks from dangers in the environment at some cost to themselves.

We will be extending our work thanks to a five-year \$620,000 grant from National Science Foundation so that William & Mary math and biology students and interns from Thomas Nelson Community College can work together to model the long-term stability and survival of birds under increasing anthropogenic stress. We will conduct this research in collaboration with Professors Dan Cristol (biology) and Sebastian Schreiber (mathematics).

Students involved in this research to date are Jason Keagy '03, Thomas Grubaugh REU '03, Judy Che '04 and Mark Cathey '04, Charles Johnson '05, Katie Sprinkell '05, Jenny Philips '07, Caitlin Kight, Josh LeClerc, Holly Lang and Jeff Keiser (biology graduate students).

—by *John Swaddle*

STUDENT/FACULTY TEAM RESEARCH

Providing undergraduates with faculty-mentored research opportunities is a top priority at William & Mary.

Thanks to a combination of institutional resources, agency grants, and private support from individuals, corporations, and foundations, we have developed an extensive program of mentored undergraduate research in Environmental Science and Policy. Funding has come from the Mellon Foundation, the National Science Foundation, the U.S. Department of Agriculture, and the Environmental Protection Agency. The funding allows nearly 30 students to work on interdisciplinary research projects on environmental topics each year. Many of these students have published their work in scholarly journals, presented their work at academic meetings and to local governments and community groups. Faculty research mentors draw from a range of disciplines including

sociology, economics, mathematics, biology, geology, and marine science. Summaries of select projects can be found at www.wm.edu/environmental/Research/Research.html.





The whole question
of the environment
is fundamentally a
question about our
place in the world.

wm.edu/environment
757.221.2463

WHAT WE'RE ALL ABOUT

Producing active and literate environmental citizens, leaders, and problem solvers.

The Environmental Science and Policy program promotes multidisciplinary education and research to produce active and literate environmental citizens, leaders, and problem solvers. We emphasize the value of integrating knowledge and approaches from the natural sciences, social sciences, and humanities to generate a holistic understanding of environmental issues and policy making.

Our Goals are to:

- Promote interdisciplinary exchange and create research and educational opportunities among departments, schools, and programs with existing environmental interests.
- Provide multidisciplinary environmental education and research opportunities for students within the core strengths of a traditional Arts and Sciences curriculum, ensuring that they have the requisite skills, experience, and contextual grounding that will enable them to pursue a successful career after graduation.
- Develop greater awareness of contemporary environmental issues and promote sound environmental practices at William & Mary and within the local community, through service learning exercises such as interdisciplinary workshops and clinics that combine student learning with community outreach.



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