

Advanced Knowledge

Why do I go around the country saying William & Mary provides the best undergraduate education of any public university in the United States (or world, for that matter)? Because W&M combines the strength of a research university with the heart of a liberal arts college. We are extraordinarily successful at the crucial intersection between scholarship and teaching. At W&M these are not mutually exclusive enterprises. Our professors come here because they want to be great scholars and great teachers, and they understand the vital connections between these two callings.

Most folks I encounter know us for our exceptional teaching of all our students — undergraduate, professional and graduate.

Many people are quite surprised to learn we are also a research university with an impressive record of scholarship. Our research informs our teaching, provides the excitement of discovery and advances knowledge in ways important to society.

The Carnegie Foundation for the Advancement of Teaching has the prime system for classifying a university's research. Carnegie classifies W&M as a doctoral-granting research university with "high research activity." We achieve this without the normal array of large research centers. As in most areas at W&M, our research apparatus is lean. We don't have the deep bench found at most research universities, but we do have an exceptional first team. Our smaller size also leads us to collaborate across organizational boundaries, draw undergraduates into cutting-edge research and work closely with other universities.

Bradley Parks '03 wrote a senior thesis that grew into a book and launched an initiative to analyze the environmental consequences of development assistance at the level of individual projects. It turns out that no one was tracking the enormous global investments in international aid down to the project level in a format that would permit researchers to evaluate detailed patterns and impacts. Brad's undergraduate

research was the catalyst for an effort involving W&M faculty and colleagues elsewhere. That project has now evolved into a multi-institutional collaborative called "AidData" that tracks \$5.5 trillion in international aid projects and makes the data available online, openly, for anyone to review. The U.S. Agency for International Development (USAID) just selected AidData — and W&M — for a \$25-million award, the largest in W&M's history, to create the AidData Center for Development Policy (see p. 48). The project is a joint venture with two other universities — Brigham Young and the University of Texas at Austin — and two private companies — Development Gateway and ESRI. And Brad, the father of it all, is back with us as its executive director:

Daniel Schwab '12, like many W&M students in the natural sciences, got into research early and often, starting as a freshman in Professor Norman Fashing's entomology lab. He moved on to work with marine mud snails and was able to make some important contributions to the field of evolutionary biology, win a National Science Foundation fellowship and pursue his Ph.D.

Historian Lu Ann Homza teaches a fall-semester seminar in which her students learn how to read and decipher documents written in medieval Spain. For the spring semester, they go into archives in Spain and every student chooses — and researches — an individual topic. This is a splendid way to experience the rigor of individual scholarship and joy of discovery. Another historian, Legum Professor Scott Nelson, has explored the world of junk bonds, bundled mortgages and excessive debt, not in the 2008 crisis, but as a consistent pattern in seven American financial panics from 1792 to 1929.

This past fall the Bill and Melinda Gates Foundation selected a project proposed by Professors John Swaddle of our biology department and Mark Hinders of our applied sciences department as a Grand Challenges Explorations winner. John and Mark will continue their work on "sonic nets" technology, devices that emit sounds that temporarily disrupt the communica-



tions of birds near fields of ripening crops. This environmentally sound technique could prevent the loss of billions of dollars in food, with a real global impact.

Much of our research has a long horizon for practical application. In this category is the work of a number of our researchers, drawn from different disciplines, on the algae biofuel project. This is an ambitious initiative to use wild aquatic algae as feedstock for various biofuels. As a wonderful byproduct, the algae process will reduce aquatic "dead zones."

The extent of W&M's research in advanced physics is impressive. We have a cadre of physicists involved in some of the world's most advanced studies of neutrinos. Our newly renovated and enlarged physics facility, Small Hall, is no longer too small for its mission, and it now includes a high-bay lab that allows our physicists to construct detectors and other instruments to be used at Jefferson Lab, Fermilab and other such institutions.

Our strategic plan calls for us to become even more interdisciplinary, more globally engaged and more focused on learning in applied settings. Research is key to these efforts, while significantly enhancing the caliber of our teaching. W&M *really does* have the strength of a research university and the heart of a liberal arts college.

A handwritten signature in black ink, reading "W. Taylor Reveley III".

W. TAYLOR REVELEY III
President, College of William & Mary