COVER STORY:
New Virginia Initiative Explores ‘Green’ Energy

ALSO INSIDE:
Obesity Triggers for the Poor
Television Grows Up
Patently Wonderful!

Research activity at Old Dominion has grown exponentially over the last few years under the careful leadership of Mohammad Karim, seconded by our highly talented and capable deans and faculty. I would like to applaud them for having achieved the goals we set together of creating a culture that supports research at this university and of fostering the growth of strong research projects.

For many years, the university has followed a policy of selected excellence in target areas, all of which played on the strengths of this region: oceanography, aerospace engineering, modeling and simulation, and nuclear physics. It was natural and indeed important for us to work with the Jefferson Lab, NASA-Langley, Joint Forces Command and the ocean Lab, NASA-Langley, Joint Forces Command and the ocean that surrounds us.

This pattern, however, limited the possible participation of all colleges and colleagues, and the development of interdisciplinary research. Thus, to the formerly identified strategic areas, we added fields chosen to solve some of the major problems of the region and the world: health, education, transportation and sustainable resources. Supporting us all the way on this journey of excellence has been the Old Dominion University research magazine, Quest. This issue, in fact, marks the 10th anniversary of Quest, the ODU magazine dedicated to promoting the research, innovations and breakthroughs achieved by its fine faculty.

In this new issue, Quest continues to illuminate research being conducted in each of these strategic areas. The exciting work in the area of molecular and cellular immunology by Chris Pabuccus, our new dean of sciences, has revealed very promising results that one day may be useful in treating multiple sclerosis, osteoarthritis, abdominal aortic aneurism and organ transplant rejection. Qi "Harry" Zhang, a health economist from the College of Health Sciences, has focused on nutrition and possible links between obesity, the cost of food, and food assistance programs designed to aid low-income families. These two projects exemplify the fine work our researchers are now pursuing to solve some national and international health problems.

In the area of medical education, one of our modeling and simulation teams, led by psychologist Mark Scerbo and engineer Frederic McKenzie, partnered with Eastern Virginia Medical School to develop a virtual pathology stethoscope. The device allows future doctors to practice diagnosing circulatory and respiratory problems in a very realistic way before encountering a patient. This is a most effective and cost-efficient way to educate future physicians, nurses and medical workers.

Education is a process of transformation and William Judge, professor of business management, reflects on the distinction between management and leadership, a concept key to understanding the way to succeed in an age of change. This is certainly an excellent lesson. It goes beyond business and may be applied to many fields.

Old Dominion students were asked to write their own textbook for the course: "Social and Cultural Foundations of American Education." Their assignment represents an innovative way to teach and learn, involving students directly in a process that is explained here by graduate student Jamie Kaufman.

Education is also a matter of communication, and television is a medium that merits study for its influence on generations of viewers and for content that is known but not necessarily studied. Gary Edgerton has written a masterful work of encyclopedic breadth and incredible depth on the topic. Edgerton also has collaborated with fellow communications faculty member Jeffrey Jones to produce a new book about HBO. Together, these volumes contribute basic works of reference for all educators in the area of communications.

On the subject of sustainable resources, marine biologist Kent Carpenter's work on the marine diversity of the Indo-Malay-Philippine Archipelago has influenced the environmental policy of the Philippines and has attracted significant support from the National Science Foundation. Geochemist Patrick Hatcher's work with biomass, creating biodiesel fuel from algae grown in polluted waters, not only will benefit the quality of the water on our coast, but also will provide fuel by a process more efficient than those using other bio-sources such as corn or switch grass. Finally, transportation studies expert Asad Khattak is working with colleagues in modeling and simulation on emergency evacuation plans for the region. These impressive projects all contribute solutions to very practical, real problems while improving the lives of people in Hampton Roads and the world.

Whether they work in health, education, transportation or sustainable energy, Old Dominion faculty members' research is both outstanding and cutting-edge. The real-life results of their thoughtful experiments and writing will certainly contribute not only to our knowledge of ourselves and our planet, but also to direct applications that will make our world a far better place for future generations.

Sincerely yours,

Roseann Runte
President
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Opinions expressed do not reflect the official views of the university. For permission to reprint text from Old Dominion University’s Quest, contact the Vice President for Institutional Advancement, John R. Broderick: (757) 683-3152; fax: (757) 683-5513; e-mail: jbroderi@odu.edu
Holoparasite Research of ODU Team Featured in American Journal of Botany

The cover photo and a related article in the September 2007 issue of the American Journal of Botany was the work of botanists at Old Dominion University. Jay Bolin, a doctoral student in ecological sciences, took the cover photo, which is of the flower of an exotic root parasite, and is an author of the article.

Lytton John Musselman, Mary Payne Hogan Professor of Botany and chair of the Department of Biological Sciences, is Bolin’s adviser and a co-author of the article. Other authors are Kushan Tennakoon, a faculty member at the University of Peradeniya in Sri Lanka who was a Fulbright scholar and visiting assistant professor at ODU during 2004-06, and Erika Maass, a faculty member at the University of Namibia and adjunct professor at ODU.

In the article, the researchers produce new anatomical evidence about a rare holoparasite named Hydnora triceps that is found in semiarid regions of Africa and the southern Arabian peninsula. Bolin, who also has been mentored by Maass, photographed the rare flower of the parasite in North Cape Province, South Africa. The photo won the top prize last year in a national plant images competition sponsored by the Botanical Society of America.

Bolin’s dissertation research focuses on the pollination biology and taxonomy of the fascinating group of parasitic plants that includes Hydnora triceps. His photo shows two flowers that resemble footballs, each with an open seam revealing a bright pink interior. The flowers rise from the parasite body, which attaches itself to and takes nutrients from the roots of a shrub. In order to attract pollinating flies and beetles, the flowers emit an odor of rotting meat.

“One of the ways we locate the plants in this desert biome is by the intense, foul smell, because the flowers are often obscured by host foliage and difficult to see,” Musselman said.

Bolin called the appearance of the flowers “bizarre” and “almost extraterrestrial,” but added, “In fact, it is finely adapted for pollination in its arid habitat.”

Schlipphacke Gets Fulbright Award to Study Male Roles in Post-Fascist German Films

Heidi Schlipphacke, associate professor of German at Old Dominion University, has been granted a Fulbright Award from the German-American Fulbright Commission to support her research project, “Globalizing Gender: Post-Fascist Masculinities in German Film.” She will conduct her research over four months in 2008 in conjunction with her host institution, The Free University, in Berlin.

“My project will focus on the representation of masculinity in post-war German film, a topic that has to date received little attention from German studies scholars,” notes Schlipphacke. “Whereas Nazi cinema and the Nazi propaganda machine had produced a seemingly whole male ideal, masculine identity after 1945 encounters a taboo in German cinema.”

Schlipphacke received her doctorate in German literature from the University of Washington in 1999 and joined the ODU faculty in 2000. She teaches courses on modern German literature, language, culture and film. This year she will be on sabbatical from ODU to teach at Haverford College as a visiting associate professor before she travels to Germany in late spring 2008 to conduct the Fulbright-funded research.
Accelerator Physics Program on Fast Track at ODU

The university has gained three new physics professorships and created an accelerator physics group under an agreement with Thomas Jefferson National Accelerator Facility (Jefferson Lab) in Newport News. These additional resources enable Old Dominion to offer undergraduate and graduate instruction in accelerator physics. Only a handful of institutions in the United States have comprehensive programs in this field.

According to the agreement, the three new professorships must be filled from within the ranks of Jefferson Lab's Accelerator Division and the professors can devote up to one-third of their work time to professorial duties at ODU. Those chosen for the posts were Geoffrey Krafft, who has a doctorate in physics from the University of California, Berkeley; Jean Delayen, who has a doctorate in low temperature physics from the California Institute of Technology; and Hari Areti, who has a doctorate in high energy physics from the University of Ottawa.

"We are very excited about the opportunity to extend our partnership with Jefferson Lab into accelerator physics," said Gail Dodge, chair of the physics department and a nuclear experimentalist who does research at Jefferson Lab. "Accelerators are increasingly used in hospitals to deliver particle beams for cancer therapy, in addition to their more traditional role in providing beams for nuclear and particle physics research."

Dodge noted that accelerator physics is only one part of an interdisciplinary field. "Ultimately, we hope to expand this program to include chemistry, math and engineering, and form a center for accelerator sciences."

"Old Dominion has enjoyed an excellent relationship with Jefferson Lab," said ODU President Roseann Runte. "Together we have expanded knowledge of the universe through theory and experimentation. Americans can be proud of the cutting-edge research performed by this talented group."

Luisa Igloria Is on a Poetry Prizewinning Roll

Poetry prizes are piling up for Luisa Igloria, Old Dominion University associate professor of English.

Her poem, "The Clear Bones," won the 49th Parallel Poetry Prize for 2007 from the Bellingham Journal, which is affiliated with Western Washington University.

Igloria was chosen by former United States Poet Laureate Ted Kooser as the recipient of the James Hearst Poetry Prize for her poem "Venom." The Hearst prize is given by the North American Review of the University of Northern Iowa, the nation's oldest literary magazine. The judge selected "Venom" over almost 2,000 other entries.

Also in 2007, her poem "Descent" won the National Writers Union Poetry Contest.

"Kierkegaard's Fable," yet another example of Igloria's work, won the 2006 Stephen Dunn Poetry Prize of the University of Southern Maine literary journal, words+images.

Finally, a selection of Igloria's poetry won the Richard Peterson 2006 Poetry Prize of the Crab Orchard Review at Southern Illinois University, Carbondale.

Batten College Engineers in National Wind-Turbine Project

Researchers from Old Dominion University's Frank Batten College of Engineering and Technology are participating in a Texas-based project designed to increase the use of wind turbines for the production of electricity in the United States.

A $2 million award from the U.S. Department of Energy will help build a Lone Star Wind Alliance facility near Corpus Christi. Oktay Bayalir, dean of the Batten College and professor of aerospace engineering, is directing ODU's participation, which was announced in June 2007.

ODU engineers can assist the Texas project in several ways, Bayalir said. The school's Langley Full-Scale Wind Tunnel, the largest university-operated facility of its kind in the country, has provided ODU engineers with expertise that can be tapped for turbine design and operational tasks. Another asset is the university's Virginia Modeling, Analysis and Simulation Center (VMASC). Bayalir said he and other ODU engineers can build computational models of wind turbine prototypes and run virtual tests of them before they are built.
Do low prices for soft drinks and cookies versus higher prices for more healthful foods such as fresh tomatoes and avocados contribute to obesity among America's poor? Is there a correlation among food prices, obesity and national food assistance programs? These and other related questions are the focus of a research project headquartered at Old Dominion University's College of Health Sciences and funded by the National Institutes of Health (NIH).

Qi "Harry" Zhang, a health economist and assistant professor of community and environmental health, leads the research team on the $135,000 grant, which came as especially good news in the summer of 2007 for a College of Health Sciences that is striving to add a research focus to its traditional teaching focus. NIH is the nation’s largest non-defense research-and-development funding agency, and its acknowledgement of the college’s research capabilities is of major significance.

On the heels of the grant to Zhang, an agency with ties to the NIH announced an award of $50,000 to Gail Grisetti, ODU associate professor of community health professions and physical therapy. The money will support a two-day, international conference proposed by Grisetti to improve treatment strategies for adults who have lost lower limbs. Participants in the conference, scheduled for April 2008 in Hampton Roads, will include physicians, health science academics,
health care professionals and prosthetics manufacturers. Potential beneficiaries are people who lose lower limbs because of diseases, accidents or military conflicts.

"You know, our college is traditionally a teaching institution," says Zhang, "but I'd like to emphasize the new atmosphere to do good research at our college. From the dean's office to the departments, all levels try to respect research and appreciate research activities, which make a good environment for research faculty members. Continuous support from the university, the college and the departments is necessary to keep the good trend."

RESEARCH GROWS IN HEALTH SCIENCES

Several factors have come together to help promote research by the college's faculty, not the least of which was Andrew Balas' arrival in 2004 as dean, and the completion in April 2006 of the college's new Health Sciences Building, which is the former Technology Building renovated at a cost of $9 million.

Balas, a tireless promoter of research, was himself responsible for $10 million in externally funded community health research during the decade before he arrived at ODU. He previously was dean of the School of Public Health at Saint Louis University and Weil Distinguished Professor of Health Policy and director of the European Union Center at the University of Missouri.

The dean said that the college's research initiative would not detract from its traditional emphasis upon teaching. "In fact, one of the main reasons we are advancing research is for the purpose of strengthening teaching," he says. "In the case of Professor Griess's conference, it will bring experts to Norfolk who will provide a tremendous learning opportunity for our students."

The 82,000-square-foot new building more than doubles the college's research laboratory space, and it includes, for example, the country's only clinical facility dedicated exclusively to dental hygiene research. Says Balas, "This building energizes people. It lets us know that the university's administration and trustees believe in the future of our college."

Annual research expenditures at the college have grown from less than $100,000 per year in 2000 to nearly $900,000 today. During the past three years, submission of research proposals is up more than 360 percent and percentage of research awards is up almost 450 percent. Balas says momentum is building partly because of recent hires of Zhang and other faculty members who are research oriented. "But, also," he adds, "many of our longer-serving faculty members are switching gears and becoming successful researchers with external funding." Griess, whom he mentions as an example, has been at ODU since 1986. (See "Sampler of College of Health Sciences Researchers" on Page 7.)

PROJECTS LOOK INTO MAJOR HEALTH CARE ISSUES

The projects of Zhang and Griess address two of today's major health care issues.

Zhang's grant, which runs for the two years ending in mid-2009 and is titled "Price Effect on Diet and Obesity Risk of Food Assistance Program Recipients," will link data from three national surveys to study the effects of local food prices on food assistance program (FAP) participation, on FAP participants' dietary intakes and on FAP participants' body mass index. The work is likely to garner media attention because of its potential effect on government policy.

In hypotheses advanced by their grant proposal, Zhang and two colleagues suggest that participation in the federal food stamp program and other food assistance programs will be higher in regions where the cost of living is higher. They also believe their research will show that these FAP participants face an increased risk of obesity because the healthiest foods cost more than unhealthy foods. The long-term goal of the researchers is to identify the economic mechanisms that promote weight gain among low-income Americans.

"The proposed research is significant because identification of price effect on FAP participants' diet and health outcomes will have important policy implications," said Zhang, who joined the ODU faculty in 2005. "If, for example, FAP participants consume more unhealthy foods because of their lower price relative to healthy foods, the government should promote health education for FAP participants and provide subsidies to healthy foods to increase their consumption of healthy foods."

Co-investigators with Zhang on the FAP obesity project are Dr. Youfa Wang, a physician and assistant professor of human nutrition at Johns Hopkins' Bloomberg School of Public Health whose research focus is childhood eating behaviors and obesity, and Harold Pollack, associate professor and faculty chair of the Center for Health Administration Studies at the University of Chicago whose research focus is poverty and public health policy. Zhang, who has researched socioeconomic disparities and prevalence of obesity in the United States, has collaborated on other projects with Dr. Wang.
SODA POP IS CHEAPER IN THE SOUTH

Zhang conducted a related pilot study with research support from the U.S. Department of Agriculture’s Economic Research Service and Southern Rural Development Center at Mississippi State University. The pilot study found that the cost of food—including many popular unhealthy foods—is generally less in the South. Coca-Cola, according to the research, costs 7 percent less by average in the South than in the country as a whole. The preliminary work in the South indicates that lower costs of living do promote unhealthy weight gain. “This suggests that the cost of living could be an important factor that affects low-income populations’ food choices and other health behaviors that affect body weight,” the proposal to NIH asserts.

CONFERENCE TARGETS LOWER-LIMB AMPUTEES

Grisetti’s funding from the Agency for Healthcare Research and Quality allows her to plan a conference to meet a growing healthcare problem created in part by the leg injuries sustained by soldiers in Iraq or Afghanistan. “We will have discussions regarding soldiers returning from conflicts and have experts on hand who have extensive experience in this area,” she says. “We have no reason to believe that an amputee who is otherwise healthy should remain in a wheelchair. Representatives from the Walter Reed Medical Center will present efforts of the military to return wounded soldiers who have lost a limb to full function.” Her idea is to invite interdisciplinary conferees involved in the three principal phases of care for adults with lower-limb amputations: the pre-surgical phase, the pre-prosthetic phase and the prosthetic/rehabilitation phase. “I am seeking out the health care professionals who...
represent the best available in their specific disciplines," she says. "The conference format will emphasize how the phases are interrelated. "Selection of a specific surgical technique will impact options for selection of a prosthetic device; selection of a specific prosthesis will impact options for the physical therapy plan of care," she wrote in the grant proposal. "Such interdependence suggests the importance of collaborative patient-centered practice."

COLLABORATIVE TREATMENT AND THERAPIES FOR PATIENTS WITH LIMB LOSS

Treatment of lower-limb amputees lacks the collaboration that can deliver the latest and most appropriate surgical techniques, prosthetic technologies and physical therapies, Grisetti believes. Better practices are required because the need is so great, she adds. "Diabetes-related amputations are projected to increase and amputations resulting from military conflicts will contribute to the number of individuals in this group. The amputation of a lower limb produces a significant loss of functional ability and challenges the patient to redefine his or her role in the family and the community. "These challenges are particularly unique for the young, and typically healthy, military soldier. This population brings unique challenges that require re-evaluation of existing treatment approaches and determination of functional outcome measures specific for this population."

Holly Gaff, assistant professor of community and environmental health, studies the dynamics and control of infectious diseases using mathematical modeling and computer simulation. She has an NIH-funded career development award to develop a spatially explicit mathematical model of a tick-borne disease. Joined faculty in 2007.

Steven Morrison, endowed professor of physical therapy and director of the School of Physical Therapy’s research laboratory, has research interests in motor control and biomechanics. One focus is the effect of factors such as disease and aging on human balance control during posture and walking. Joined faculty in 2007.

Patricia Hentosh, professor of medical laboratory and radiation sciences, does proteomics research related to cancer cells, including studies of complex protein interactions designed to allow earlier detection and more effective treatment of lung tumors. Joined faculty in 2006.

Gianluca De Leo, assistant professor of medical laboratory and radiation sciences, is involved in research related to health and biomedical informatics and virtual reality. Joined faculty in 2006.

H. Anna Jeng, assistant professor of community and environmental health, studies genetic and environmental contamination, as well as environmental justice and health disparity. Joined faculty in 2004.

Richard Benjamin, associate professor and chair of the School of Nursing, does research in behavioral and mental health problems of children and adolescents and in outcomes of health care for the elderly. Joined faculty in 1989.

Martha Walker, associate professor and chair of the School of Physical Therapy, does biomedical studies in motion analysis and investigates factors affecting outcomes for inpatient rehabilitation facilities. Joined faculty in 1986.

Michele Darby, University Professor and eminent scholar of dental hygiene, has a broad-ranging research background focusing on topics such as workplace issues facing hygienists, dental-plaque-induced gingival disease and patient anxiety. Joined faculty in 1974.
UNBELIEVABLE

MARINE BIOLOGIST KENT CARPENTER IS FLOODED WITH GRANTS TO SUPPORT HIS FISH SPECIES RESEARCH
Kent Carpenter, an Old Dominion University marine biologist whose research in recent years has shed light on the remarkably high marine diversity of the Indo-Malay-Philippine Archipelago (IMPA), had a productive and exciting few weeks in mid-2007. The capping achievement was the $2.5 million grant he received in late June from the National Science Foundation (NSF) to expand the IMPA research. The Partnerships for International Research and Education (PIRE) award from the NSF will provide support over five years for scientists from 15 universities, including Duke, Penn State and NYU in the United States, and others in the Philippines, Indonesia and Malaysia. The Old Dominion University Research Foundation will administer the grant.

A main goal of the project is to determine why the IMPA has such rich diversity in fishes. New techniques in genetics and ocean current research will be put to use.

Carpenter was informed about the PIRE grant on Friday, June 29, one day after he got word that the NSF had funded another grant for which he is an investigator. Under this grant, which involves the evolution and diversity of Euteleostei ray-finned fishes, ODU will receive $383,000 over five years.

"I’m excited about both projects because they involve the three things I am most interested in: evolution of fishes, speciation in the marine environment and marine conservation," Carpenter said. The e-mails he sent to colleagues and friends on the last days of June were headlined, “Unbelievable,” reflecting his reaction to two awards in two days.

Money for Species Assessments

In response to the awards, Thomas L. Isenhour, the ODU provost, called Carpenter a “cutting-edge marine biologist” who is making major contributions to our understanding of systematics and evolution of marine fishes. Mohammed A. Karim, the university’s vice president for research, noted that even at ODU the
competition for PIRE support is fierce. Twelve teams from ODU originally made concept proposals, but only three can be entered from one institution.

The NSF awards came just a few weeks after the Global Marine Species Assessments (GMSA) project, which is headquartered at ODU and led by Carpenter, received a $1 million shot in the arm from one of its sponsoring organizations, the World Conservation Union. The GMSA also won worldwide media attention during the month from a warning it issued about the damage done to Caribbean coral by climate change, warmer waters and toxic runoffs.

Carpenter’s past work with the World Conservation Union and Conservation International has included a focus on waters near the Philippines, where he has documented the existence of a region that has the richest reef fish biodiversity in the world.

When President Gloria Arroyo of the Philippines signed an executive order Nov. 8, 2006, to strengthen environmental protections applying to waters of her archipelago nation, she was endorsing Carpenter’s scientific research. He has been doing research in and around the Philippines for nearly 30 years.

Scientists have established the fact that the entire Indo-Malay-Philippine Archipelago has extreme marine biodiversity, but much more needs to be known about the reasons for this concentration. In fact, the origins of this biodiversity that Carpenter has helped to catalog “remain one of the greatest evolutionary and biogeographical mysteries,” according to a project summary he wrote for the NSF. One reason, he suggested, is the “lack of a coordinated research and education effort focused on this question across the different countries and cultures of the IMPA.”

International Partnerships Overcome Roadblocks

Although the IMPA is the center of marine biodiversity, active research in this region is far less than that in the Great Barrier Reef and Caribbean regions, the summary asserts.

By joining forces, researchers from the United States and the IMPA countries can overcome bureaucratic roadblocks, cultural and linguistic differences and difficulties in identifying local collaborators that have plagued IMPA marine research in the past, the summary adds. The researchers will employ a novel multidisciplinary approach that combines geospatial modeling of ocean currents with comparative population genetics.

“Better understanding of the origins of marine life in the IMPA will lead to a better understanding of the evolution of biodiversity on the planet and how to safeguard this biodiversity,” according to the summary. The title of the $2.5 million grant is: “Origins of High Marine Biodiversity in the Indo-Malay-Philippine Archipelago: Transforming a Biodiversity Hotspot into a Research and Education Hotspot.”

The U.S. Peace Corps, which sent Carpenter to the Philippines more than 30 years ago for the volunteer assignment that sparked his interest in the nation’s marine environment, is a partner on the grant. So is Conservation International, which has supported Carpenter’s research in recent years.

For the other project, “Collaborative Research: Assembling Euteleost Tree of Life—Addressing the Major Unresolved Problem in Vertebrate Phylogeny,” Carpenter will work with scientists at eight universities to answer questions about the crown group of ray-finned fishes.

The 17,500 species of euteleosts include virtually all of the fish that are commercially harvested. Despite their popularity on the dinner table, however, the phylogenetic relationships among many euteleost taxa remain unresolved at the level of order, suborder and family, Carpenter said. By generating DNA sequence data for most of the species and comparing morphological characteristics, the researchers propose to advance scientific understanding of the evolution of fish diversity and to revise the systematics of euteleosts.

Educational aspects of the grant include the production of a fish diversity guidebook for upper-elementary and middle school students, and the development of a Web page at http://fishtree.org.
Learning About Leadership

BY WILLIAM Q. JUDGE
What Is Leadership?

While many people equate “management” with “leadership,” I see these two terms as both complementary skill sets and competing value orientations that help to explain a lot of organizational outcomes (both good and bad). Management is derived from the Latin word manus, meaning, “hand.” In contrast, leadership is derived from the Latin word laedere, which roughly translates as “to show the way.” In other words, management is about the efficient gathering and handling of resources within an existing order, while leadership has to do with bringing about effective change to a new order.

Since organizational efficiency is relatively easy to observe and measure and organizational change is relatively messy and unpredictable, most organizations emphasize management over leadership. As a result, individuals with management talent and skill are often attracted to and promoted within established organizations, while those with leadership talent and skill are often repelled from and/or overlooked within control- and efficiency-minded organizations.

This emphasis on management worked fine in the past when technological change was relatively predictable and competition was mostly domestic in nature. However, new technologies encourage rapid transformation of entire industries, and competition is increasingly global. As a result, many organizations need to make dramatic change, and that is where leadership comes in.

A Need for Leadership Skills and Character

To be an effective leader, one needs a certain set of skills, such as an ability to create and share an inspiring vision with others or the talent to challenge the existing order of things, so as to encourage followers to adapt and pursue purposeful change. These competencies are relatively rare within today’s organizations and are critical to organizational survival and success. However, an equally important and necessary element in leadership effectiveness is the leader’s personal character. Because charismatic psychopaths, such as Adolf Hitler, are certainly adept in gaining followers, we must also look at issues such as character and integrity when considering what makes a leader. I especially like the analogy that a person’s character is like a teabag: you don’t know what a person is made of until placed in hot water. Of course, both aspects of leadership are important, but we know so much less about leadership character than leadership competencies, and that is where I have concentrated much of my leadership research.

Ultimately, leadership is also relational. In other words, leaders never lead unless there are followers who voluntarily agree to follow them. Therefore, trust by the followers of a particular leader is essential. I might trust you if I think that you are intelligent and have some good ideas, but I might not commit to your path unless I think that you are a trustworthy person who will consider my well-being and that of others if I follow. In sum, character defines who we are and communicates to others whether we are just in this game of life for ourselves, or whether we have a larger perspective.
In my book, titled “The Leader’s Shadow: Exploring and Developing Executive Character,” I studied a wide range of chief executive officers (CEOs) within various business organizations to better understand their character and the effects of their personal character traits on the overall organization. I argued that their characters were formed by the confluence of three internal personal qualities - personality, values and spirituality. Based on a broad national survey of CEOs complemented by in-depth case studies of six CEOs, this book explored the leaders' roles and impacts on their organizations. Effective leaders were trusted, providing a source of competitive advantage in the marketplace. Given the common public perception of “me first” leaders, it is interesting that many CEOs drew deeply from their religious and spiritual traditions to make decisions and lead. For example, the first thing that one CEO of a highly successful mid-sized bank would do each day is get down on his knees and ask God if he should continue being a CEO or leave business and enter the ministry. Similarly, another CEO relied heavily on his understanding of Christian forgiveness to accept the role of CEO from a group of directors that had unfairly fired him months before. I also found that CEOs are eager to talk privately about the relationship between spirituality and character and leadership, but aren’t sure how to deal with this relationship publicly for fear of alienating their workforce and/or causing subordinates to insincerely imitate the boss’s professed faith.

But trustworthy leadership clearly doesn’t explain everything when it comes to controllable factors within an organization. In another research study, I found that strategic alliances that were created by trustworthy leaders, coupled with clear contractual expectations, performed better than just the presence of trustworthy leaders or a well-designed legal contract. Furthermore, my research shows that trustworthy leaders with good character and skills sometimes inherit impossible situations where the organization is in an irreversible decline. As such, effective leadership is necessary but not sufficient for organizational effectiveness. Despite this fact, most leaders (as well as managers) are given too much credit when things are going well and too much blame when things are not going well, what some scholars call “the romance of leadership.”

LEADERSHIP IN DIFFERENT CULTURES

In subsequent research, I sought to understand how the character of American CEOs compared and contrasted with the character traits of Taiwanese CEOs. The United States is a highly individualistic nation with deep Christian roots. Taiwan is a relatively collectivistic nation with Confucian roots. I found that character traits were quite similar on some dimensions and dissimilar on others. Specifically, both sets of CEOs gave priority to logic for making decisions as opposed to concern about how their decisions would affect other people. By way of example, most
CEOs would close down a plant if it were a logical business decision, regardless of the consequences to the people employed within the plant. However, the American CEOs were much more abstract and intuitive in their data collection process, while the Taiwanese CEOs were much more practical and detail-oriented. For example, the American CEOs were more comfortable making big decisions based on relatively small amounts of data by relying on their “gut”; the Taiwanese CEOs generally required lots of detail surrounding the strategic issue before coming to a conclusion about what must be done.

Similarly, both groups of CEOs claimed to value “honesty” above all else. This suggests that open and honest relationships are a key requirement for any successful CEO. However, American CEOs valued “self-respect” and “an exciting life” much more than their Taiwanese counterparts, and this implies that being perceived as wise and helpful is more important to executives than their American counterparts, and this implies that being perceived as wise and helpful is more important to executives in Taiwan. In sum, my research suggests there are some character traits that are universal to the role of CEO, and there are many other traits that are specific to the national social culture.

LEADERSHIP IN THE BOARDROOM

Leadership, however, is not limited to executives who serve in a formal leadership role within an organization. Independent directors serving on the board are increasingly called to “lead” organizations by providing objective advice to management, evaluating and monitoring management’s plans and activities, and helping to select future managers and leaders of the organization. In my research on boards, I have found that directors in nonprofit organizations are often much more involved, and hence provide better leadership, than directors in for-profit firms due to the greater probability of the directors’ alignment with the organizational mission in nonprofits. Having served as a director within a large health system for nearly a decade, I have seen firsthand just how dedicated volunteer directors can be in nonprofit organizations. In addition, I have found that directors with leadership character and skill can sometimes compensate for the weak institutional conditions in emerging countries, such as Russia where I served as a U.S. Fulbright scholar in 2001. Furthermore, in a research project funded by the National Science Foundation, I found that leaders created “goal-directed communities of innovation” while managers tried to manipulate scientists and technicians into being more creative within the biotechnology industry. For example, one highly creative and innovative biotechnology firm avoided selecting the best and brightest research scientists from the most prominent universities because it found that “prima donnas don’t collaborate well.” Alternatively, one struggling biotech firm relied heavily on stock options to motivate research scientists, even though these options did little to spur their creativity and work ethic.

FAITH AND LEADERSHIP

In my current research, I am exploring the relationship between an entrepreneurial leader’s faith and his or her approach to launching a new business from scratch. Much of the entrepreneurship literature talks about launching a new business as an act of faith, but no studies to my knowledge have systematically explored how the religious and spiritual tradition of an entrepreneur affects, or is affected by, a start-up business. To learn more about this relationship, I interviewed four individuals each month as they were in the process of launching a new business in 2006. There were two women and two men in my sample because previous research suggests that men and women differ in their approach to matters of faith, as well as their approach to entrepreneurship. Indeed, I am finding some fascinating differences between men and women, as well as between those with a more traditional “churched” approach to faith and those with a less traditional “unchurched” approach. I hope to analyze this data more thoroughly and publish my findings in 2008.

Leadership has been studied from many angles in the social sciences, and the literature is vast. For example, if one were to do a search on all studies that address the topic of “leadership” in the ABI/Inform database, the search would turn up more than 194,000 articles published over the past 30 years! Despite this fact, there is much yet to learn about the nature and effectiveness of leadership in new and established organizations. The seemingly intractable problems of balancing economic growth with environmental stewardship, striving to be both innovative and efficient, and the need to be globally competitive while being locally responsive, show that there is a dearth of leadership talent, for the “mess we are in” cannot be mitigated except by new and creative thinking and behaviors by current and potential leaders. The challenge will require the commitment of many in academic and in organizational life.
Chris D. Platsoucas, an immunologist who is known throughout the world for his contributions to our understanding of how the human immune system functions in health and disease, is the new dean of the Old Dominion University College of Sciences. He is also director of the university’s new Center for Molecular Medicine and professor of biological sciences.

Platsoucas came to Old Dominion in fall 2007 from Temple University, where he was since 1993 the L.H. Carnell Professor in the Department of Microbiology and Immunology, Temple University School of Medicine. At Temple, Platsoucas served as chairman of the Department of Microbiology and Immunology (1993-2006) and was founding dean of the College of Science and Technology (1998-2004). He was acting dean for two years and then was appointed dean of the college after two-thirds of the faculty wrote a letter to Temple’s president requesting the appointment. The letter called Platsoucas “an academic star, well recognized internationally as being at the frontier of research in a very hot field.”

Forty-six new faculty members in science and technology were recruited to Temple while Platsoucas was dean. Many are internationally known investigators with strong publication records and extensive peer-reviewed grant support that was transferred to Temple.

To facilitate interdisciplinary research and scholarship and to better achieve the educational objectives of the Temple college, Platsoucas was instrumental in the establishment of centers for advanced research and education in: biotechnology, neurovirology and cancer, biology, computer science and applied mathematics, information science and technology, advanced photonics research, bioengineering and biomaterials, and quantitative biology and biomedical mathematics. A Center for Science Education was also established.

Under Platsoucas’ leadership, the Temple science and technology faculty’s peer-reviewed research grant support jumped from $2.5 million in 1998 to approximately $18 million in 2004. “We were able to change the culture of the college with emphasis placed on research and research support in addition to educating undergraduate and graduate students,” Platsoucas said. “Also, the culture of the main campus of Temple has been substantially affected by these changes.”

Research Increased under Platsoucas’ Leadership

Platsoucas designed and implemented specific strategies to increase the recruitment and improve the retention of undergraduate science students at Temple. Enrollment of majors increased by 86 percent to 2,419 undergraduates between 1998 and 2004. At the same time, enrollment at Temple as a whole increased by 30 percent.

As chairman of microbiology and immunology in Temple’s school of medicine (1993-2006), Platsoucas increased research and training grant awards from $86,600 per full-time faculty position in 1992 to $452,700 per full-time faculty position in 2006. He strengthened the graduate program, raising the number of doctoral students to 44 in 2006, and he won renewal three times on first submission the T32 Training Grant from the National Institutes of Health (NIH) that supported the graduate program. Seven new faculty members joined the department while Platsoucas was chair, and all have developed strong independent research programs funded by the NIH.

An internationally recognized research investigator and scholar in the United States and abroad because of seminal research discoveries on the molecular and cellular immunology of human T cells, Platsoucas has authored or
Studies Focus on T Cells

He has studied the way T cells cause and maintain chronic inflammation in humans. T cells are white blood cells that typically protect against infection and disease and are essential to the human immune system. But in autoimmune responses, T cells can attack the body’s healthy cells and trigger diseases. The research lays the foundation for strategies against autoimmune diseases such as multiple sclerosis, osteoarthritis, abdominal aortic aneurisms, and against the human body’s rejection of organ transplants.

Platsoucas also has done research in the immunity against tumors and toward the development of tumor vaccines and other immunotherapy approaches, which someday may have broad use in the fight against cancer. Vaccines are designed to induce the immune system of the body to detect and destroy the cancer cells.

He often collaborates in T cell research with his wife, Emilia Oleszak, a neurevirologist, who also has joined the faculty of ODU’s Department of Biological Sciences. She had been an associate professor of anatomy and cell biology and assistant professor of neurology at Temple. She trained at the University of Texas Medical School in Houston, at Yale University and the Memorial Sloan-Kettering Cancer Center in New York City. Oleszak, whose doctorate in virology is from the Polish Academy of Science, studies the role of T cells in inflammatory demyelinating diseases such as multiple sclerosis.

"Exciting Times" for ODU College of Sciences

In a letter to the faculty, students, staff and other members of the College of Sciences, Platsoucas said: "These are exciting times for me to assume the leadership of the College of Sciences at ODU. The university is on the move, major milestones have been achieved the last few years. These include the designation of ODU as a Research Extensive institution. My overall objective as the dean of the College of Sciences is to continue creating and maintaining a strong academic environment, where students can learn, faculty can further develop themselves as scholars, and faculty and students together can discover new horizons. I very much value both research and teaching and strongly favor the creation/development of such a culture. The strength and the future of the college depend on the strength of its faculty and students. We are embarking this year in a major expansion of the sciences in the college."

A native of Athens, Greece, Platsoucas received his Ph.D. degree from Massachusetts Institute of Technology. Before joining Temple he held faculty positions at the University of Texas M.D. Anderson Cancer Center, where he served as Ashbel Smith Professor of Immunology and as Stringer Professor in Cancer Research. Also, he has held faculty appointments at the Memorial Sloan-Kettering Cancer Center and Cornell University Medical College.

Platsoucas serves on the editorial boards of a number of scientific journals. He has been a member of many national and international committees and review panels, including those of the NIH and the Department of Defense. He has been invited to present his work, and to serve as chair of many scientific meetings in the U.S. and abroad, and is a member of numerous scientific societies. Platsoucas has trained or is training more than 50 post- or predoctoral fellows in his laboratory. The majority of them hold academic appointments in the U.S. and abroad, and they are investigating the molecular and cellular properties of the immune system.

ODU’s Board of Visitors established the Center for Molecular Medicine on Oct. 1, 2007, six weeks after Platsoucas assumed his position as dean of the College of Sciences. A resolution adopted by the board stated that the center would allow ODU to take full advantage of Platsoucas’ "proven record of scientific discovery," as well as help him recruit funded faculty and obtain peer-reviewed grant support for research.
A Win-Win Renewable Energy Plan

ODU Scientists and Engineers are Leaders in Virginia’s Efforts to Create New Sources of Energy While Also Cleaning Up the Environment

BY JIM RAPER

Can wastewater reduce America’s precarious dependence upon fossil fuel? “We want to find out,” says Old Dominion University geochemist Patrick Hatcher.

Wastewater serves as the growth medium for algae in an ambitious new project of ODU and the Virginia Initiative Plant (VIP), a regional treatment facility at the southwest edge of the campus. Hatcher leads the group of researchers who have installed an experimental station atop the VIP and are hoping to show that biodiesel fuel made from algae can be commercially viable. This algae farming also has a beneficial side effect: it cleans potentially harmful nutrients from the wastewater.

The researchers will pump effluent at the VIP into Plexiglas algae growth chambers, and the oily biomass will be harvested and converted via a proprietary process into biodiesel fuel. “We know we can produce the biodiesel oil,” explains Hatcher. “The question is, can we produce it at a practical cost?” He expects the researchers to spend most of 2008 trying to prove that they can.

The biodiesel pilot project is an initiative of the new Virginia Coastal Energy Research Consortium (VCERC), which was funded with $1.5 million and headquartered at ODU by the 2007 General Assembly. Hatcher, who is the university’s Frank Batten Endowed Chair in Physical Sciences, is executive director of the consortium. He has earned an international reputation for chemical analysis of natural organic matter, and one of his areas of expertise involves the organic compounds and geological processes that create fossil fuels. (See Quest, Vol. 9, Issue 2, Fall 2006.)
Members of the ODU algae-to-biodiesel research team: Patrick Hatcher (center, holding a vial of biodiesel fuel) and (from left) Margaret Mulholland, Gary Schafran, Andrew Gordon, Aron Stubbins and Harold Marshall.

Photo: Glen McClure
Hatcher and ODU's College of Sciences Major Instrumentation Cluster (COSMIC), which he directs, will perform molecular studies on algae to better understand their potential for conversion to biodiesel fuel.

Altogether, about 15 ODU scientists and engineers are involved in the first slate of VCERC projects. They are focusing not only on biodiesel fuel production, but also on studies to determine the feasibility of wind turbine electricity generation off the Virginia coast. In addition to ODU, members of the consortium are Virginia Tech's Advanced Research Institute, the College of William and Mary's Virginia Institute of Marine Science, Norfolk State University, Hampton University, James Madison University, Virginia Commonwealth University and University of Virginia.

Prototype to Make 200 Gallons a Day

Hatcher is working on the algae-to-biodiesel project with an ODU team that also includes Margaret Mulholland, associate professor of ocean, earth and atmospheric sciences; Andrew Gordon, professor of biological sciences; Harold Marshall, Morgan Professor emeritus and eminent scholar emeritus of biological sciences; Aron Stubbins, research assistant professor of chemistry and biochemistry; and Gary Schafran, professor and chair of civil and environmental engineering. With the experimental alga farming station on the sun-drenched roof of VIP, the ODU researchers believe they can produce enough algae to net about 200 gallons of biodiesel fuel a day. A first task for Mulholland, Marshall and Gordon is to determine what species of algae will be most productive and oil-rich. To other team members falls the task of developing efficient technologies to harvest and transport the algae and convert it to biodiesel fuel at a reasonable cost.

ODU researchers have designed a test reactor that converts algae directly into biodiesel fuel without any intermediate step. The particulars of the system are secret, according to Hatcher, who hopes the procedure can be patented. But he does provide a general idea of how slimy algae can be transformed in less than an hour into a fuel that could power a tractor. "All of the oil in the world came from algae that settled out and was compressed over time, eventually becoming crude oil," he says. "Likewise all of our coal was once land plants that were similarly pressured over millions of years. If nature does it, why can't we grow algae and turn it into diesel fuel?"

In other words, ODU's proprietary process is one heck of a shortcut when compared to forces in nature that take millions of years to compress and convert the remains of algae and other vegetation into underground deposits of fossil fuels.

Already, the ODU researchers have shown that their process works, at least on a small scale. Vials of the fuel were presented in September to Virginia officials including Gov. Tim Kaine and Secretary of Natural Resources Preston Bryant, and to U.S. Rep. Thelma Drake, 2nd District of Virginia.

Proprietary Reactor is a Cost Saver

There have been algae-to-biodiesel projects in years past. But those early tries bogged down for several reasons, such as the expensive initial investment— as Hatcher calls them—"the pumps, pipes, tanks and such" of the algae production and conversion processes. "But sewage treatment facilities already have much of this infrastructure and working with them could be a real plus," he adds. Other hurdles in the past sprang from the biological and technological difficulties in large-scale production and harvesting of algae with reliably high oil content. Hatcher is trying to perfect a test that would quickly and easily guarantee that each batch of algae headed for a reactor has adequate biodiesel potential. The ODU team also is counting on its proprietary reactor scheme, which is streamlined and theoretically very cost-effective, to give them a design advantage.

Other efficiencies are expected from the Biodiesel Engine Laboratory that has been set up by ODU engineers. Robert Ash, associate vice president for research and professor and eminent scholar of aerospace engineering, leads the...
Group, which is studying biodiesel combustion in order to wring performance gains from engines and fuel. Holding up a 1-ounce bottle of the precious first biodiesel fuel produced under the VCERC project, Hatcher noted its resemblance to crude oil. "The oil right out of the ground requires refining to produce diesel and other fuels, and we may find that our product requires some refining, too, before it could be sold commercially."

Hatcher believes that any algae-to-biodiesel process that comes from VCERC probably can be successful in the marketplace even if it does not produce fuel that is as cheap as petroleum diesel. "Environmental trade-offs make biodiesel more practical," he explains.

By that, he means several things. The need for some sort of biofuel to ease Americans' dependence upon fossil fuels is broadly accepted now, and ethanol has come to be the dominant biofuel in the United States. Ethanol, however, is essentially white lightning made from corn, and, unlike biodiesel fuels, cannot be used full-strength in a standard engine. (A blend of about 10 percent ethanol and 90 percent gasoline is common at filling stations.) Also, corn is a food crop that requires the plowing and fertilizing of many acres of land. Algae farming, on the other hand, is expected to have less environmental impact and the use of the waterborne vegetation for fuel production would not take a bite out of the world's food supply.

**Algal Growth "Treats"**

**Water**

According to Mulholland, "The greatest green advantage of biodiesel fuel could come from the partnership between algae farming and wastewater treatment." As they grow in effluent, algae soak up undesirable nutrients and also take in carbon dioxide—the main greenhouse gas linked to global warming.

Full-scale algae farming at wastewater plants could enable the Hampton Roads Sanitation District (HRSD), which operates the VIP, to discharge water into local waters that is cleaner than regulations today require. To encourage overachieving such as this, the government allows entities such as HRSD to bank unused credits—also called discharge entitlements. These credits have a financial value because they can be traded or sold. So bottom-line costs for biodiesel production could be lowered if the production process helped a treatment facility to save discharge credits.

"HRSD is on the front line of protecting the environment, so this project is very exciting to us," said Norman LeBlanc, director of water quality for the sanitation district. "Cost-effective nutrient removal obviously is advantageous." But he also was quick to point out other advantages, such as the possibility that carbon dioxide from a VIP incinerator could be diverted to spur growth of the algae. "If we can remove nutrients, coupled with cutting carbon dioxide emis-
sions into the atmosphere, while we also decrease our treat-
ment costs and help to produce an environmentally friendly 
biodiesel fuel, this would be a very good outcome.”
LeBlanc said any discharge credits that could be 
banked by HRSD would be an added bonus. As one example 
of their value, he said that the banked credits could be sold or 
transferred to new industries that otherwise might be unable 
to locate in Hampton Roads. Regulatory caps for certain dis-
charges can keep out a new industry if a cap has been reached 
in a particular region and no credits are available.)

Scientists and Engineers
Study Wind Energy

Potential

The work at ODU on the wind turbine feasibility 
study is led by Larry Atkinson, who holds the Samuel L. and 
Fay M. Slover Professorship in Oceanography and is an emi-
nent professor of ocean, earth and atmospheric sciences; 
Shirshak Dhali, professor and department chair in electrical 
and computer engineering; and David Basco, professor of 
civil engineering and director of ODU’s Coastal Engineering 
Center.

George Hagerman, a Virginia Tech scientist, heads the 
VCERC’s wind-energy investigations. He told The Virginian-
Pilot in June 2007 that coastal Virginia has strong and con-
sistent winds to support wind energy and that the researchers 
were considering a site for a wind turbine farm that was 15 
miles offshore just above the North Carolina line.

ODU researchers on the wind turbine project are 
looking into factors such as wind force, ocean circulation 
patterns, weather and electricity transmission technologies. 
“We are gathering information to help state and federal gov-
ernments assess the potential benefits and risks,” Atkinson 
said. “And this information also could be used for industry to 
optimize design of the turbines.”

VCERC got off the ground thanks to the efforts of 
state legislators such as Sen. Frank Wagner of Virginia Beach, 
Delegate Phillip Hamilton of Newport News, Delegate Leo 
Wardrup Jr. of Virginia Beach and Sen. Edward Houck of 
Spotsylvania County. Hamilton calls the initiative “a small 
step in the direction of energy independence.”

Sen. Wagner Leads the Way

Stephen Walz, division of administration director for 
the Virginia Department of Mines, Minerals and Energy, 
said VCERC is fortunate to have Wagner leading the way. 
“His tireless efforts, as supported by Sen. Houck and 
Delegate Hamilton, are responsible for not only the creation 
of VCERC, but also its funding and early successes,” Walz 
said of Wagner. “Even more impressive is his passion for the 
topic. He is convinced and committed to developing and uti-
lizing these alternative fuel sources in Virginia and around 
the world.”

Roseann Runte, ODU’s president, says of the biodiesel 
project: “This would truly be a win-win solution: we could 
create healthier waters while producing an environmentally 
friendly fuel.” As for the overall project, she adds, “Our uni-
versity is excited about investing our expertise in the work of 
the Virginia Coastal Energy Research Consortium, and we 
are proud that the General Assembly asked us to be the host 
for the consortium.”

VCERC is part of the overall Virginia Energy Plan 
that the General Assembly adopted in 2006. For more infor-
mation about VCERC, visit www.vcerc.org.

Booklet Shows ODU
Energy Expertise

A 40-page ODU publication titled “Energy for 
Tomorrow” identifies energy-related faculty expertise and 
research projects. Seventeen faculty members are highlighted 
as experts in fields related to algae and biodiesel. Another 14 
are featured as researchers who can contribute to studies asso-
ciated with wind-generation of electricity.

Altogether, 55 members of the ODU faculty are iden-
tified in the publication as having expertise in energy 
resources, energy production, energy policies and environ-
mental issues related to energy.

To obtain a copy of the booklet, contact Aron Stubbins, assistant research professor of chemistry and bio-
chemistry, at astubbins@odu.edu.

Tanks on the roof of the VIP wastewater 
treatment plant began to produce algae in 
ODU RESEARCHERS WITH VCERC ROLES

Patrick Hatcher, Batten Endowed Professor in Physical Sciences, professor of chemistry and biochemistry and professor of ocean, earth and atmospheric sciences, is executive director of the Virginia Coastal Energy Research Consortium and a leader of its algae-to-biodiesel pilot project. (Postdoctoral researcher Zhanfei Liu and technician E. Adair Johnson are working with Hatcher.)

Margaret Muholland, associate professor of ocean, earth and atmospheric sciences, is assessing the value of wastewater effluents as sources of nutrients to spur algal growth. (Postdoctoral researcher Chris Burbage is working with Muholland.)

Gary Schafran, professor and department chair in civil and environmental engineering, is leading the design/production work on the algal growth chambers and harvesting equipment in the biodiesel pilot project.

Harold Marshall, Morgan Professor emeritus and eminent scholar emeritus of biological sciences, is evaluating the biomass potential of algae growing under natural conditions in regional waters.

Andrew Gordon, professor of biological sciences, is researching the biodiesel-fuel potential of natural and laboratory-cultured algae.

Aron Stubbins, assistant research professor of chemistry and biochemistry, is assistant director of VCERC and is involved in the algae-to-biodiesel project.

Han Bao, professor of mechanical engineering, is studying conventional methods of the conversion of biomass and vegetable oils into biodiesel fuel.

Robert Ash, associate vice president for research and professor and eminent scholar of aerospace engineering, is working with the Biodiesel Engine Laboratory.

Taj Mohieldin, professor of engineering and technology, is working with the Biodiesel Engine Laboratory.

Eric Koster, not pictured, a researcher with the Frank Batten College of Engineering and Technology and the university’s director of motorsports operations, is working with the Biodiesel Engine Laboratory.

Larry Atkinson, the Samuel L. and Fay M. Slover Professor of Oceanography, is involved in the coastal Virginia wind-turbine feasibility study, with specific interest in wind force and other climatology factors.

David Basco, professor of civil engineering and director of the ODU Coastal Engineering Center, is involved in the coastal Virginia wind-turbine feasibility study, with specific interest in the foundations for windmills installed at sea.

Shirshak Dhali, professor and department chair of electrical and computer engineering, is involved in the coastal Virginia wind-turbine feasibility study, with specific interest in transmission of electricity from offshore wind farms to mainland electricity users.

Jose Blanco, a research scientist with ODU’s Center for Coastal Physical Oceanography, is involved in the coastal Virginia wind-turbine feasibility study, with specific interest in physical processes in the coastal waters of the mid-Atlantic states.
Imagine all the predictable bottlenecks such as bridges and tunnels that would frustrate the evacuation of Hampton Roads ahead of a dangerous hurricane. Then factor in the unpredictable complications that come when a fearful, ill-prepared and irrational populace flees a storm. Wrecks happen, drivers run out of gas, debris and water block roadways, gridlocked cars are abandoned in the middle of the highway. Asad Khattak, the Batten Endowed Chair in Transportation Systems at Old Dominion University, studies worst-case congestion scenarios in order to keep them from happening.

Since coming to ODU’s Batten College of Engineering and Technology in 2006 from the University of North Carolina at Chapel Hill, Khattak has developed and directed the college’s Transportation Program, which has been ramped up to offer bachelor through doctorate degrees with options in transportation studies.

Khattak also has tackled research, and none of his projects is more momentous than a $300,000 study ordered by the Virginia Department of Emergency Management (VDEM) of the adequacy of emergency evacuation plans for Hampton Roads.

The transportation program is progressing as ODU administrators had planned, said Oktay Baysal, dean of the Batten College. “Old Dominion wants to be part of the transportation solution. We allocated an endowment and recruited a nationally renowned expert, Dr. Khattak.”

With the Hampton Roads evacuation study, Khattak is putting his expertise to use right in the university’s backyard. The study, which runs through the spring of 2008, is being administered by ODU’s Virginia Modeling, Analysis and Simulation Center (VMASC) and directed by John Sokolowski, VMASC research professor and director of research. It focuses on evacuations that are ordered when hurricanes are threatening the region and will address the aforementioned complicating incidents—wrecks, vehicles running out of fuel, and what have you—that have reduced the efficiency of hurricane evacuations elsewhere. Standstill traffic and blocked roads, for example, are what many Americans remember about evacuations in Texas for Hurricane Rita in 2005.

**Predictable Patterns of Congestion**

“A lot of evacuation plans do not really account for unanticipated incidents, the crashes, et cetera, that cause half of the everyday roadway congestion,” said Khattak. The other half of congestion happens even without unanticipated incidents at peak traffic flow periods such as workday rush hours and is called recurrent congestion. Because it can be anticipated, recurrent congestion is easier—but by no means simple—for planners and engineers to address.

If a high-category hurricane were headed for Hampton Roads and mandatory evacuation were ordered, the potential for congestion would probably develop in patterns we have seen before, Khattak said. “In a sense you are creating a recurrent congestion situation compounded by incidents.” In other words, an evacuation nightmare will be something like a tractor-trailer getting wedged in a tunnel just at the start of evening rush hour.

In an emergency evacuation, the congestion problems often are made worse than rush-hour tie-ups by motorists’ fears, indecision and plain old bad decisions. Khattak tells of evacuees who hitch their boats to their vehicles and load the boats with as many of their belongings as possible.
(Decisions such as this can put unnecessary vehicles, as well as debris, on the roads.) One example from a Florida evacuation was of a single family that insisted on fleeing in a caravan of several passenger vehicles and an RV towing a boat.

The work of Khattak and VMASC researchers will include an evaluation of baseline evacuation models, one of which is a general model that is widely used in the United States and another of which was prepared by the civil engineering firm that has done evacuation studies specifically for Virginia.

Then the work will bore in on Hampton Roads. A primary area of investigation revolves around the Safety Service Patrols (SSPs), the vehicles with yellow emergency lights that come to the aid of motorists who have run out of gas, had a flat tire or been involved in a fender-bender. SSP operations and their Hampton Roads incident reports over recent years will be scrutinized in order to identify patterns of interruptions in traffic flow. Questions to be answered might include: How quickly can SSPs clear up incidents and what is the relative advantage of having extra SSPs in certain corridors?

**Strategies for Evacuations**

Emergency managers in all Hampton Roads localities will be interviewed to collect data about recent traffic experiences during hurricane threats. The evacuation plans of these localities, including strategies for communicating with the populace, and channels of emergency response coordination between localities and agencies, will be evaluated. In addition, existing research will be mined for information not only about traffic, but also about the socio-economic factors and behavioral tendencies that might affect evacuation decisions.

Evacuation incident scenarios will be worked into models, and computer simulations will be run to frame overall evacuation planning and to identify the best responses emergency managers can employ to mitigate the effects of unanticipated incidents.

Khattak, who is the editor-in-chief of Science Citation Indexed Journal of Intelligent Transportation Systems, sees potential in the application of information technology to transportation systems. As such, he predicts that the ability of emergency managers to provide real-time information to evacuees just before they leave home and during their travel will be a critical element of a successful plan.

"Information is key, and especially given that we have greater and greater access to information," he said. "Communication through the Internet, cell phones and other electronic media has been a very effective strategy in difficult situations."

**Land Use as a Solution**

Khattak says he became fond of cars at an early age, primarily because of a road trip of several thousand miles from Germany to Pakistan that his family took when he was a boy. His father, a Pakistani military officer, had been posted in West Germany and had taken along his family to experience life in Europe. When time came to leave, the father bought a car and the family drove through Eastern Europe, Turkey, Iran and Afghanistan on their way home. "The route has not been safe since the Soviet Union's invasion of Afghanistan in 1979," Khattak explains. "But in those days it was safe and we had a nice car for the trip. It was such a nice journey." This left him with the abiding interest in cars, and his initial career goal was to build and drive cars. He switched
to transportation engineering, without relinquishing his mission to help people have safe and enjoyable journeys.

After receiving his master’s degree (1988) and doctorate (1991) from Northwestern University in civil engineering, Khattak held research positions at University of Oxford and University of California at Berkeley. He was on the faculty of UNC’s Planning Department from 1995-2006. During the past 15 years, he has authored 60 scholarly journal articles and 42 technical reports, and been an investigator for sponsored research and education projects totaling $3 million.

Some of Khattak’s other work relates to transportation safety and sustainable transportation. He has explored land use planning as a means of improving transportation system performance. One example is the neo-traditional residential developments which have a lower transportation impact owing to their higher densities, mix of land uses, and friendliness toward alternative transportation modes.

He admits that he was interested in coming to Virginia because he believes the transportation challenges here are generally greater than they are in North Carolina. He notes one study that rates the Washington, D.C., area including Northern Virginia as the third most traffic-congested region in the country and the Hampton Roads area as 31st most congested. “So the job at ODU represents a growth opportunity for me,” he says. “Transportation is a big issue in Virginia and it has come to be a high priority for the General Assembly.”
On the first day of Social and Cultural Foundations of American Education (EDC 301), a course offered by Dwight Allen of Old Dominion University’s educational curriculum and instruction department, students are introduced to a new style of collaborative learning. As a class, the students are given an unusual assignment: write your own textbook using online software known as a wiki.

Right now you may be thinking, “Excuse me? Students? Writing their own textbook?” I was definitely skeptical when first introduced to the process. Typically, experienced professionals write textbooks. The students in this course are, for the most part, young prospective teachers. Honestly, how could we be expected to write like an expert in the field of education?

On the other hand, my curiosity was through the roof! As a student in the course, I did, indeed, become a contributor—a co-author, if you will—to the second edition of the wiki created by Social and Cultural Foundations of American Education and hosted at the Web site www.wikibooks.org. This article will discuss the many dynamics that, through use of the Wikibook, set this class apart from any other I have ever encountered. The course is taking collaborative learning to a new level. Professor Allen and graduate students Yun Xiao, Mark Baker, and Patrick O’Shea, in their unpublished manuscript “Wikibook as College Textbook: A Case Study of College Students’ Participation in Writing, Editing and Using a Wikibook as Primary Course Textbook,” say that by using collaborative learning, individuals can understand other people’s perspectives and “engage in communication that functions to transform all parties involved.”

Not a Wacky Idea After All

BY JAMIE KAUFMAN
BACKGROUND

As wikis (like Wikipedia) gain popularity, it is important to accurately describe the landscape. A Wikibook is an online open-content textbook to which both teachers and students contribute. Following instruction from the teacher, students create and edit entries to the online books that can be used in the classroom for various purposes in many disciplines. Wikibooks require that their contents not be taken from previously published textbooks or annotated texts. Wikibooks are designed for freshly written articles with in-text references that are neither nonfiction, copyrighted nor original research, according to Wikimedia Foundations Inc. Anyone can register for free at the Wikibooks Web site.

In the summer of 2006 a team of ODU faculty, graduate students and undergraduates designed the format of the book for our ECI 301 course. It consisted of 20 chapters with approximately 135 subtopics covering an array of issues in American education. The subtopics were titled, but other than that, remained a blank slate. Through the Wikibook, students embarked on a collaborative journey during which they would write on a researched topic, read and edit each other's work, and finally, rate each other's articles.

With my 25-page ECI 301 syllabus in hand, I sat down and began to explore the wonderful world of Wikibooks. The syllabus explained the process of signing up for and posting an article. Interactive tutorials were made available on Blackboard (ODU's course delivery software package) to guide us through the process, and between the professor and our teaching assistants all of our questions were answered in detail. The support for this course proved to be outstanding, which was crucial for such a new project.

ARTICLE REQUIREMENTS

Each student's article is required to be 1,000 to 1,500 words long. Once we have chosen our topic, it is in our hands to determine what specific material the article will contain. For instance, I chose the subtopic, "How should teachers teach ethics?" It was up to me to decide what information about this topic would benefit prospective teachers.

Each student is required to cite at least five sources in the article. Two sources must be scholarly, two popular and one of the student's choice. A scholarly source is defined as "peer reviewed," and popular sources can be found anywhere on the Web — a personal interview, newspaper article, etc. All sources and the article as a whole should be credible. With a multitude of resources available from the library and its online databases, students today have an abundance of research and expertise at their fingertips. Plus, every student enters school with a wealth of knowledge and personal experience that can be readily applied to such a collaborative process.

As part of our assignment we are to devise five multiple-choice, application-level questions, as opposed to questions that can be answered by knowledge or recall. A tutorial on Blackboard gives us question-writing guidelines to follow. Fifty percent of the questions on our quizzes, as well as on the midterm and final exams, will be based on these student-devised questions, with the other 50 percent based on questions pertaining to class lectures. High-quality question writing is a useful skill for this particular project, but it's also a skill every teacher should possess.

To give the articles some flavor, students are required to add sidebars. These can be quotes, video clips, pictures, comics, graphs, etc. The goal is to break up the text of the article, so that it resembles a traditional textbook.

FEELINGS PRIOR TO WRITING

Though enthusiastic and interested in the assignment, I was also apprehensive, as I had never been a part of a project like this before. It had been a couple of years since I completed my undergraduate work and had written a research paper. I feared that my work would not be up to par with traditional textbook writing. I was also more than a little anxious that my work would be read by so many people — my peers, nonetheless.

By societal standards, I am considered a digital native. This is based on the fact that I was born during the time when computers were becoming accessible tools. Still, I do not consider myself technologically savvy, nor am I an advocate of adults or children sitting at computers all day. Even though I struggled at first with learning how to navigate through and interact with the Wikibook, each time I tried...
something new, I felt more and more like a computer expert. Really, I was creating my own Web page!

About three to four weeks into the course, our Wikibook article is due. In the meantime, we begin reading and rating the most successful articles from the previous semester. After we have completed and posted our research, we start to read and rate each other’s articles.

Grading

Using the rating buttons posted on the page of every article, we rate our peers’ work on a 5-point scale, specifically targeting importance, interest and credibility. As I mentioned before, I was extremely apprehensive about this part of the course. Since fellow students had never graded my work in the past, I was nervous not only about sharing my work, but also about their critiques. I felt they would grade my article more harshly and critically than a professor would. Plus, this would be the critique of an entire class, rather than that of one faculty member.

At the beginning of the semester, we were told that if we believe our grade (based on peer rating) is unfair, we can ask the professor to re-grade it in a more traditional way. I felt sure I was going to need such an appeal process, which would entail the professor and graduate assistants reading the article and deciding what they think is an accurate score. We were assured that we would not receive a lower score than the one determined by our peer group. In my course, only two students out of 192 complained about their grade. For the record, I was not one of the two. After review, the professor agreed with the peer reviewers, and the final scores for the two students remained the same.

All in all, I was impressed by the work of my fellow students. On average I rated them highly. Regardless of the topic, I rated articles lower in interest and importance if they were poorly written, disorganized, or if they did not include a sidebar. I also took points off in the credibility category if they did not provide the required amount of sources or if I felt that the information from their sources was inaccurate.

Comparisons to Traditional Textbooks

There are many perks to using this online textbook. According to the unpublished 2007 manuscript, “New Levels of Students’ Participatory Learning: A WikiText for the Introductory Course in Education,” written by Professor Allen together with O’Shea, Baker and Daniel Curry-Corcoran, due to our ability to access information from the Internet, teachers have been able to supplement out-of-date text with up-to-the-minute, groundbreaking research. They further note that, through use of the Wikibook, students have become “consumers of knowledge,” as well as collaborators in the development of this knowledge.

The textbook previously used in Social and Cultural Foundations of American Education cost about $100. That’s a lot of money for a college student. The only book students in this course are required to purchase now is a $15 paper-back written by Professor Allen.

Another benefit of the course is that using an online textbook is a responsible approach for an environmentally focused generation.

Likewise, today’s students enjoy working on computers. It comes naturally to them. One student interviewed during the production of the course’s first Wikibook said, “Sometimes after [the professor’s] lectures, I go on to the Wikibook and see what it says about [the professor’s] lecture topic. I’d never do this with a regular textbook, because the computer is so much more convenient.”

Another student stated she believed the Wikibook to be more current than traditional textbooks. She went on to say, “It’s more valuable for people who are planning to teach in the near future to have information that’s new – that hasn’t been sitting on the shelf for years like some textbooks.”
A third student, quoted in “Wikibook as College Textbook,” commented, “Articles are short and easy to understand. I can sit down and easily read a bunch of Wikibook articles and not spend too much time on it. When I’m reading a textbook, it is not broken down into small sections, and I always find myself referring to a dictionary every other page just so I can understand what the textbook is talking about.”

**Development of Critical-Thinking Skills**

According to surveys administered at the end of the first course, 57 percent of the students agreed that the Wikibook process helped them develop their critical-thinking skills; 30 percent were neutral. From my perspective, using the Wikibook in Social and Cultural Foundations of American Education allows students to create, evaluate and analyze the content, and also to apply, understand and remember the information and skills to which they are exposed.

**Final Thoughts**

To speak frankly, this is the first time I had read the majority of a college textbook. My peers and I share a sense of ownership of our wiki textbook. As noted in the “Wikibooks as College Textbook” manuscript, “students actively define their personal learning needs” and find the best way that these needs can be met. My experience has proven this to be true. During this learning process, the manuscript further notes, the “instructor changes his or her role from that of a controller to that of a sharer.” The professor and the students of ECI 301 will forever be a part of what was taught during the course.

In the end, I found this course to be (take a deep breath) refreshing! Even after four years of undergraduate courses, this was by far the most innovative class I have ever taken. The Wikibook was, and continues to be, a conversation piece among my friends and family. I believe that the development of a Wikibook is a positive approach to the social and cultural foundations of a 21st-century education.

Jamie Kaufman is a master’s student in prekindergarten-to-6th grade education at Old Dominion University’s Darden College of Education. A Norfolk native, she enrolled in the program after earning a B.S. in Human Services from Virginia Tech. She plans to finish the master’s program in December 2008 and begin teaching in Hampton Roads. Her long-term goal is to get a doctoral degree in early childhood education. After completing ECI 301—the “Wikibook” course—she was hired as a graduate assistant for the course under the supervision of Dwight Allen, professor and eminent scholar of curriculum and instruction.

Photo: Rich-Joseph Facun
Pick any major historical event during the past 60 years and chances are you witnessed it happening on your television screen. April 3, 1956: a young man who looked and sounded like the wave of the future, Elvis Presley, makes his first television appearance on the Milton Berle Show. November 22, 1963: Walter Cronkite announces to Americans that their young president was assassinated in Dallas, Texas. February 9, 1964: a British pop band called The Beatles appears on the Ed Sullivan Show. July 20, 1969: Neil A. Armstrong steps on the moon’s surface. August 18, 1974: President Richard Nixon addresses the nation and announces his intention to resign from office.
Aside from their historical significance, these events were memorable because they represented a significant development in the cultural landscape of the time—the ability of Americans across the country to participate collectively in a singular event in real time. The television set, which has become a ubiquitous fixture in most every American household today, had generated a shared consciousness that transcended economic and social strata.

Recognizing the important influence of television on American culture, two Old Dominion University professors have written books that examine the historical significance of television programming.

Media historian Gary R. Edgerton, professor and chair of the Department of Communication and Theatre Arts, has written "The Columbia History of American Television," which was published by Columbia University Press in September 2007. His book traces the technological developments of television and its growing cultural relevance in our society from the 1930s and 40s through present day, concluding with a look at the new forms of instantaneous communication and the ways in which they shape our social, political and economic landscape.

Edgerton, along with Jeffrey P. Jones, associate professor of communication and theatre arts, co-edited another work, "The Essential HBO Reader," published by the University Press of Kentucky for release in January 2008. "The Essential HBO Reader" takes a comprehensive look at one of cable television's most innovative and popular networks, examining HBO's development as a corporation, a creative voice and a brand. For this work, the authors assembled a veritable dream team of television scholars to contribute analysis and detail to HBO's nearly 40-year history and its profound influence on the entertainment industry.

Taking television seriously

Listening to Edgerton and Jones discuss television, it is clear they are passionate about their subject and quick to defend the medium against the hackneyed complaint that there is "nothing but garbage" to watch.

"Descriptions of television run the gamut, and a lot of them are pejorative—terms like 'boob tube' and 'chewing gum for the mind' and that we're wasting our time watching TV. When you're talking about programming 24/7, 52 weeks a year, then obviously there's a lot of dross on TV," Edgerton concedes. "On the other hand, there are wonderful things on television all the time, too. So if you watch proactively and you schedule what you watch … you can get a lot out of it."

"The Columbia History of American Television" examines "how television programming has evolved, how it has become more sophisticated, more challenging as an art form," Edgerton adds. "I would pose it [television] as being as accomplished as the best movies you see. Some of the best television programs—" "The Wire," for example—are as good as the best novels that are out now."

In the preface to "The Columbia History of American Television," Edgerton reflects on the historical significance of television in America: "No technology before TV ever integrated faster into American life. Television took only 10 years to reach a penetration of 35 million households, while the telephone required 80 years; the automobile 50; and even radio needed 25. By 1983, moreover, the representative U.S. household was then keeping the TV set turned on for more than seven hours a day on average; two decades later this mean was up to eight hours a day and counting."
Historical-critical studies are lacking

Despite television’s prevalence in our lives, few of us stop to consider the influence it has on how we think and perceive the world around us. “The central paradox of the last 60 years is that the flow of television images and sounds has been torrential, while our historical-critical understanding of TV as a technology, an industry, an art form, and an institutional force has largely been a peripheral concern for most people,” Edgerton contends.

Despite having to address a multitude of historical events, Edgerton manages to present the material in an intelligent and engaging manner. Ken Burns, producer and director of the recent PBS documentary “The War,” describes “The Columbia History of American Television” as “an accessible and compelling narrative of the complicated forces that went into creating our most enigmatic of mediums.”

The book begins with a look at television’s prehistory and the laying of the first telegraph line in 1844, which gave rise to the idea that images and sounds could be transmitted over long distances. Edgerton then considers how television’s look and purpose evolved during the Network Era (1948-75) and the part TV played in the transformation of postwar America. The birth of prime time and cable ushered in the Cable Era (1976-94) along with the exportation of American culture as a result of television’s foray into the international market.

Edgerton concludes “The Columbia History of American Television” with a discerning look at the current Digital Era (1995-present): “Unlike any other medium before it, the Internet was global from the outset. Even though the roots of the Internet date back to the late 1960s, it wasn’t until 1995 that it actually caught on with the general public in the United States when the World Wide Web (a hypertext-based information retrieval system) became widely accessible through Netscape’s graphical browser. From that point onward, the Internet grew faster than any other communication medium in human history.”

Whereas “The Columbia History of American Television” takes a historical look at television, “The Essential HBO Reader” strives to spotlight what many consider to be the gold standard of television programming today.

Young scholars contribute essays on HBO

Jones agrees. “It’s an extraordinary network, but since there are few other academic works analyzing it, there was obviously a dearth of scholarly criticism and commentary on it.” For this very reason, Edgerton and Jones succeeded in bringing together both established and young, up-and-coming scholars in television studies to contribute essays for the book.

“It was a wonderful time to do it,” Jones adds, “in particular, because there was this commentary that since ‘Sex in the City’ had left and with the ‘Sopranos’ imminent demise, HBO had lost its footing and somehow HBO was like the other networks. I think from Gary’s and my perspectives we recognized that most people don’t understand how different of a network it is, including its profitability, but also what an innovator it is beyond what everybody is so familiar with. (Innovative programming) is just one component of what they do, and they do it well, but just as cutting-edge are the documentaries and other dramatic programming, including shows like ‘Band of Brothers’ and ‘Angels in America.’ To call attention also to the sports programming and comic programming that it has revolutionized— that’s what we wanted to do.”

As noted in the book’s introduction, the founding of HBO “was a harbinger of something new and innovative that was happening to television as an industry and a technology during the early-to-mid 1970s.” The original concept for HBO was to feature subscription television service that primarily would offer first-run movies and sporting events. It was based on a different economic model than the one followed by CBS, NBC and ABC, their affiliates, and the country’s independent stations, which all sold specific audiences—most recently tar-
getting young, urban, professional viewers above all others—to sponsors. "Unlike this advertiser-supported system, HBO's subscriber format focused all of the channel's attention on pleasing and retaining its viewing audience. HBO and the other 45 aspiring local and regional pay cable channels then trying to survive in America's media marketplace were shifting the center of gravity in this sector of the television industry away from advertisers and more toward serving the needs and desires of their monthly customers."

Programming stronger without advertisements

Both Edgerton and Jones agree that HBO's lack of dependence on advertisers promotes the creative energy that exists at the network, and gives it a competitive advantage. Because HBO programs do not have commercial interruptions, the creators of these programs do not have to limit the narrative development to six- or eight-minute segments. Instead they have the flexibility and freedom to develop dense and complex narratives that have pushed higher the art of television, according to Edgerton.

"People watch these shows differently than they watch most television," he explains. "Whereas [most] television is on as background noise—you're talking, you're doing housework, you're cooking, you're eating, you're checking your e-mail—with these shows, because they are so dense and the narrative is so complex, you do have to pay attention for the hour or so that it is on."

Edgerton points out another effect that advertising has on regular broadcast programming: "If you take the top 10 shows... and consider the number of product placements over the course of the season, you're talking 8,000 product placements." The implication is that regular broadcast producers and directors have to be concerned about how to work a product into a shot, whereas HBO has the luxury of not worrying about those considerations and instead can focus on the story narrative.

The end result is better-quality programs. In fact, as Jones and Edgerton point out, HBO typically walks away from the Emmys and Oscars with numerous awards, not only for its dramatic programming, but also for its social documentaries. The network has even become known as the home of stand-up comedy, replacing the late-night television talk shows as a comedian's primary television venue for making it big in show business.

How the traditional broadcast networks or an enterprise such as HBO will continue to evolve in an era of digital communications is anybody's guess, but the question is part of the appeal for television historians.

For scholars in the field of television studies or for educated readers interested in the subject of television, each of these books promises to inform and engage with accounts and commentary about how television influences the way we think about ourselves and our culture.
Postscripts

**Physics Research of ODU's Hyde Wins Support of French Government**

A leading research agency in France has selected Old Dominion University physicist Charles Hyde (Quest, Vol. 2, Issue 1, 1998) for a program that arranges collaborations between French researchers and elite foreign scientists.

Under the appointment, Hyde will take a primary role in research projects at the Laboratoire de Physique Corpusculaire (LPC Particle Physics Laboratory) in the central French city of Clermont-Ferrand. LPC is affiliated with l'Universite Blaise-Pascal, which already has a cooperative agreement with ODU.

The collaboration is sponsored by the “Chaire d’Excellence” program of the Agence Nationale de la Recherche. Only five awards were made in the past year, covering all disciplines of science at all French research institutes. Hyde was selected as a committee member of the Intimate Partner Violence Hospital Policy Development Group of the Virginia Department of Health.

**Two State Appointments Go to Plichta**

Stacey Plichta (Quest, Vol. 9, Issue 2, 2006), professor of community and environmental health, was appointed to the Governor’s Commission on Sexual Violence and selected as a committee member of the Intimate Partner Violence Hospital Policy Development Group of the Virginia Department of Health.

She also received the Great Science for Better Health Award from ODU’s College of Health Sciences.

**Gheorghe Makes Headlines with Terrorist Threat Simulation**

Any terrorist group or rogue nation with access to intermediate-range rockets could mount an attack on military or civilian satellites, according to an article by Adrian Gheorghe (Quest, Vol. 10, Issue 2, 2007), a critical infrastructures expert on the engineering faculty of Old Dominion University. The article has been the basis of news reports worldwide.

Widely available computer utilities and instructional material in textbooks could make the rocket attack possible by anyone with a modest infrastructure and proficiency with space vectors, the article asserts.

Gheorghe, the Batten Endowed Chair in Systems Engineering at ODU, wrote the article together with Dan Vamanu of the National Institute of Physics and Nuclear Engineering in Romania. It was published in the spring 2007 issue of International Journal of Critical Infrastructures.

The authors make the case for placing deliberate satellite sabotage higher on the security agenda. They say the threat extends to satellites used for global positioning, weather monitoring, television broadcasts and other communications, as well as for strictly strategic purposes.
"Figs, Dates, Laurel, and Myrrh: Plants of the Bible and the Quran," the new book by Lytton John Musselman, ODU's Mary Payne Hogan Professor of Botany and chair of the Department of Biological Sciences, was published in the fall of 2007 by Timber Press. The lavishly illustrated edition celebrates more than 100 plants—ranging from acacia, the wood of the tabernacle, to wormwood, whose bitter leaves flavor absinthe—that are named in the Old Testament and New Testament, including the Apocrypha, and the Quran.

Musselman has studied plants of Biblical lands for three decades and has published several books, including "Jordan in Bloom – Wildflowers of the Holy Land" (2000), commissioned by Her Majesty Rania Al-Abdullah, Queen of Jordan. For more information about the new book, visit www.timberpress.com and do an "author" search for Musselman.

Dennis Darby (Quest, Vol. 1, Issue 1, 1997; and Vol. 9, Issue 1, 2006), a paleoclimatologist on the Old Dominion University faculty who has made more research trips to the Arctic Circle than he can count on his frostbit fingers and toes, participated in an International Polar Year expedition in August and September 2007 that may be his most interesting visit ever to the frozen north.

The expedition was of special import because of concerns about global warming, and because countries bordering the Arctic region are eager to accomplish the bottom mapping necessary to stake claims to undersea regions of the Arctic Ocean.

As a paleoclimatologist, Darby was more than happy to tag along. He is interested in sediment from sea ice and the ocean bottom that holds secrets about weather patterns going back millions of years. Weather trends in the Arctic have a major impact on weather elsewhere in the Northern Hemisphere, and scientists are eager to learn how much, if any, of the current global warming has been caused by predictable weather cycles rather than mankind pollution.

The ODU professor of ocean, earth and atmospheric sciences participated aboard the Swedish icebreaker Oden in the LOMROG expedition, so called because it involved work along the submerged Lomonosov Ridge off Greenland. A new nuclear-powered Russian icebreaker also was involved.

Russia is among the nations trying, under the United Nations Convention on the Law of the Sea, to claim huge amounts of Arctic Ocean territories where it someday can accomplish deep-sea oil drilling and mining. Geological evidence must back up the claims and that is where scientists such as Darby come in. He said his LOMROG expedition was organized in part because of Denmark's desire to lay claim to the ocean bottom off Greenland (which is a territory of Denmark).

Marine Geologist Darby Spends Summer in Frozen North

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A virtual pathology stethoscope invented by a team of researchers from Eastern Virginia Medical School (EVMS) and Old Dominion University's Virginia Modeling, Analysis, and Simulation Center (VMASC) has been licensed to a Texas-based company, Cardionics Inc., that manufactures medical diagnostic and teaching equipment.

The Virtual Pathology Stethoscope, or VPS, is a training device that can simulate the sounds of a human body's circulatory and respiratory systems. It will be an important addition to the products offered by Cardionics, according to Keith Johnson, president of the company. Cardionics specializes in technologies related to auscultation, which is the art of listening for sounds made by the body's internal organs.

The invention is the first licensed product to emerge from the National Center for Collaboration in Medical Modeling and Simulation, which is a joint venture of EVMS and Old Dominion University. Thomas W. Hubbard, M.D., professor of pediatrics and director of the EVMS Office of Professional Development, leads the team of inventors. His top collaborator at VMASC is Frederic McKenzie, an ODU associate professor of electrical and computer engineering.

The VPS is designed to be used in tandem with a standardized patient (SP). Medical schools increasingly train doctors-to-be by using SPs, who are actors skilled at pretending to be sick. Working with SPs, medical students improve their interviewing skills and gain the medical judgment they need to diagnose ailments.

But when a medical student puts a conventional stethoscope to the body of the SP, the typically healthy sounds heard don't match the illness the SP is portraying. The VPS substitutes abnormal sounds for healthy sounds, so when the student puts the augmented stethoscope to the SP's body, the sounds provide evidence that can support the diagnosis. The sounds the teaching stethoscope plays are recorded from actual patients who have a variety of diseases.

ODU and EVMS joined forces in 2003 to form the national medical modeling and simulation center, which has attracted funding from several sources across the nation including the Stemmler Medical Research Fund of the National Board of Medicine, which funded the research that resulted in the stethoscope patent license. The two institutions signed a Memorandum of Understanding in August that strengthens cooperation between them for instruction and research.

"The VPS is one example of the potential of medical simulation to improve the training of medical and health professionals and, ultimately, to improve patient safety," said C. Donald Combs, Ph.D., who leads the medical modeling initiative at EVMS. Combs and Mark Scerbo, professor of human factors psychology at ODU, are co-directors of the national center.

The project team also includes John Ullian, Gayle Gliva-McConvey and Robert Alpino of EVMS, and Hector Garcia, Reynel Castellino, and Bo Sun from ODU/VMASC.
At left, Roseann Runte, president of Old Dominion University, and Michael McGinnis, executive director of ODU’s Virginia Modeling, Analysis and Simulation Center (VMASC), join with other university and community leaders, including Deborah DiCroce, president of Tidewater Community College and an ODU alumna (fourth from left), to formally open the new VMASC headquarters and Tri-Cities Center at the Portsmouth/Kelso border. The ribbon-cutting was Nov. 17, 2007, and just a few weeks later a regional economic study provided fresh evidence of VMASC’s contribution to Hampton Roads. The study found that modeling and simulation work is now worth a total of $365 million to the region’s annual economy, up almost 41 percent since 2004.