ENTREPRENEURSHIP
UMD launched the very first technology incubator in the state of Maryland in 1985 that has since graduated over 100 companies that include billion dollar industry leaders, and has spawned the entrepreneurs behind Martek Biosciences, Digene, Under Armour, Sirius XM Radio, Google, arterial stents, hyperlinks, and the UPC bar code.

DIVERSITY
Among the Top 4 institutions in the American Association of Universities in graduating African-American doctoral candidates. The other three institutions are University of Southern California, University of Michigan & University of Georgia.

EXCELLENCE
Programs in aerospace engineering, agricultural and resource economics, comparative literature, computer science, geography, linguistics, atmospheric and oceanic science, and public policy were ranked among the best in the country.

WORLD-CLASS FACULTY
- 49 members of national academies
- 3 Nobel Prizes
- 5 Pulitzer Prizes

71 PROGRAMS IN THE TOP 25 NATIONALLY
(U.S. News & World Report)

ONE OF THE WORLD’S LEADING RESEARCH UNIVERSITIES
According to the Academic Ranking of Worldwide Universities

UNIVERSITY OF MARYLAND, COLLEGE PARK RANKED 5TH IN FEDERAL R&D EXPENDITURES AMONG UNIVERSITIES WITHOUT A MEDICAL SCHOOL

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<tr>
<th>RANK</th>
<th>INSTITUTION</th>
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<tr>
<td>1</td>
<td>MIT</td>
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<td>2</td>
<td>Georgia Institute of Technology</td>
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<td>University of Texas, Austin</td>
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<td>4</td>
<td>California Institute of Technology</td>
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<td>5</td>
<td>University of Maryland, College Park</td>
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<td>6</td>
<td>University of California, Berkeley</td>
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TOTAL AWARDS RECEIVED IN 2012
$502 MILLION

74% FEDERAL
$371,620,646
- Dept. of Agriculture
- Dept. of Commerce
- Dept. of Defense
- Dept. of Education
- Dept. of Energy
- Dept. of Health & Human Services
- Dept. of Homeland Security
- NASA
- National Science Foundation
- Other Federal

26% NON-FEDERAL
$130,980,986
- State of Maryland
- Corporations & Foundations
- Other

Research Awards & Expenditures

Research Expenditure Totals (FY 2002-12)
The University of Maryland Research Park is the state’s and Greater Washington region’s largest research park.

The park focuses on linking the strength of the region’s largest public national research university with research and development resources from federal government labs and the private sector.

SPECIFIC FOCUS AREAS INCLUDE:

- The nation’s leading cluster of environmental and earth science researchers through the presence in the park of NOAA, Department of Energy and NASA funded applied research centers looking at society’s adaptation to global climate change.

- A unique partnership with the FDA Center for Food Safety, headquartered in the park, and USDA developing international lab-based food safety training for countries to support better food safety inspection methods to protect a food supply for U.S. consumers that increasingly is international in origin.

- The world’s strongest collection of language science researchers, including those involved with working with the intelligence community, the academic community, and users from the corporate world.

- The park also includes the international center housing the country’s leading physics societies, a major center for software engineering and a major switching center for the next-generation Internet.

FEARLESS IDEAS TRANSFORM THE WORLD
“The University of Maryland’s research programs drive new knowledge and initiatives to improve human life through innovative ideas to help feed, fuel, house, and heal our people in a society that is both secure and free.”

- Patrick O’Shea
Vice President and Chief Research Officer of the University of Maryland
SUSTAINABILITY AND CLIMATE ADAPTATION

UMD researchers are addressing environmental and energy challenges through a unique approach, combining natural and social science research with sustainable technologies. UMD researchers contribute to actionable science, offering policymakers direct data to help them make decisions about how to adapt to the conditions of our evolving environment.

UMD Selected Capabilities:

- **Socio-Environmental Synthesis Center (SeSynC)** Combining natural and social science to develop solutions for some of society’s most challenging socio-environmental problems

- **Earth System Science Interdisciplinary Center (ESSIC)** Research on how the atmosphere, ocean, land, and biosphere components of the Earth interact as a coupled system

- **Joint Global Change Research Institute** An interdisciplinary team dedicated to understanding the problems of global climate change and their potential solutions

- **University of Maryland Energy Research Center (UMERC)** A multidisciplinary initiative dedicated to advancing the frontiers of energy science and technology.

**PARTNERS:** NSF, DOE, NOAA, NASA, USRA, NAVY, LOCKHEED MARTIN, SANDIA LABS

STUDY OF TERRORISM

UMD researchers are engaged in intensive research on better understanding the causes and consequences of terrorism, how to respond to it, and how to proactively address future threats to help prevent potential terrorist activity.

UMD Selected Capabilities:

- **Center for the Study of Terrorism and Responses to Terrorism (START)** Analyzes the causes and human consequences of terrorism in the United States and around the world

- **Project InterACTION** Multidisciplinary research to advance a dynamic and multilevel understanding of cultural processes in negotiation and collaborations in the Middle East

- **Laboratory for Computational Cultural Dynamics (LCCD)** Develops algorithms to model the behaviors of terrorist groups, tribes, and socio-cultural-political entities to assist decision makers and support their mission.

**PARTNERS:** DHS, CIA, FBI, NSA, DOD, IARPA, DARPA, LOCKHEED MARTIN, SAIC, MITRE, NORTHROP GRUMMAN
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PARTNERS: NSF, DOE, NOAA, NASA, USRA, NAVY, LOCKHEED MARTIN, SANDIA LABS

LANGUAGE SCIENCES

UMD researchers are uniquely equipped to help government agencies and corporations navigate the new, “flat” global landscape, develop research solutions in linguistics and language processing using machine learning technology, and prepare our future workforce to engage other nations and cultures with increased awareness and understanding.

UMD Selected Capabilities:
• Center for the Advanced Study of Languages (CASL) First and only national resource dedicated to addressing the language needs of the intelligence community (IC)
• Maryland Language Science Center One of the largest and most integrated language research communities in the U.S.
• National Foreign Language Center (NFLC)
• Computational Linguistics and Information Processing (CLIP) Lab Designs algorithms and builds systems which allow computers to effectively and efficiently perform human language-related tasks.

PARTNERS: NSA, CIA, NSF, DOD, DEPARTMENT OF STATE, SAIC, LOCKHEED MARTIN

THE SCIENCE OF SAFE FOOD, DRUGS AND MEDICAL DEVICES

UMD researchers are helping to make Americans safer by developing innovative, science-based processes to improve consumer safety and streamline government regulations.

UMD Selected Capabilities:
• FDA-supported Center for Regulatory Science (CERSI) Supports the development of new tools, standards and approaches to assess the safety, efficacy, quality and performance of FDA-regulated drugs and medical devices
• JIFSAN Food Safety Institute A public and private partnership that provides the scientific basis for ensuring a safe, wholesome food supply as well as the infrastructure for contributions to national food safety programs and international food standards
• International Food Safety Training Laboratory
• Center for Food Safety and Security Systems (CFS3) Assembles and coordinates the university’s extensive research, education, and outreach capabilities to meaningfully improve food protection, regionally, nationally and internationally.

PARTNERS: FDA, UMB, USDA, NIST, SIEMENS, CANON LIFE SCIENCES, MARS, MEDSTAR, SAIC, LOCKHEED MARTIN, ADVAMED, MDMA, BECTON DICKINSON

CYBERSECURITY

UMD researchers are developing innovative, interdisciplinary solutions to help protect our national infrastructure and our citizens from emerging cyber threats, and to help educate the future leaders of the cybersecurity work force.

UMD Selected Capabilities:
• Maryland Cybersecurity Center (MC²) Conducts innovative research to address the growing cybersecurity problem
• Supply Chain Management Center Collaborates with the National Institutes of Standards and Technology in the formulation of standards and action-oriented research to secure the federal and industrial cyber supply chain
• Advanced Cybersecurity Experience for Students (ACES) Honors Program Nation’s first honors program designed to educate a new generation of advanced cybersecurity professionals.

PARTNERS: NSA, DHS, NIST, CIA, STATE OF MARYLAND, SAIC, LOCKHEED MARTIN, NORTHROP GRUMMAN, GOOGLE, MIT LINCOLN LAB, TENABLE, LUNARLINE, FUTURE SKIES, MITRE, MANTECH, CYBERPOINT, SOURCEFIRE
HEALTHCARE FOR THE 21ST CENTURY: BIOINFORMATICS, BIOIMAGING AND HEALTH IT

UMD researchers are advancing health-related technology initiatives through a variety of cutting-edge research programs addressing healthcare for the 21st century, including bioinformatics, bioimaging, health information technology and health equity. The University of Maryland, College Park has a close, collaborative relationship with the University of Maryland, Baltimore campus and medical school, which will help advance these initiatives.

UMD Selected Capabilities:

- **Center for Health Information & Decision Systems (CHIDS)** A research center in collaboration with industry and government affiliates designed to research, analyze and recommend solutions to challenges surrounding the introduction and integration of information and decision technologies into the healthcare system.

- **Center for Health-Related Informatics and Bioimaging (CHIB)** A new center that combines advanced computing resources at the University of Maryland, College Park with clinical data and biomedical expertise at the University of Maryland, Baltimore could soon revolutionize the efficiency and effectiveness of healthcare in the state of Maryland and beyond.

- **Center for Health Equity (M-CHE)** Acts across the state and the nation to eliminate racial and ethnic health disparities to achieve equitable health status and healthcare for all.

- **Institute for Bioscience and Biotechnology (IBBR)** Significantly boosts the state's research capacities in bioscience and biotechnology, and thereby increases scientific discovery, technology transfer and economic development.

**PARTNERS:** UMB, NIH, MEDSTAR, SIEMENS, STATE OF MARYLAND

THE FUTURE OF INFORMATION

UMD researchers are exploring new, transdisciplinary ways of conducting research related to accessing data, using “crowdsourcing” to harness the power of information to solve complex problems, engaging large numbers of collaborators to work toward erasing the digital divide, preserving and archiving data, and making it accessible to everyone.

UMD Selected Capabilities:

- **Future of Information Alliance (FIA)** A catalyst for trans-disciplinary dialogue and research on evolving issues related to the role of information in our lives.

- **Human-Computer Interaction Lab (HCIL)** Transforming the experience people have with new technologies from understanding user needs, to developing and evaluating those technologies.

- **Maryland Institute for Technology in the Humanities (MITH)** Leading digital humanities center that pursues disciplinary innovation and institutional transformation through applied research, public programming and educational opportunities.

**PARTNERS:** GOOGLE, SMITHSONIAN INSTITUTION, NATIONAL ARCHIVES, LIBRARY OF CONGRESS, DEUTSCH FOUNDATION, U.S. NATIONAL PARKS SERVICE, NATIONAL GEOGRAPHIC SOCIETY, NEWSEUM, SESAME WORKSHOP, WAMU, STATE OF MARYLAND
A GRANT FROM THE U.S. DEPARTMENT OF AGRICULTURE supports research on new irrigation systems that will conserve water through the development of precision water management tools, marrying plant science with economics, engineering and technology. This is part of the Smart Farms project.

A GRANT FROM THE DEPARTMENT OF DEFENSE helps identify tactics that can inoculate young people against recruitment into terrorist groups. Researchers are investigating ways to understand, prevent and reverse the radicalization of young people in destabilized areas of the world, and to keep them from embracing terror as a political tool.

THE NATIONAL SCIENCE FOUNDATION has supported the Maryland Neuroimaging Center, which focuses on understanding mechanisms of brain development and neural plasticity in typical and atypical populations, and in understanding the neural mechanisms underlying expert abilities that serve critical national priorities.

THE ROBERT W. DEUTSCH FOUNDATION has funded the Future of Information Alliance, a catalyst for trans-disciplinary dialogue and research on evolving issues related to the role of information in our lives. Funding will expand the Alliance’s “Visiting Future-ist” program and create a new seed grant competition for students and their faculty mentors.

THE U.S. FOOD AND DRUG ADMINISTRATION has provided support for a new Center of Excellence in Regulatory Science and Innovation, a collaborative initiative between the University of Maryland’s College Park and Baltimore campuses that focuses on the science of developing new tools, standards and approaches to assess the safety, efficacy, quality and performance of FDA-regulated drugs and medical devices.

A GRANT FROM THE NATIONAL SCIENCE FOUNDATION to help advance women, particularly women of color, on the faculties of STEM colleges. The ADVANCE program goal is to improve the rates of retention and advancement of women faculty by fostering changes in institutional culture.

Major Interdisciplinary Projects

Developed jointly by students and faculty advisors from the schools of engineering, architecture, and agriculture, WaterShed won first place in the Department of Energy’s 2011 International Solar Decathlon competition.
UMD TOOLS FOR ENTREPRENEURS

• 16 different business/innovation and seed fund competitions for aspiring entrepreneurs/innovators with cash prizes in excess of $400,000

• 51 undergraduate entrepreneurship classes and 25 graduate classes across 18 campus departments

• Over 30 entrepreneurship mentoring programs engaging over 70 different mentors

• Over $340,000 in scholarships to undergraduate entrepreneurship students and $200,000 to graduate entrepreneurship students.

THE NATIONAL SCIENCE FOUNDATION (NSF) HAS SELECTED UMD TO CO-LEAD A NEW NATIONAL INNOVATION NETWORK

UMD was among five universities chosen to manage the three-year program that will train the best entrepreneurial student and faculty researchers from around the country in Lean Startup methods to help them bring their discoveries to market. DCicorps.org

THE ACADEMY FOR INNOVATION AND ENTREPRENEURSHIP

Created to develop a culture of innovation and entrepreneurship across all colleges and curricula, the Academy will include classes, workshops and a host of outside-the-classroom experiences.

umd.edu/innovation

UM VENTURES

Channels the tremendous technical resources and research expertise of the University of Maryland's College Park and Baltimore campuses to move research outcomes into innovative products and services, tools and diagnostics that will benefit society.

umventures.org

Innovation, Entrepreneurship & Commercialization