



# University Partnership

## UMBC – University of Kassel

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# Vision Statement



**UMBC**  
AN HONORS UNIVERSITY IN MARYLAND

**U N I K A S S E L**  
**V E R S I T Ä T**

engage in an interdisciplinary,  
global partnership that offers  
multifaceted opportunities in  
research, education, and service for  
students, faculty, and staff.



**The visionaries in January 2014:  
Susanne Sutton, Matthias Gobbert,  
Brigitte May, Andreas Meister**

# Areas of Partnership



- Student exchange:
  - Undergraduate / Bachelors: study abroad including foundation and general education class work
  - Graduate / Masters: research visits including advanced class work
- Research collaborations:
  - Doctoral and researchers: extended stays (e.g., DAAD), sabbatical stays, teaching at host institution
  - Joint research projects with funding (e.g., NSF-DFG)
- Internationalization of both institutions

# History of Partnership

Outreach to other departments in progress, including German, Arts, History

Contact between International Education offices established



Graduate and Research MOU between the Mathematics Departments signed in 2011, University **MOU signed in 2015**

Undergraduate Exchange / Study Abroad Program as foundation for creating research and graduate collaborations in other departments

# Recent projects and activities

## Graduate student exchange:

Jonas Schäfer, Sven Wallbaum,  
Alexej Riemer, Xuan Huang,  
Theresa Friedrich

## Sabbaticals:

Matthias Gobbert  
(11/01/11-06/01/12)  
Andreas Meister  
(08/01/13-02/01/14)



## Scientific exchange:

Philipp Birken  
(multiple times)  
Stefan Kopecz  
(08/15/12-11/01/12)

## Publications:

- *Numerical Methods for PDEs*
- *PAMM*

## Undergraduate exchange / study abroad:

- Samira Boddin, Amaury Bodet, Lorena Schnopp to UMBC in Fall 2015 (DAAD supported)
- *Recruiting underway at UMBC for Spring 2016*

# UMBC

AN HONORS UNIVERSITY IN MARYLAND

## University Profile



**UMBC from the Air looking North about 2010**  
before completion of Research Park (construction in foreground)

# UMBC

AN HONORS UNIVERSITY IN MARYLAND

# U N I K A S S E L V E R S I T Ä T



UMBC:

Albin O. Kuhn Library & Gallery --- residential area  
The Commons --- True Grits mascot (Chesapeake Retriever)

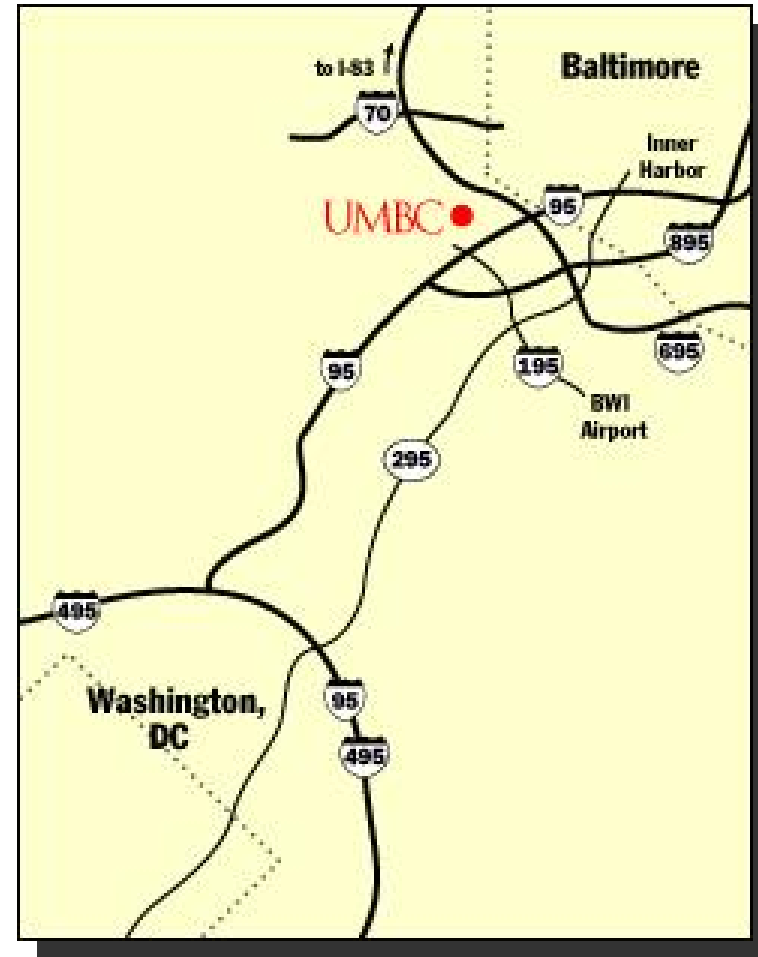


# New York-Baltimore-Washington



# Baltimore-Washington Corridor

- Centrally located in U.S. Mid-Atlantic
- Metropolitan area of over 6 million people and growing
- State of Maryland ranges from the Atlantic Ocean via the Chesapeake Bay to the Appalachian Mountains



# Unique Features of the Baltimore-Washington Corridor



- Washington, D.C. national Capital of the U.S.:  
Maryland has \$16B in federal spending  
(second only to California)
- Baltimore home to
  - ✓ University of Maryland Medical Center
  - ✓ Johns Hopkins University
  - ✓ Biotechnology research companies  
throughout the area

# Unique Features of the Baltimore-Washington Corridor



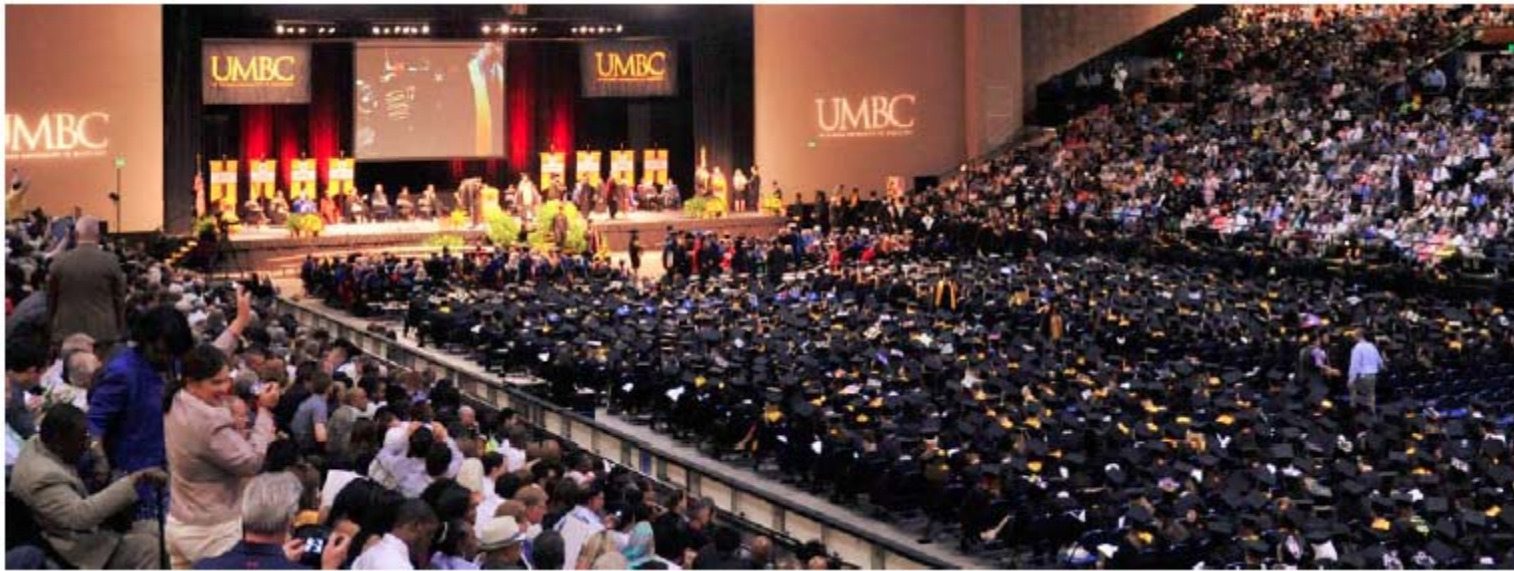
- Maryland is home to federal agencies including:
  - ✓ National Institutes of Health (NIH)
  - ✓ Environmental Protection Agency (EPA)
  - ✓ NASA Goddard Space Flight Center (Earth Sciences)
  - ✓ U.S. Census Bureau
  - ✓ Army Research Laboratory (ARL)
  - ✓ National Institute of Standards and Technology (NIST)
  - ✓ and many more with significant research missions.

# UMBC: Datasheet



- 14,000 students, including 2,600 graduate students
- Over 10,000 applications for undergraduate admissions!
- Over 100 Ph.D. per year for first time in 2013-14 academic year!
- Over 650 faculty, including 150 research faculty and 100 teaching faculty
- 1200 staff
- Founded in 1966
- One of 12 institutions in the University System of Maryland (one of its three research universities)
- Total budget over \$400 million
- Over \$74 million external funding, among top in earth sciences in U.S.
- Undergraduate tuition \$11,000 in-state, \$24,000 out-of-state; in-state ranks among top-20 in U.S. for affordability.

# Commencement May 2014



**Over 700 Bachelor's, 200 Master's, and 75  
Doctoral degrees awarded in May 2014.**

Photo shows Undergraduate Commencement in Baltimore Arena in downtown Baltimore.

# UMBC: Academic Fields of Study



- 44 majors, 41 minors, and 20 undergraduate certificate programs, spanning
  - ✓ the arts,
  - ✓ engineering and information technology,
  - ✓ humanities,
  - ✓ sciences,
  - ✓ pre-professional studies, and
  - ✓ social sciences.
- 38 master's degree programs,
- 24 doctoral degree programs and
- 21 graduate certificate programs.

# Organizational Structure



## College of Natural and Mathematical Sciences:

- Physics, Chemistry, Biological Sciences, Mathematics and Statistics

## College of Engineering and Information Technology:

- Computer Science, Information Systems, Electrical, Mechanical, Environmental, and Computer Engineering

## College of Arts, Humanities, and Social Sciences:

- Visual Arts, Dance, Theatre, Music, Psychology, History, Languages, Ancient Studies, Education, Geography, Economics, English, Public Policy, Political Science



# Particular Research Strengths



- Atmospheric Physics and Remote Sensing
- Life Sciences:
  - ✓ Biological Sciences,
  - ✓ Bioinformatics,
  - ✓ Bioengineering,
  - ✓ Biotechnology (incl. marine),
  - ✓ Biochemistry.

=> conducted in interdisciplinary fashion across many departments (for instance, mechanical engineering, mathematics)
- Environmental Sciences and Engineering
- Computer science and engineering, information systems, cybersecurity
- Big data, health IT
- Visual Arts: Imaging Research Center over 20 years old
- Theatre: repeatedly featured at Kennedy Center
- History department has several faculty with European focus

# UMBC: An Honors University in Maryland



- Named #1 up-and-coming university nationwide by *U.S. News and World Report* every year since 2009
- Several recognitions for strength in undergraduate education and affordability
- In list of top 100 university internationally under 50 years old
- Chess team repeatedly Pan-American champion
- Several students at Nobel Laureate Meeting in Lindau, Germany, and several Fulbright Scholars in recent years



**Undergraduate Research and Creative Achievement Day (URCAD) every April: Both the *UMBC Review: Journal of Undergraduate Research* and *Bartleby*, UMBC's Creative Arts Journal, are released at URCAD. Summer undergraduate research presented at Summer Undergraduate Research Fest (SURF) every August**

# President Freeman A. Hrabowski, III

- University President since 1992 (one of the longest-serving in the country)
- Research and publications focus on science and math education
- Long list of awards: *TIME Magazine* 100 most influential people in the world (2012), list of top 10 university presidents, Carnegie Corporation award for academic leadership, featured on national TV magazine *60 Minutes*
- Chair of National Academies' as well as U.S. President's commissions on education
- Child participant in U.S. civil rights movement in Birmingham, Alabama; featured in Spike Lee's 1997 documentary *Four Little Girls*





**Current example: President Freeman Hrabowski with U.S. Secretary of Education Arne Duncan (in back) while visiting UMBC in 2014 (and again in 2015)**



# University Partnership

## Next Steps

- **Recruit UMBC students for undergraduate exchange program**
- Intensify Mathematics cooperation's research output
- Extend initial webpage for undergraduate exchange
- Create extensible web presence of the partnership
- Collect data on outcomes and testimonials from past students
- Send information to Matthias Gobbert at [gobbert@umbc.edu](mailto:gobbert@umbc.edu) or Andreas Meister at [meister@mathematik.uni-kassel.de](mailto:meister@mathematik.uni-kassel.de)