

CURRICULUM VITAE

ANNE MARIE SPENCE

Education

Ph.D. 1994 University of Maryland – College Park, Aerospace Engineering
M.S. 1988 University of Texas – Arlington, Aerospace Engineering
B.S. 1985 University of Missouri – Rolla, Aerospace Engineering

Experience in Higher Education

2022 – present Baylor University, Clinical Professor, Mechanical Engineering
2022 – present Baylor University, Associate Chair, Mechanical Engineering
2019 – 2022 Baylor University, Assistant Chair, Mechanical Engineering
2017 – 2022 Baylor University, Clinical Associate Professor, Mechanical Engineering
2016 – 2017 UMBC, Director of Engineering and Computing Education, COEIT
2016 – 2017 UMBC, Director of CIRTL, Graduate School
2015 – 2016 UMBC, Interim Director, CWIT
2011 – 2017 UMBC, Professor of the Practice, Mechanical Engineering
2004 – 2011 UMBC, Assistant Professor, Mechanical Engineering
2001 – 2004 UMBC, Lecturer, Mechanical Engineering
2000 – 2001 UMCP, Interim Director, Women in Engineering
1997 – 2001 UMCP, Visiting Assistant Professor, Aerospace Engineering
1995 – 1997 UMCP, Lecturer, Aerospace Engineering

Experience in Other than Higher Education

1985 – 1988 Bell Helicopter - Textron, Handling Qualities Engineer, Flight Technology

Honors Received

2021 Academy of Mechanical and Aerospace Engineers (elected), Missouri University of Science and Technology
2021 Outstanding Teaching Award, ASEE, GSW Section
2020 Outstanding Teaching Award, Baylor University
2018 Fellow, ASME
2015 Faculty Award for Public Service, USM Board of Regents
2014 Outstanding Faculty Award, UMBC Alumni Association
2013 Entrepreneurship Fellow, UMBC College of Engineering & IT
2013 Hrabowski Innovation Fund Awardee
2008 Best Speaker, 2008 ASEE CIEC Conference
2008 Best Session, 2008 ASEE CIEC Conference
2008 Outstanding Agent of Change, Post-Secondary, MD State Dept of Ed
2007 Joseph Oakey Education Award, Project Lead the Way
2007 Outstanding Volunteer Award, FIRST Chesapeake Regional
2004 Professor of the Year, UMBC Engineering Council of Majors

Research Support and/or Fellowships

Mar. 1, 2020 – Feb. 28, 2025: NSF IUSE grant (co-PI, \$ 995,733)
○ Increasing Degree-completion for Engineering and Computer Science Scholars

Sept.1, 2016 – Aug. 31, 2019: NSF IUSE grant (co-PI, \$1,117,096)

- Developing, Implementing, and Evaluating a Post-Transfer Pathways Program for Computing and Engineering Majors

April.1, 2014 – Mar. 31, 2018: NSF S-STEM grant (co-PI, \$580,233)

- Diversification and Retention: Creating New Paths of Success for STEM Scholars in Mechanical Engineering

Mar.1, 2012 – Feb. 28, 2017: NSF S-STEM grant (co-PI, \$599,613)

- A Community of Transfer Scholars in Information Technology and Engineering (T-SITE)

Mar.1, 2010 – Feb. 28, 2014: NSF S-STEM grant (co-PI, \$474,390)

- A Community of Young Scholars: Achieving Student Diversification and Retention in Mechanical Engineering

Aug. 25, 2009 – Aug. 24, 2010: NSF MSP grant (PI, \$299,708)

- UMBC-BCPS STEM Project (supplement)

Sept. 15, 2008 – Sept. 14, 2010: NSF MSP grant (PI, \$599,121)

- UMBC-BCPS STEM Project (supplement)

Aug. 15, 2007 – Dec. 31, 2008: NASA grant (co-PI, \$338,200)

- NASA Engineering and Technology Scholars

Jan. 1, 2005 – Dec. 31, 2011: NSF MSP grant (PI, \$10,611,142)

- UMBC-BCPS STEM Project

May 20, 2004 – June 30, 2004: Maryland State Department of Education grant (PI, \$29,900)

- Project Lead the Way Leadership Development II

Sept. 1, 2003 – Aug. 31, 2004: Maryland State Department of Education grant (PI, \$31,600)

- Project Lead the Way Leadership Development I

May 1, 2003 – Aug. 31, 2003: Maryland State Department of Education grant (co-PI, \$13,000)

- Junior Engineers in Maryland

Mar. 1, 2003 – Feb. 28, 2006: NSF STEP grant (co-PI, \$595,530)

- STEM Talent Expansion Program

Nov. 1, 2002 – Apr. 30, 2004: NSF PGE grant (co-PI, \$118,570)

- Women and IT Video Project

Oct. 1, 2002 – Sept. 30, 2007: NSF CSEMS grant (co-PI, \$396,000)

- Computer Science, Engineering, and Mathematics Scholarships and Student Support Services

Sept. 1, 2002 – Aug. 31, 2008: NSF EEC grant (PI, \$374,930)

- Introducing Engineering Through Mathematics

Ph.D. Students

Jamie Gurganus	Ph.D. Mechanical Engineering	May 2020	Chair
Tracy Irish	Ph.D. Language, Literacy, Culture	Dec 2016	Co-Chair
Alex Szatmary	Ph.D. Mechanical Engineering	May 2012	Member
Ben Emory	Ph.D. Mechanical Engineering	May 2010	Member

Masters' Students

Hannah Glisson	M.S. Higher Education	May 2020	Member
Richards Blorstad	M.S. Mechanical Engineering	Dec 2018	Chair
Jamie Gurganus	M.S. Mechanical Engineering	Dec 2011	Chair
Mycah Wilson	M.S. Mechanical Engineering	May 2011	Chair
Lauren Alexander	M.A. Intercultural Comm.	May 2007	Member
Amy Benson	M.A. Psychology	Dec 2006	Member

Non-Traditional Masters' Students (High School Teachers)

Greg Criniti	MAE Education	May 2010	Advisor
Aldwin Martinez	Cert Engineering Education	Dec 2008	Advisor
Tony Johnson	Cert Engineering Education	Dec 2008	Advisor
James Perry	Cert Engineering Education	Dec 2008	Advisor

TEACHING**At Baylor University**

EGR 1301:	Introduction to Engineering (Fa17, Fa18, Fa19, Fa20, Fa21)
EGR 1302:	Introduction to Engineering Analysis (Sp18, Sp19)
ME 2321:	Dynamics (Sp18)
EGR 4390:	Engineering Design II (Fa17, Sp18, Fa18, Sp19, Fa19, Sp20)
ME 4327:	Numerical Methods for Engineers (Su20, Fa20, Sp21)
ME 4396:	Aerospace Flight Mechanics (Sp20)

At UMBC**Undergraduate:**

ENES 101:	Introductory Engineering Design (Sp04, Sp06, Fa07, Sp09, Sp10, Fa10, Fa11, Sp12, Sp13, Fa13, Fa14, Sp15, Fa15, Fa16)
ENME 110:	Statics (Sp03, Sp08, Sp13, Sp14, Sp15, Sp16)
ENME 204:	Introduction to Mechanical Engineering Design w/ CAD (Sp02, Fa02, Sp03, Fa03, Fa05, Fa06, Sp07, Fa09, Sp11, Sp14)
ENME 221:	Dynamics (Fa16)
ENME 303:	Engineering Mathematics (Fa04, Fa06, Fa11, Sp12, Fa12, Sp13, Fa13, Sp14)
ENME 403:	Control Systems (Fa01, Sp02)
ENME 489:	Global Engineering (Fa12)
ENME 408:	Fundamentals of Aerospace Engineering (Sp15, Fa15)

Graduate:

Principles of Engineering	(Su06, Su07, Su08, Su09, Su10, Su11, Su12, Su13, Su14, Su15)
Introduction to Engineering Design	(Su06, Su07, Su08, Su09, Su10, Su11, Su12, Su13, Su14, Su15)

PUBLICATIONS**Peer-Reviewed Works - Articles**

Rheingans, P., Brodsky, A., Scheibler, J., and **Spence, A.**, "The Role of Majority Groups in Diversity Programs," *ACM Transactions on Computing Education*, Vol. 11, No. 2, Article 11, July 2011.

Shih, I.-C., **Spence, A. M.**, and Celi, R., "Semianalytical Sensitivity of Floquet Characteristic Exponents with Application to Rotary-Wing Aeroelasticity," *Journal of Aircraft*, Vol. 33, No. 2, March-April 1996, pp. 322-330.

Spence, A.M., and Celi, R., "Coupled Rotor-Fuselage Dynamics and Aeroelasticity in Turning Flight," *Journal of the American Helicopter Society*, Vol. 40, No. 1, January 1995, pp. 47-58.

Spence, A.M., and Celi, R., "Efficient Sensitivity Analysis for Rotary-wing Aeromechanical Problems," *AIAA Journal*, Vol. 32, No. 12, December 1994, pp. 2337-2344.

Peer-Reviewed Works – Conference Proceedings

Gurganus, J., Hill, E., and **Spence, A. M.**, "The Effect of the Project Lead the Way Program on Students' Spatial Visualization Skills (Evaluation)," *2018 ASEE Annual Conference and Exposition*, Salt Lake City, UT, June, 2018.

Irish, T., Blunck, S., and **Spence, A. M.**, "Professional Learning Communities: A Strategic Framework for Science, Technology, Engineering, and Mathematics (STEM) Education through the Development of STEM Academies," *2010 AERA Annual Meeting*, Denver, CO, May, 2010.

Gurganus, J., **Spence, A.M.**, "Impact of a GK-12 Program on the Development of University Students' Academic and Professional Skills," *2007 ASEE Annual Conference and Exposition*, Honolulu, HA, June, 2007.

Spence, A.M., Zhu, L., "Student Outcomes Assessment Methodology in Mechanical Engineering," *2007 ASEE Annual Conference and Exposition*, Honolulu, HA, June, 2007.

Bayles, T., **Spence, A.M.**, and Morrell, C., "Science, Technology, Engineering and Mathematics Talent Expansion Program: An Analysis of a Pilot Project," *2006 ASEE Annual Conference and Exposition*, Chicago, IL, June, 2006.

Newberry, P., Grimsley, T.R., Hansen, J., and **Spence, A.M.**, "Research of Project Lead The Way® (PLTW) Curricula, Pedagogy, and Professional Development," *2006 ASEE Annual Conference and Exposition*, Chicago, IL, June, 2006.

Bayles, T., **Spence, A.M.**, and Leonard, J.B., "YESS – Young Engineers Seminar Series," *2005 ASEE Annual Conference and Exposition*, Portland, OR, June, 2005.

Spence, A.M., Bayles, T. and Morrell, C., "Engineering Applications in the Early Algebra Classroom," *2004 ASEE Annual Conference and Exposition*, Salt Lake City, UT, June, 2004.

Morrell, C., **Spence, A.M.**, Bayles, T. and Shewbridge, B., "You Can Be Anything – Women and Technology Video," *2004 ASEE Annual Conference and Exposition*, Salt Lake City, UT, June, 2004.

Spence, A.M., Bayles, T. and Morrell, C., "Introducing Engineering into the Early Algebra Classroom," *2003 ASEE Annual Conference and Exposition*, Nashville, TN, June, 2003.

Bayles, T., **Spence, A.M.**, and Morrell, C., "Science, Technology, Engineering, Mathematics Talent Expansion Program," *2003 ASEE Annual Conference and Exposition*, Nashville, TN, June, 2003.

PRESENTATIONS

Conference/Poster Presentations (Juried/Refereed)

Ireland, D., Rheingans, P., Blaney, L., des Jardins, M., Laberge, E.F.C., Martin, S., Slaughter, G., and **Spence, A.M.**, " T-SITE: A UMBC Community of Transfer Scholars in Computing, Information Technology, and Engineering," *2017 ASEE Annual Conference and Exposition*, Columbus, OH, June, 2017.

Bayles, T., **Spence, A.M.**, and Morrell, C., "Integration of Engineering Principles in High School Algebra Courses," *2004 ASEE Annual Conference and Exposition*, Salt Lake City, UT, June, 2004.

Other Professional Presentations (Lectures, Seminars, Colloquia, Workshops)

Susan P. Slattery Memorial Lecture, 2021, Stevenson University, Invited Lecture

ASEE Annual Conference and Exposition, 2019, Keynote Speaker

Academic Thriving, Baylor University Undergraduate Orientation, 2018, 2019, 2021, Invited Speaker

US Science and Engineering Festival, 2010-2012, Nifty-Fifty Speaker

ASME-IMECE, 2009, Invited Plenary Speaker

Project Lead the Way Summer Training Institute, annually 2003-2015, Convener and Presenter

Project Lead the Way Counselors Conference, annually 2004-2015, Convener and Presenter

Project Lead the Way Professional Development Workshop, annually 2003-20015, Convener and Presenter

STEM Conference, June 20 - 21, 2007, Convener and Presenter

STEM Conference, December 1- 2, 2006, Convener and Presenter

National Governors Association, Phoenix, AZ, December 2006, Invited Panelist, STEM Education

Clemson University, Clemson, SC, September 2006, Invited Lecture, Engineering Education

Purdue University, West Lafayette, IN, September 2006, Inaugural INSPIRES Seminar, Engineering Education

STEM Conference, June 14 - 15, 2006, Convener and Presenter

Engineering and Mathematics Workshop, June 28-30, 2005, Convener and Presenter

House Science, State, Justice, and Commerce Subcommittee, Committee on Appropriations, May 2005, Statement of the Science, Technology, Engineering, and Mathematics (STEM) Education Coalition

Engineering and Mathematics Workshop, April 29, 2005, Convener and Presenter

Engineering and Mathematics Workshop, July 6-9, 2004, Convener and Presenter

TEEM UP for K-12, ASME Conference, March 4-5, 2004, Invited Panelist

Media Activities

UMBC-BCPS STEM Project on Maryland Morning with Sheila Cast, WYPR, August 30, 2006.

Creative Achievements

Framework for P-12 Engineering Learning, Collaborator, 2020.

“Introducing Engineering through Mathematics” curriculum CD, peer reviewed by 10 middle/high school mathematics teachers

National Content Standards for K-12 Engineering/Engineering Technology, Nature of Engineering, National peer review, October 2006.

Maryland Pre-Engineering Project Lead the Way Agreement for Transcribed Credit, Reviewed by Maryland State Department of Education Career & Technology Division, September 2007

Service to the Department

2022 – present	Baylor University, Associate Chair, Mechanical Engineering
2020 – present	Baylor University, ABET Committee Member, Mechanical Engineering
2019 – present	Baylor University, Faculty Advisor, SAE Baja student chapter

2019 – 2022	Baylor University, Assistant Chair, Mechanical Engineering
2018 – present	Baylor University, Undergraduate Curriculum Committee Chair, Mechanical Engineering
2017 – present	Baylor University, Faculty Advisor, SWE student chapter
2017 – present	Baylor University, Faculty Advisor, Aero @ Baylor student organization
2017 – 2019	Baylor University, Member, Kern Engineering Entrepreneurship Network (KEEN) Committee
2011 – 2016	UMBC, Undergraduate Program Director, Mechanical Engineering
2014 – 2014	UMBC, Chair, Lecturer Search Committee
2012 – 2012	UMBC, Chair, Lecturer Search Committee
2011 – 2015	UMBC, ABET Coordinator, Mechanical Engineering
2009 – 2009	UMBC, Chair, Lecturer Search Committee

Service to the University

2021 – 2022	Baylor University, Research Writing DL Committee, Representative from the School of Engineering and Computer Science
2019 – 2019	Baylor University, Foreign Language/Cultural Competency Task Force, Representative from the School of Engineering and Computer Science
2018 – present	Baylor University, Undergraduate Curriculum Committee, Representative from the School of Engineering and Computer Science
2013 – 2015	UMBC, Member, Entrepreneurship Faculty Fellows Committee
2011 – 2013	UMBC, Member, Entrepreneurship Course Review Committee
2011 – 2016	UMBC, Member, Internal Advisory Board, I-Cubed Project
2010 – present	UMBC, Member, Internal Advisory Board, Center for Women in Technology (CWIT)
2010 – present	UMBC, Engineering Instructor, Meyerhoff Summer Bridge Program
2008 – present	UMBC, Member, Internal Advisory Board, Sherman STEM Teacher Scholars Program

Service to the Community

2017 – present	NASA @MyLibrary Fellow, Mayborn Museum
2017 – 2019	Member, Advisory Board, Mambrino STEAM Academy
2017 – 2019	Advisor, Girls in STEM Program, Midway Middle School
2017 – 2019	Advisor, STEM 4 Young Learners Program, Mayborn Museum
2012 – 2016	Member, NSF STEP Grant External Advisory Board, UMCP
2012 – 2014	Member, Standards Setting Panel, VA STEAM Academy
2012 – 2016	Member, Governor's P ~ 20 Council PARRC Career and College Readiness Workgroup
2011 – 2018	Member, STEM Girls Consortium External Advisory Board
2009 – 2017	Member, Program Committee, NASA Maryland Space Grant Consortium
2006 – 2017	Member, Associate of Science in Engineering (ASE) Oversight Council at Maryland Higher Education Commission
2005 – 2015	Maryland Partner, FIRST LEGO League (FLL)
2005 – 2013	Member, FIRST Robotics Competition (FRC) Chesapeake Regional Planning Committee

Service to the Profession

- 2021 – present Member-at-large (elected), PCEE Committee, ASEE
2017 – present Member, Project Lead the Way (PLTW) Test Blueprint Advisory Panel
2014 – 2019 Member, AP Engineering Oversight Committee, ASEE/College Board
2014 – 2017 Chair, Committee on Pre-College Engineering Education, ASME
2013 – 2014 Member, Committee on Pre-College Engineering Education, ASME
2006 – 2006 Invited Member, K-12 STEM Standards Panel
2005 – 2005 Invited Member, Governor’s Summit on Science and Mathematics
Education
2005 – 2005 Invited Member, Strategies for Engineering Education K-16 (SEEK-16)
Summit
2004 – present Technical Reviewer, American Society of Engineering Education (ASEE)
2007 – present Panelist, NSF Review Panels

Professional Affiliations

- Fellow, American Society of Mechanical Engineers (ASME)
Member, American Society for Engineering Education (ASEE)
Member, Society of Automotive Engineers (SAE)