

## Jaime R. Taylor, Ph.D.

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### PROFESSIONAL PREPARATION

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**Ph.D.** in Engineering Science, 1995.

University of Tennessee Space Institute, Tullahoma, TN

**M.S.** in Engineering Science, 1991.

University of Tennessee Space Institute, Tullahoma, TN

**B.S.** in Physics and Mathematics; Minor: Chemistry 1990.

Austin Peay State University, Clarksville, TN

**A.A.S.** in Industrial Engineering Technology, 1986.

Nashville State Technical Institute, Nashville, TN

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### APPOINTMENTS

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**Provost and Senior Vice President for Academic Affairs**, 2018-Present

Marshall University, Huntington, WV

- Developed and implemented a recruitment plan that resulted in the largest freshman class increase in the State of West Virginia in my first year. Only three of the eleven public universities had an increase, five had a double digit percentage decrease.
- Developed and implemented a plan that increased the six-year graduation rate from 46% to 49% in my first year. The success of this project resulted in an individual donating \$800,000 to support further student success initiatives. The six-year graduation rate increased to 51% for Fall 2020 (during the COVID19 pandemic), the first time Marshall University has had a six-year graduation rate that exceeds 50%.
- Implemented a program we titled *A Friend at Marshall (FAM)* in my second year that increased freshman Fall to Fall retention from 72.6% to 77.6%.
- Provided leadership in the development of a bachelors degree for fixed-wing flight training and an aviation maintenance program. Obtained a total of \$4.56 million in grants to use as startup funds for these two programs.
- Worked closely with the Vice President for Research, who reports to the Provost, to grow research expenditures. Research expenditures grew from \$32.2 million in FY 2018 to over \$50 million in FY 2020, a 55.3% increase in two years, contributing to Marshall University achieving R2 Carnegie Classification.

- Worked with the Director of Athletics and his staff as they created approximately 120 additional opportunities for walk-on student-athletes. This plan resulted in an additional \$1.6 million in tuition revenue due to the fact the majority of these student-athletes were from out-of-state, and they were required by NCAA regulations to pay full tuition. The entirety of the plan from conception to full execution took place from March 2020 to August 2020.
- Worked closely with the Senior Vice President for Development as the university secured \$50.6 million in gifts during my first year at Marshall University, including a \$25 million gift for a new college of business building. This was the biggest fund raising year in the history of Marshall University, a 61% increase from the previous year.
- Worked with the Vice President for Research and the Dean of the College of Business in the development of a Business Incubator and a Center for Entrepreneurship and Innovation.
- Worked with the Deans in the College of Business, the College of Science, and the College of Engineering as they developed Master's degree programs in cybersecurity, digital forensics, and data science, as well as a doctorate of business administration (DBA). Helped obtain a \$4.5 million grant from Homeland Security for the digital forensics program. Encouraged and supported adding fully online options for our MBA and MS in Accounting.

**Presidential Fellow, 2017-2018** (*One year Sabbatical from serving as Dean*)

Austin Peay State University, Clarksville, TN

- Developed strategies to help APSU in Tennessee's formula funding model.

**Dean, College of Science and Mathematics, 2015-2017**

Austin Peay State University, Clarksville, TN

- Worked with department chairs to add multiple new degree programs at both the undergraduate and graduate level including APSU's first engineering program, a bachelor degree in veterinary technology, and bachelor and master degrees in cybersecurity.
- Nearly doubled the number of high achieving students (those with a 26 or higher on the ACT) entering the college from Fall 2012 to Fall of 2016.
- More than doubled the number of graduates in four departments within college, and quadrupled number of graduates in two departments; increased number of computer science graduates from 17 in 2009-2010 to 88 graduates in 2016-17. This was accomplished through improved requirement efforts and student success initiatives to improve the graduation rate in these programs.
- Was a member of the Transition Taskforce that oversaw APSU's transition away from the Tennessee Board of Regents to its own Governing Board.
- Added a mechatronics program in engineering technology, a program crucial to the rapid growth in manufacturing in Middle Tennessee and Southern Kentucky. Obtained two grants (\$578,631 and \$60,000) for equipment and faculty training. More than doubled the number of incoming freshmen in engineering technology, increasing to over 100.

### **Interim Provost and Vice President for Academic Affairs, 2013-2015**

Austin Peay State University, Clarksville, TN

(Did not apply for Provost position.)

- APSU made the Honor Roll of the Chronicle of Higher Education's *Great Colleges to Work for* survey being recognized for *Confidence in Senior Leadership* and *Collaborative Governance* both years I served as Interim Provost. There were only ten *Large Colleges* that made the Honor Roll in 2015 including Baylor, Duke, University of Southern California, University of Maryland and University of Michigan.  
(<http://www.chronicle.com/interactives/greatcolleges15#id=hr>).
- APSU experienced a record 26.3% growth in its freshman class (1,554 in 2015 to 1,962 in 2016) after the first year of implementing the recruitment strategies put in place in the Spring of 2015.
- APSU had a successful Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) site visit in the Spring of 2014.
- Developed and implemented strategies to make sure APSU remained the leader in the State of Tennessee's Outcomes Funding Formula.
- Increased fall to fall freshman retention from 65.9% to 71.8% for 2013 freshman cohort, and from 63.3% to 72.5% for 2013 Black freshman cohort. This success was obtained through various initiatives, one being a mentorship program developed in the African Culture Center.

### **Dean, College of Science and Mathematics, 2008-2013**

Austin Peay State University, Clarksville, TN

- Increased the number of students obtaining Bachelors in the College of Science and Mathematics (CoSM) by 104% (141 in 2009 to 288 in 2014), while the university as a whole increased by 29%, (964 in 2009 to 1244 in 2014). Note, Tennessee has a 100% outcomes based funding formula; APSU is funded on its number of graduates, not number of students.
- Grew the enrollment in the CoSM by over 30%, and the college produced its first four Barry Goldwater Scholars, two of whom were in the inaugural Governor's School for Computational Physics class.
- Assisted the Department of Agriculture in raising \$1.2 million to fund the Brock Blick Animal Science Facility.
- Lead the effort to develop a Professional Science Master's degree in Computer Science and Quantitative Methods with concentrations in Data Management and Analysis, Predictive Analytics, Cyber-Security, and Mathematical Finance.
- Steadily increased the number of grants awarded to the CoSM from 23 in 2010-11 to 45 in 2014-15. The most grants awarded to any other college during this period of time was 9, with the average number of grants per college per year (excluding the CoSM) being less than 3.

- Obtained THEC and TBR approval for a Chemical Engineering Technology (ChET) program, assisted in obtaining \$6.4 million in special appropriations from the State of Tennessee for a ChET facility, \$2 million from Hemlock Semiconductor for laboratory equipment, and \$200,000 in federal funding for an instructor and industrial software. Achieved our goal of graduating over 90 ChET students in the first year’s graduating class.

**Co-Director of the Governor’s School for Computational Physics, 2013-2017**

**Director of the Governor’s School for Computational Physics, 2008-2013**

Austin Peay State University, Clarksville, TN

- Worked with regional State Representatives to help APSU secure funding for its first Governor’s School.
- Team taught for five weeks each summer with the Chair of the Department of Physics.

**Chair, Department of Physics and Astronomy, 2000-2008**

Austin Peay State University, Clarksville, TN

- Increased the number of physics majors from 8 to over 50 in three years.
- Increased the number of physics graduates from one in 2000-2001 to fifteen in 2008-2009.
- Developed a culture where all physics majors participated in research, with nearly all being accepted to at least one REU program prior to graduation.

**Professor of Physics, 2002-2018**

Austin Peay State University, Clarksville, TN

- Taught several specialized courses, such as Image Processing, to improve the physics graduates’ success rate in graduate school.
- Used clickers in conceptual physics class to improve “Peer Instruction” method.

**NASA Faculty Fellow, Summer 2001 and 2002**

NASA’s Marshall Space Flight Center, Huntsville, AL

- Applied a genetic algorithm code to solve Phase Retrieval problem.
- Developed a code to model the static and dynamic behavior of tensegrity structures.

**Research Sabbatical, Spring 1999**

U.S. Army Aviation and Missile Command Redstone Arsenal, Huntsville, AL

- Worked with the inventor of Pulsed Coupled Neural Networks (PCNN) on military and space based PCNN applications.
- Work completed during this semester resulted in five publications.

**Associate Professor of Physics, 1999-2002**  
Austin Peay State University, Clarksville, TN

- Developed a 3+2 Dual Degree Program in physics and engineering with the University of Tennessee at Knoxville.

**Assistant Professor of Physics, 1996-1998**  
Austin Peay State University, Clarksville, TN

- Spearheaded the move to a new “applied” physics major with several options.

**NASA Faculty Fellow, Summer 1996 and 1997**  
NASA’s Marshall Space Flight Center, Huntsville, AL

- Worked with NASA engineers in the design and development of the hardware to implement a “fast” sunspot tracking algorithm.
- Developed a “fast” algorithm for CCD based sunspot tracking.

**Jaime R. Taylor, Ph.D.**

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## Funded Proposals, Publications, and Selected Presentations

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### RESEARCH AND GRANT FUNDING

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Worked closely with the vice president for research at Marshall University to grow research expenditures from \$32.2 million in FY 2018 to over \$50 million in FY 2020, a 55.3% increase in two years. This contributed to Marshall University achieving R2 Carnegie Classification.

J. Taylor and J. Byrd, “Campbell Strong Office of Economic Adjustment Implementation Grant,” 2018, *Sub-Award Total* \$578,631.

A. King and J. Taylor, “Tennessee Governor’s School for Computational Physics,”  
2017 - *Award Total* \$111,309.  
2016 - *Award Total* \$129,206.

J. Taylor and J. Byrd, “Mechatronics-to-Jobs (M-2-J),” September 1, 2016 through June 30, 2018, *Sub-Award Total* \$60,000.

A. King and J. Taylor, “Tennessee Governor’s School for Computational Physics,”  
2015 - *Award Total* \$129,206.  
2014 - *Award Total* \$129,319.

J. Taylor, K. Harris, J. Hatz, “Grit as a Non-Cognitive Predictor of Academic Success at APSU,” TBR-Research Grant 2013. *Award Total* \$25,641.

A. King and J. Taylor, “Tennessee Governor’s School for Computational Physics,”  
2013 - *Award Total* \$130,416.  
2012 - *Award Total* \$175,428.  
2011 - *Award Total* \$149,550.  
2010 - *Award Total* \$149,991.

A. King, K. Schultz, J. Oelgoetz, J. Smith and J. Taylor, “Undergraduate Research Projects in Physics and Astronomy,” 2009. *Award Total* \$37,783.

A. King and J. Taylor, “Tennessee Governor’s School for Computational Physics,” 2009. *Award Total* \$149,766.

A. King, K. Schultz, and J. Taylor, “Undergraduate Research Projects in Physics and Astronomy,” 2008. *Award Total* \$37,706.

J. Taylor and A. King, “Tennessee Governor’s School for Computational Physics,” 2008. *Award Total* \$148,853.

J. Taylor, and A. King, “Undergraduate Research in Physics and Astronomy: Identification of Variable Stars, Development of Optical Tweezers, and Searching for Asymmetric Stable Tensegrity Structures,” 2007. *Award Total* \$36,020.

J. Taylor, L. Griffy, M. Jones, A. King, and K. Schultz, "STEM Scholarships in Mathematics and Physics at Austin Peay State University," 2007. *Award Total* \$582,740.

A. King and J. Taylor, "MRI: Acquisition of a Distributed Computing Cluster for Multidisciplinary Research, Research Training, and Education at Austin Peay State University," 2007. *Award Total* \$176,177.

J. Taylor and A. King, "Enhancing Tennessee Space Grant Ties with NASA Centers through Student Research," 2006. *Award Total* \$35,548.

J. Taylor and A. King, "Establishing and Enhancing Tennessee Space Grant Ties with NASA Centers: IMAGE Mission - Space Sciences MSFC, Tensegrity Structures - Astrionics MSFC, Autonomous Vehicles - Robotics GSFC," 2005. *Award Total* \$17,417.

J. Taylor and A. King, "Application of Genetic Algorithms to Scientific and Engineering Problems of Interest at NASA's Marshall Space Flight Center: Tomographic Algebraic Reconstruction using a Genetic Algorithm," 2005. *Award Total* \$17,275.

A. King and J. Taylor, "Tomographic Algebraic Reconstruction Applied to IMAGE EUV Data Performed using a Genetic Algorithm Technique on an AppleSeed Computer Cluster," 2004. *Award Total* \$21,346.

A. King and J. Taylor, "Application of Genetic Algorithms to Scientific and Engineering Problems of Interest at NASA's Marshall Space Flight Center," 2003. *Award Total* \$19,990.

J. Taylor, S. Buckner, and A. King, "Evolutionary Design and Construction of an N-Stage M-Bar Cylindrical Tensegrity Structure," Unsolicited NASA Proposal, 2002. *Award Total* \$23,920.

J. Taylor and A. King, "Genetic Optimization of the Frequency Response of a Cylindrical Tensegrity Structure," 2002. *Award Total* \$13,557.

J. Taylor and A. King, "Tomographic Algebraic Reconstruction Applied to IMAGE EUV Data," 2001. *Award Total* \$13,386.

J. Taylor, "Optimal Segmentation of Edge Enhanced Magnetosphere Images using Pulsed Coupled Neural Networks," Unsolicited NASA Proposal. 2000 *Award Total* \$8,096.

J. Taylor, "Image Inversion and Edge Detection Techniques Applied to Simultaneous Images of Component Regions of the Magnetosphere," Subcontract 14031-A4-S1. *Award Total* \$12,077.

J. Taylor, "Image Processing of Space Based Earth Imagery," Subcontract 14031-A2-S1. Feb. 1, 1999 through Jan. 31, 1999. *Award Total* \$10,080.

J. Taylor and P. Bunton, "Development of an Image Deflection System for MSFC's EXVM Polarimeter," Subcontracts 10765-S8 Nov. 1, 1996 through Jan. 31, 1997, Subcontract 14031-S1 Feb. 1, 1997 through Jan. 31, 1998. *Award Total* \$54,165.

J. Taylor, A. Carpenter, R. McMahan, D. Luck, and R. Robertson, "Development of an Integrated Physical Science Course," Project NOVA Implementation Planning Subcontract under Grant No. NAGW-4405, April 1997. *Award Total* \$47,392

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PEER REVIEWED PUBLICATIONS

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J. Taylor and A. King, "Using Computational Methods to Reinvigorate an Undergraduate Physics Curriculum," *CiSE (special issue *Computation in Physics Courses*)* **8**, 38-43, 2006.

J. Taylor, A. King, J. Steincamp, and J. Rakoczy, "Genetic Algorithm Phase Retrieval for the Systematic Image-Based Optical Alignment Test Bed," *Publications of the Astronomical Society of the Pacific*, **118**:319-323, February 2006.

J. Johnson and J. Taylor, "Image Factorization: A New Hierarchical Decomposition Technique," *Optical Engineering*, Vol 38, No. 9, pp. 1517-1523, September 1999.

J. Taylor, M. Anderson, and P. Bunton, "High Speed Tilt Mirror for Image Stabilization," *Journal of Applied Optics*, Vol. 38, No. 1, pp. 219-223, January 1999.

M. Chiemlowski and J. Taylor, "A Real-Time Sunspot Tracking Algorithm," *Publications of the Astronomical Society of the Pacific*, 109, pp. 837-842, July 1997.

J. Taylor, A. Carpenter, and P. Bunton, "Conservation of Energy with a Rubber Ramp," *Physics Teacher*, Vol. 34, No. 3, pp. 146-147, March 1997.

J. Taylor, R. Crawford, and D. Keefer, "Muzzle-Fed Railgun Experiments with 3-D Electromagnetic Simulations," *IEEE Transaction on Magnetics*, Vol. 31, No. 1, pp. 360-364, January 1995.

R. Crawford, J. Taylor and D. Keefer, "Solid Ring Armature Experiments in a Transaugmented Railgun," *IEEE Transaction on Magnetics*, Vol. 31, No. 1, pp. 138-147, January 1995.

D. Keefer, R. Crawford and J. Taylor, "Inductance Gradient Scaling Experiments in an Augmented Railgun," *IEEE Transaction on Magnetics*, Vol. 31, No. 1, pp. 326-331, January 1995.

†D. Keefer, J. Taylor and R. Crawford, "The Electromagnetic Force in Railguns," *Fourth European Symposium on Electromagnetic Launch Technology*, May 2-6, 1993, Celle, Germany.

J. Taylor, R. Crawford and D. Keefer, "Experimental Comparison of Conventional and Trans-Augmented Railguns," *IEEE Transaction on Magnetics*, Vol. 29, No.1, pp. 496-498, January 1993.

†Selected as "*Best Paper*" at conference out of more than 100 papers presented by scientists from nine countries.



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## INVITED PRESENTATIONS

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J. Taylor, "A Winning Formula for Student Success: A Practical Overview," Keynote Address - Society for Advancement of Management - International Business Conference, Nashville, TN, March 2020. (*Presentation was postponed due to COVID19.*)

A. King and J. Taylor, "Computational Methods at Austin Peay State University, Three Years Later," American Association of Physics Teachers Winter Meeting, Chicago, IL, February 2009.

J. Taylor and A. King, "Using Computational Methods to Reinvigorate an Undergraduate Physics Curriculum," American Association of Physics Teachers Conference, Syracuse, NY, July 22-26, 2006.

J. Taylor and A. King, "Application of a Model-to-Image Impulse Matrix," Huntsville 2000 - A New View of Geospace, October 30 - November 3, 2000, Callaway Gardens, GA.

J. Taylor and R. Robertson, "Implementation of a Physics and Chemistry Course for Preservice Teachers," Alabama Science Teachers Association, October 22-23, 1999.

J. Taylor, "Constructing a Model-to-Image Transfer Matrix," IMAGE Team Meeting, August 3-4, 2000, Southwest Research Institute, San Antonio, TX.

J. Taylor and R. Robertson, "Innovative Strategies at Austin Peay State University: Introduction to Chemistry and Physics," National Science Teachers of America Regional Conference, November 19-20, 1998, Birmingham, AL.

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## SELECTED AWARDS

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Honored as Austin Peay State University's "Outstanding Alumni" - 2014.

Achievement Award presented by the APSU Foundation for efforts to "enhance the APSU Physics Program and the entire University" - 2008.

Award for Innovative Excellence in Teaching, Learning and Technology - 2007.

Socrates Award (Outstanding Teacher Award) - APSU - 1998.

Selected by APSU students as Alumni member of Omicron Delta Kappa - 1998.

"Best Paper" 4th European Symposium on Electromagnetic Launch Technology 1993.