

Laura M. Akesson

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Academic Degrees

- M.S. Applied Physics, Virginia Commonwealth University, Richmond, VA – 2006
- B.S. Mathematics, University of Richmond, Richmond, VA - 2000
- B.A. Physics, University of Richmond, Richmond, VA – 2000
- Secondary Education minor, University of Richmond, Richmond, VA – 2000

Professional Licenses

- Virginia Collegiate Professional License (math and physics), valid through 2010.

Professional Work Experience

- **August 2009 – Present: Physics Teacher, Mills E. Godwin High School, Richmond, VA**
 - Center for Math Science and Technology
 - Teacher: Science Investigations III (Physics); Biomedical Engineering (BME)
 - Developing new curriculum for Biomedical Engineering course from a physics perspective.
 - Organizing ~20 lectures from BME faculty at VCU.
- **2007 – 2009: Physics and Math Teacher, Zurich International School, Adliswil Switzerland**
 - Science Teacher: Advanced Placement Physics B, International Baccalaureate Higher & Standard Level Physics (years 1 & 2), Pre-AP Physics, Conceptual Physics
 - Math Teacher: Algebra 1, Algebra 2
 - 25% of AP Physics B students and 15% of Higher Level Students achieved the highest grade in first year.
 - Increased Physics enrollment from 13 to 45 from 2007 to 2008
 - Recruited an uncharacteristic 7 students for the IB Physics Extended Essay (50% of Higher Level Students).
 - Proposed, planned, and launched a Conceptual Physics course as a science elective for students interested in continuing in non-IB/AP science
 - Sole teacher representative in school's strategic planning committee resulting in several tangible improvements. Major team achievements include: smoother running of the school's pastoral care program, development of policies regarding student use of school provided tablet laptops and formal student recognition.

- Formed a physics club for students struggling with physics.
 - Upgraded Physics lab to meet newest technology standards.
 - Attended week-long beginning teacher training for both IB and AP programs.
 - Initiated use of online homework system (LONCAPA).
 - Organized 2 student trips to a local science museum and power plant company, arranging personalized tours and lectures by exhibit creators and R&D executives
 - Organized guest speakers' visit to ZIS (2 Postdoctoral Fellows of the ETH Environmental Physics Group)
 - Active participation in curriculum development for ZIS' grade 9 and 10 science curriculum (physics consultant)
 - Volleyball Coach
 - Involved in extracurricular programs: Battle of the Bands Judge, Fashion Show faculty consultant (Operation Smile fundraiser)
- **2006 – 2007: Physics and Math Teacher, Godwin High School, Richmond, VA**
 - Science Teacher: Honors & College Prep Physics
 - Math Teacher: Algebra 2
 - Henrico County Public Schools (HCPS) lap top initiative: a Dell lap top is provided to each high school student and teacher in the county; iBooks are provided to all middle and elementary students and teachers.
 - Faculty Sponsor: Dance Team
 - LON-CAPA implementation. Learning Online Network – Computer Assisted Personalized Approach: a full-featured, web-based course management system
 - Mathematica ® Project: Plans to provide each student with Mathematica for purposes of math modeling in physics and math classes and beyond.
- **2004 - 2006: Graduate Teaching Assistant, Physics Department, Virginia Commonwealth University, Richmond, VA.**
 - Present and teach introductory physics laboratories.
 - Grading for calculus based introductory physics class.
 - Co-organized and led introductory physics tutoring
- **2004 - 2006: Laboratory Assistant, Physics Department, Virginia Commonwealth University, Richmond, VA.**
 - Assist in the set-up, data acquisition, and data analysis of optical experiments in the modulation spectroscopy lab of Dr. Martin Muñoz. Techniques include photoreflectance (PR), contactless electroreflectance (CER), surface photovoltage spectroscopy (SPS), and Raman spectroscopy.
 - Novel independent research in experimental optical solid state physics: Successfully utilized Contactless Electroreflectance Modulation Spectroscopy to analyze the band gap bowing parameter of $\text{Al}_x\text{Ga}_{1-x}\text{N}$.

- **2004: Curriculum Assistant, Physics Department, Virginia Commonwealth University, Richmond, VA.**
 - Authored lesson plan packet for physics course offered through VCU for teachers of Richmond City Public Schools.

- **2000-2004: Science and Mathematics Teacher, Douglas S. Freeman High School, Richmond, VA.**
 - Physics curriculum development implemented throughout Henrico County.
 - Science Teacher: Honors Physics, College Prep Physics
 - Math Teacher: Advanced Algebra, Trigonometry
 - Experienced first two years of Henrico County lap top initiative, which provided eBooks to every high school student and teacher in the county. Expansion into middle and elementary schools forthcoming.
 - Coach: Girls' Varsity Cross Country
 - Coach: Girls' Junior Varsity Volleyball, assisted Girls' Varsity Volleyball
 - Faculty Co-Sponsor: Student Government Association
 - Faculty Sponsor: Dance Team
 - Faculty Sponsor: Step Team
 - Faculty Co-Sponsor: Peer Helpers

- **1996-1999 (summer employment): Research Assistant, Thomas Jefferson National Accelerator Facility, Newport News, VA.**
 - Independent research: calibration error analysis within established radiative phi decay experiment (C-programming implemented on a Unix system)
 - Monitoring data collection of radiative phi decay experiment, assisting Dr. Phil Rubin of the University of Richmond physics department
 - Experimental hardware construction

Professional Activities

- February 2010: Contributed presentation at AAPT: Taking PIE into Overdrive. Session: Bridging the gap in physical science: teaming HS teachers and K-8 teachers
- Spring 2009: SCIS Conference, Attendee
- Summer 2008: Advanced Placement New Teacher Training, The College of William and Mary, Williamsburg, Virginia.
- Summer 2007: International Baccalaureate New Teacher Training, Geitonas School, Athens, Greece.
- QuarkNet. A regional group dedicated to implementing particle physics experimental and educational materials to high schools. Real time data is taken and contributes to ongoing research centered at Hampton University.
- Physics is Elementary (PIE) presenter & planner. PIE provides curriculum support and enhancement for 5th grade science teachers.

- Summer 2006: American Association of Physics Teachers (AAPT) Summer Conference attendant (member)
- March 2006: American Physical Society (APS) meeting attendant (member)
- 2006: LON-CAPA (Learning-Online Network Computer-Assisted Personalized Approach) Colloquium attendant; trainer and presenter for HCPS
- 2000-2004: Quiz Master, Math and Science judge for district and regional academic competitions
- 2001-2003: Principal's Advisory Committee (faculty selection)
- 2002-2004: Senior Awards Committee (faculty selection)
- 2001: DSF Assistant Principal Interview panelist, lone faculty representative (administrative selection)
- 1999: VAST Conference attendant
- 1999: GRTM Meeting attendant

Professional Honors

- 2006: Physics Graduate Academic Award
- 2006: Sigma Pi Sigma National Physics Honor Society, Virginia Commonwealth University
- 2003: Capital One Teacher Grant recipient
- 2003 & 2006: Selected Teacher Feature for Henrico County Public Schools
- 2002: Who's Who Among America's High School Teacher nomination
- 1999: Kappa Delta Pi Education Honor Society, University of Richmond
- 1996-2000: University Scholar, academic scholarship, University of Richmond
- 1998: Keck Summer Research Grant recipient

Interests

- Competition triathlon, running (Division I varsity cross country), volleyball, golf, dance (jazz, hip hop), art (water color), music (piano), travel
- Service: Advisor to Alpha Phi Omega Service Fraternity at the University of Richmond; Project Leader for Pump House Renovation Project (spring 2006)