

Avery Cotton

1285 Marigold Dr.
Independence, OR 97351
cottona@wou.edu

OBJECTIVE

Foster a curiosity and appreciation for Mathematics in students of all levels, especially within algebra-based fields.

TEACHING EXPERIENCE

Instructor

January 2009 – present

Department of Mathematics, WOU, Monmouth, OR

- Prepared lessons and taught multiple sections of algebra-based courses in a university setting, working with highly diverse groups of students with various language barriers, mathematic ability levels, and disabilities.
- Developed complementary course materials to assist students in understanding key course concepts
- Developed supplemental materials to help students pass co-requisite tests with 98% success

Academic Tutor

January 2002 – present

- Tutor students of all levels and ages throughout the year, up to 15 hrs/wk, both individually and in small groups, as a private tutor and previously as a contract tutor through WOU
- Provide tutoring for Arithmetic; Pre-algebra; Algebra; Geometry; Trigonometry; Precalculus; Differential & Integral Calculus; Multi-Variable Calculus; Differential Equations; Linear Algebra; Probability & Statistics; Number Theory; General Chemistry; Organic, Physical and Nuclear Chemistry; Newtonian Physics; Thermodynamics; Acoustics; and Electricity and Magnetism

Student Teacher

January 2007 – December 2008

South Salem High School, Salem, OR

- Developed summative and formative assessment tools for formation of learning objectives, lesson plans, and curriculum materials for Algebra I, Geometry, and Chemistry
- Worked with students one-on-one, in small groups, and entire classrooms to inspire learning and education

Graduate Teaching Assistant

September 2007 – December 2007

College of LAS; Earth & Physical Science Dept., WOU, Monmouth, OR

- Prepared engaging activities, coordinated with the concurrent lecture material to develop tangible experiences and intuition corresponding to the physical laws of Newtonian Mechanics for an algebra based physics course
- Served as a substitute lecturer, when professor was absent, for both algebra based and calculus based General Physics courses at WOU

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TEACHING EXPERIENCE - Continued

Teaching Assistant

February 2001 – March 2011

Western Oregon University (WOU), Monmouth, OR

- Assisted teaching PE 122, Social Dance, for 10 years at WOU providing experiential insight and one-on-one instruction
- Coordinated and led workshops in small groups at WOU
- Recognized at the WOU 2007 Spring Leadership awards for contributions to the Health & PE Division

EDUCATION

M.A.T., Advanced Mathematics endorsement

December 2008

Western Oregon University (WOU), Monmouth, OR

- Graduate GPA: 3.8
- Writing Field Test Scoring Certification (2008)

B.S., Mathematics with Physics Minor

June 2007

B.S., Chemistry

June 2007

Western Oregon University (WOU), Monmouth, OR

- Major GPA: 3.6
- Delmer Dewey Award – Most Outstanding Graduating Male (2007)
- ETS Recognition of Excellence - Outstanding Score on the Praxis - Mathematics: Content Knowledge (2007)
- Outstanding Senior in Mathematics (2007)
- Who's Who List (2006, 2007)
- Tutor of the Year (2005, 2006)
- National Dean's List (2005)

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EDUCATION & RESEARCH EXPERIENCE

Graduate Research Assistant

January 2008 – December 2008

College of Education, WOU, Monmouth, OR

- Collaborating with the NASA funded Global climate change Institute For Teachers to develop and integrate curriculum for K-5 teachers regarding global climate change and meeting state and national benchmarks
- Assisted in hosting a workshop for K-5 teachers around the state of Oregon on how to integrate science topics related to global climate change into the classroom

Student Researcher

October 2004 – December 2005

Reduced Gravity Student Flight Opportunity Program, NASA, Houston, TX

- Conducted scientific research on a prototype nuclear reactor under microgravity conditions in the Vomit Comet as part of the WOU team
- Met demanding criteria for rigorous safety inspection, and corrected minor flaws at direction of the inspector

RESEARCH

- “Mathematical Modeling of Suspension Bridges” under the supervision of M. Ward and H. Behmard at WOU; 2007
- “Leidenfrost in the Kitchen with the Cast Iron Skillet” under the supervision of A. Courtney at WOU; 2007
- “Modular Prime Sieve” with I. Kirkwood and M. Rivers under the supervision of C. Beaver at WOU; 2005-2006
- “Electron Transition Probabilities in the Hydrogen Atom” with B. McBride under the supervision of C. Overdeep, W. Schoenfeld, and R. Kazerouni at WOU; 2005

MEMBERSHIPS

- Boy Scouts of America (Cascade Pacific Council, Boy Scout Troop 162) – Eagle Scout
- Pi Mu Epsilon
- Pinnacle Honor Society
- WOU Math Club
- WOU Social Dance Club (President, Founder, Advisor)
- Corvallis Swing Dance Society

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COMMUNITY INVOLVEMENT & ACTIVITIES

Facebook Event Master / PR Agent / Welcoming Committee / Volunteer September 2011 – Present

Corvallis Swing Dance Society, Corvallis, OR

- Create and manage all Facebook related event announcements for Society's events
- Assist with physical setup and strike of events; provide transportation to-from events for members in-need; teach lessons and workshops; DJ Music; manage door cashbox; welcome new members at events; and organize carpools to other events in the Willamette Valley and the greater Northwest region as far as Seattle, WA.

Music Team Volunteer

2005 – Present

Religious Affiliation, Monmouth, OR

- Regularly run sound equipment during weekly meetings and at special events
- Manage digital recordings of meetings and upload to internet for online download
- Play various musical instruments as directed by music director including acoustic guitar, electric guitar, bass guitar, electric keyboard, or acoustic drums

Team Leader

October 2004 – December 2008

Microgravity Flight Team, WOU, Monmouth, OR

- Co-developed curriculum and experiments on angular momentum, Kepler's Law, buoyancy, fluid flow, convection, centripetal motion, Newton's laws of mechanics, cost analysis, and waste management
- Coordinated and conducted outreach learning seminars in science and mathematics at various schools, at all levels of learning, throughout the Willamette Valley
- Coordinated with 6 team members from WOU and with a team of students from OSU to fulfill, beyond that which was necessary, the outreach requirements stipulated by the Reduced Gravity Office, including the written section within the proposal.

Student Technology Fund Committee

September 2006 – December 2008

WOU, Monmouth, OR

- Served as a member of the Student Tech Fund Committee as a representative from the College of Liberal Arts and Sciences, as the committee secretary and currently as the committee chair
- Kept lines of communication open with supervisor, regularly submitting formal reports on committee progress, including development of the computer lab for the new Math/Nursing Building at WOU
- Developed from scratch, and passed through legislation, a set of formal bylaws for the committee

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COMMUNITY INVOLVEMENT & ACTIVITIES - continued

Science Fair Coordinator

December 2006 – March 2008

College of Liberal Arts and Sciences, WOU, Monmouth, OR

- Coordinated major portions of the 2007 and 2008 Central Western Oregon Science Exposition (CWOSE) including catering, entertainment, judging, printing, reservations, and workshops
- Collected abstracts from 200+ student participants of various disciplines, developed a schedule for presentations, and coordinated with other departments regarding two simultaneous science fairs.
- Hired and oversaw student worker to carry out parts of abstract and program organization for 2008 CWOSE

Editor

June 2006

Provost's Office, Western Oregon University, Monmouth, OR

- Scoured the WOU catalog under strict time deadline
- Found errors, conflicting information and contacted departments, divisions, and colleges to obtain current information to be included
- Submitted corrections and changes to supervisor in a timely manner

CONFERENCE PRESENTATIONS

- "Is Earth Catching a Fever? Illustrating and Assessing the Data" presented at NSTA 2008; November 22, 2008; Portland, Oregon
- "Hands-on Converses" presented at Math-a-Rama, NW Mathematics Conference 2008; October 10, 2008; Portland, Oregon
- "Scholarship Through Social Dance" presented with E. Banks, K. Batcheller, et al. at Academic Excellence Day, WOU; May 29, 2008; Monmouth, Oregon
- "Mathematical Modeling of a Suspension Bridge: Tacoma Narrows" presented at Academic Excellence Day, WOU; May 31, 2007; Monmouth, Oregon
- "Leidenfrost in the Kitchen with the Cast Iron Skillet" presented at Academic Excellence Day, WOU; May 31, 2007; Monmouth, Oregon
- "Modular Prime Sieve" presented as a Π ME Oregon Delta delegate at MathFest 2006; August 11, 2006; Knoxville, Tennessee
- "Modular Prime Sieve" presented with I. Kirkwood at Academic Excellence Day, WOU; June 1, 2006; Monmouth, Oregon

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WORKSHOPS HOSTED

- “Global climate change Institute for Teachers” hosted at WOU; August 22, 2008; Monmouth, Oregon
- “Global climate change Institute for Teachers” hosted at WOU; July 11, 2008; Monmouth, Oregon
- “Wedding Workshop” hosted at WOU for the WOU Social Dance Club; May 19, 2007; Monmouth, Oregon
- “Tutor Orientation and Training” hosted at WOU for the WOU Learning Center; October 6, 2006; Monmouth, Oregon

GRANTS & FELLOWSHIPS

- WOU Graduate Research Assistant (2008)
- WOU Graduate Teaching Assistant (2007)
- NASA Oregon Space Grant Graduate Fellowship recipient (2007, 2008)
- NASA Oregon Space Grant Undergraduate Scholarship recipient (2005, 2007)

MISCELLANEOUS

- Project Q – Collaborated with nearly 500 Lindy hop dancers from around the world to dramatize the power of a quantum computer for Krister Shalm’s presentation at TEDxWaterloo “Magic, Dance and Quantum Physics” (March 2012) <http://www.quantumpie.com/project-q/>