# Academic Vitae

Aaron Wootton, Department of Mathematics

## Academic Appointments

- Professor, University of Portland, Fall 2017 - present

- Visiting Researcher, University of Southampton, Spring 2013 (Sabbatical)

- Associate Professor, University of Portland, Fall 2010 - Spring 2017

- Assistant Professor, University of Portland, Fall 2005 - Spring 2010

- Visiting Assistant Professor, Alfred University, Spring Semester 2005

- Visiting Assistant Professor, University of Arizona, Fall Semester 2004

- Graduate Teaching Associate, University of Arizona, Fall 1998- Spring 2004

## Education

- BSc in Mathematics and Philosophy (First Class Joint Honours), University of Southampton, England, 1995-1998

- PhD in Mathematics, Department of Mathematics, University of Arizona, 1998-2004.

  - Title of Dissertation: *"Defining Algebraic Polynomials for Cyclic Prime Covers of the Riemann Sphere."*
  - Supervisor: Professor Klaus Lux.

## Awards, Honors, and Fellowships

- Outstanding Researcher in Mathematics Award – Sigma Xi Columbia-Willamette Chapter, 2018

- Pacific Northwest Regional Project Next Fellow, 2006-2007

- Teaching Award – Outstanding Faculty Member for the 2000-2001 Academic Year, from University of Arizona Disabilities Resource Center

- E. T. Davies Award for Outstanding Performance in Pure Mathematics, Southampton University, 1998

# Teaching

## Courses Taught

– Trigonometry
– Finite Mathematics
– Calculus I
– Vector Calculus
– Discrete Structures
– Modern Algebra II
– Cryptography

– College Algebra
– Business Calculus
– Calculus II
– Linear Algebra
– Modern Algebra I
– Complex Variables

## Courses Created

- A First Course in Cryptography:

    - Offered as an independent study in Fall 2009

    - Run as an official lecture course biennially since Fall 2011

    - 192 page accompanying textbook also developed and made freely available to students

## Independent Studies Supervised

- A Study of "Primes is in P," Fall 2004

- Cryptography Using Non-Abelian Groups, Fall 2004

- Modern Algebra II, Fall 2006

- An Introduction to Cryptography, Spring 2009

- Modern Algebra II, Spring 2014

# Scholarship

## Goals and Activities

### Scholarly Goals

- Deriving and disseminating original mathematical theory

- Preparing the next generation of mathematicians, scientists, and engineers

### Activities to Achieve Goals

- *Traditional Academic Research*: Deriving, publishing and presenting original mathematical theory

- *Curating Educational Resources*: Authoring and promoting innovative educational resources in mathematics

- *Undergraduate Research*: Advocating, directing, administering, and authoring undergraduate research

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## Traditional Academic Research

**Research Articles** (authors listed alphabetically as is customary in mathematics)

1. S. A. Broughton, C. Camacho, J. Paulhus, R. Winarski, A. Wootton, *Using Strong Branching to find Automorphism Groups of $n$-gonal Surfaces*, Albanian J. Math., to appear

2. S. A. Broughton, T. Shaska, A. Wootton, *Automorphisms of Surfaces*, Contemp. Math., to appear

3. G. Gromadzki, A. Wootton, *Geometry of the $1$-skeleta of singular nerves of moduli spaces of Riemann surfaces*, Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A Mat. RACSAM 112 (2018), no. 3, 849–865

4. J. Russell, A. Wootton, *A Lower Bound for the Number of Finitely Maximal $C_p$-Actions on a Compact Oriented Surface* Contemp. Math., 703, Amer. Math. Soc., Providence, RI, 2018, 1–12

5. V. Peterson, J. Russell, A. Wootton, *Maximal Group Actions on Compact Oriented Surfaces*, J. of Algebra, Volume 472, Issue 1, (2017) 1–14

6. G. Gromadzki, A. Weaver, A. Wootton, *Connectivity and dimension of the p-locus in moduli space*, Contemp. Math., 629, Amer. Math. Soc., Providence, RI, 2014, 189–202

7. S. A. Broughton, A. Wootton, *Exceptional automorphisms of (generalized) super elliptic surfaces.*, Contemp. Math., 629, Amer. Math. Soc., Providence, RI, 2014, 29–42

8. S. Bozlee, A. Wootton, *Asymptotic equivalence of group actions on surfaces and Riemann-Hurwitz solutions*, Arch. Math. (Basel) 102 (2014), no. 6, 565–573

9. J. W. Anderson, A. Wootton, *Gaps in the Space of Skeletal Signatures*, Arch. Math. (Basel) 102 (2014), no. 2, 181–190.

10. R. Benim, A. Wootton, *Enumerating Quasiplatonic Cyclic Group Actions*, Rocky Mountain Journal of Mathematics, Rocky Mountain J. Math. 43 (2013), no. 5

11. J. W. Anderson, A. Wootton, *A Lower Bound for the Number of Group Actions on a Compact Riemann Surface*, Algebraic & Geometric Topology 12 (2012) 19–35

12. G. Gromadzki, A. Weaver, A. Wootton, *On Gonality of Surfaces*, Geometriae Dedicata, Volume 149, Number 1, (2010), pp. 1–14

13. M. Arbo, K. Benkowski, B. Coate, H. Norsdtrom, C. Peterson, A. Wootton, *The genus level of a group*, Involve, A Journal of Mathematics, Volume 2, Issue 3, (2009) pp. 323–340

14. S. A. Broughton, A. Wootton, *Topologically unique maximal elementary Abelian group actions on compact oriented surfaces*, J. of Pure and Applied Algebra, Volume 213, Issue 4, (2009) pp. 557-572

15. S. A. Broughton, A. Wootton, *Finite abelian subgroups of the mapping class group*, Algebraic & Geometric Topology 7 (2007) 1651–1697

16. A. Wootton, *Extending topological group actions to conformal group actions* Albanian J. Math. 1 (2007), no. 3, 133–143

17. A. Wootton, *The Full Automorphism Group of a Cyclic $p$-gonal Surface*, J. of Algebra, Volume 312, Issue 1, (2007) pp. 377–396

18. A. Wootton, *Defining Polynomial Equations for Cyclic Prime Covers of the Riemann Sphere*, Israel J. of Mathematics, Vol. 157 (2007) pp. 103–122

19. A. Wootton, *Non-Normal Belyĭ $p$-gonal Surfaces*, Computational Aspects of Algebraic Curve, Lect. Notes in Comp., Vol 13, World Scientific, (2005) pp. 95–108

20. A. Wootton, *Multiple Prime Covers of the Riemann Sphere*, Central European J. Math. Vol. 3 (2) (2005) pp. 260–272

21. A. Wootton, *Counting Belyĭ Surfaces with many Automorphisms*, Proceedings of the 10th International ACA Conference, (2004) pp. 74–80

## Research Talks

1. *Automorphism Groups of Cyclic Surfaces*, AMS Fall Sectional Meeting, University of Michigan, Ann Arbor, October 2018

2. *The Lattice Structure of the Skeletal Signature Space*, AMS Spring Sectional Meeting, Portland State University, Portland, April 2018

3. *Defining Equations for a Riemann Surface*, (with S. Allen Broughton) BIRS, Alberta, Canada, September 2017

4. *Describing Group Actions without Group Theory*, Oregon State University Mathematics Colloquium, May 2017

5. *Maximal Group Actions on Compact Oriented Surfaces*, JMM Meeting, Seattle, January 2016

6. *Sufficiency of the Riemann-Hurwitz Formula for the Existence of a Group Action*, AMS Fall Sectional Meeting, Loyola University, Chicago, October 2015

7. *Describing Group Actions without Group Theory*, University of Arizona Algebra and Number Theory Seminar, April 2015

8. *Embeddings of automorphism groups of compact Riemann surfaces*, University of Arizona Algebra and Number Theory Seminar, October 2013

9. *Skeletal Signatures and the Architecture of the $(h, r)$-plane*, Universidad Autonoma de Madrid, May 2013

10. *Finite Group Actions on Compact Rieman Surfaces*, University of Birmingham Algebra Seminar, May 2013

11. *Enumerating Group Actions on Compact Riemann Surfaces*, Southampton University Pure Mathematics Colloquium, May 2013

12. *A Lower Bound for the Number of Group Actions on a Compact Riemann Surface*, Algebra and Number Theory Seminar, University of Arizona, October 2011.

13. *Quasiplatonic Cyclic p-gonal Surfaces*, Riemann surfaces and Dessins d'Enfants, A Conference on the Occasion of Jüergen Wolfart's 65th Birthday, CIEM, Castro Urdiales, Spain, May 2010.

14. *Bounding the Number of Group Actions on a Surface of Fixed Genus,* AMS Eastern Sectional Meeting, Pennsylvania State University, University Park, October 2009

15. *Cyclic $n$-gonal Surfaces,* 25th Nordic and 1st British-Nordic Congress of Mathematicians, Oslo, Norway, June 2009

16. *Bounding the Number of Group Actions on a Compact Oriented Surface,* Joint Mathematical Meeting, Washington D.C., January 2009

17. *Topological and Conformal Group Actions on Compact Oriented Surfaces,* Southwestern Group Theory Day, University of Arizona, November 2008

18. *Quasiplatonic Cyclic $n$-gonal Surfaces,* ICMS Workshop on "Grothendieck's Theory of Dessin's D'Enfant's," Edinburgh, Scotland, September 2008

19. *Finite Abelian Group Actions on Closed Oriented Surfaces,* Southampton University Mathematics Colloquium, Southampton, England, May 2008

20. *Extending Topological Group Actions to Conformal Group Actions* , Oakland University, ACA Conference Session on "Computational Aspects of Algebraic Curves," July 2007

21. *The Full Automorphism Group of a Cyclic $p$-gonal Surface* , AMS Western Sectional Meeting, University of Arizona, Tucson, April 2007

22. *Defining Algebraic Polynomials for Cyclic Prime Covers of the Riemann Sphere*, Rice University Algebraic Geometry Seminar, October 2006

23. *Automorphism Groups of Surfaces*, Southern Oregon University, MAA Regional Meeting, June 2006

24. *Finite Subgroups of the Mapping Class Group*, Oregon State University Colloquium, June 2006

25. *Classifying Belyi p-gonal Surfaces* Computational Aspects of Algebraic Curves Conference, University of Idaho, May 2005

26. *Multiple Prime Covers of the Riemann Sphere* Colorado State University, Algebra Seminar, April 2005

27. *Multiple Prime Covers of the Riemann Sphere* University of Arizona, Algebra and Number Theory Seminar, March 2005

28. *Counting Belyi Surfaces with many Automorphisms* AMS National Meeting, Atlanta, January 2005

29. *Defining Algebraic Polynomials for Cyclic Prime Covers of the Riemann Sphere* CUNY Graduate Center Complex Analysis Seminar, October 2004

30. *Non-Normal Belyi p-gonal Surfaces* Lamar University, ACA Conference Session on "Computational Aspects of Algebraic Curves", July 2004

31. *Counting Belyi Surfaces with many Automorphisms* Lamar University, ACA Conference Young Investigators Session, July 2004

32. *Non-Normal Belyi p-gonal Surfaces* University of Arizona, Algebra and Number Theory Seminar, Spring 2004

33. *The Full Automorphism Group of the Fermat Curves* University of North Carolina, AMS Southeastern Section Meeting, October 2003

34. *The Full Automorphism Group of the Fermat Curves* University of Arizona, Number Theory Seminar, Fall 2003

35. *Uniformization of the Fermat Curves* University of Arizona, Algebra and Number Theory Seminar, Spring 2003

## Expository Math Talks

1. *What is Mathematics?* University of Arizona, Graduate Student Colloquium, October 2004

2. *Belyi Functions, Algebraic Curves, and the Grothendieck Correspondence* University of Arizona, Graduate Student Colloquium, November 2002

3. *Grothendieck's Theory of Dessin's D'Enfants* University of Arizona, Graduate Student Colloquium, October 2002

4. *Uniformisation and Its Applications* University of Arizona Graduate Student Colloqium, September 2002

5. *Scott's Criterion and Group Generation* University of Arizona, Graduate Student Colloquium, October 2001

6. *Uniformisation by Fuchsian Groups* University of Arizona Graduate Student Colloqium, April 2001

7. *Groups of Automorphisms of Riemann Surfaces* University of Arizona Graduate Student Colloqium, September 2000

8. *Infinite Galois Extensions and Profinite Groups* University of Arizona, Graduate Student Colloquium, January 2000

9. *The Philosophy of Mathematics* University of Arizona, Graduate Student Colloquium, November 1999

10. *Non-Standard Analysis* University of Arizona, Research Tutorial Group, April 1999

## Grants for Research

- University of Portland Butine Grant for Sabbatical Travel, Fall 2011

- University of Portland Butine Grant for Collaboration, Spring 2011

- University of Portland Butine Grant for Conference Travel, Fall 2009

- University of Portland Butine Grant for Conference Travel, Summer 2008

- University of Portland Butine Grant for Conference Travel, Fall 2008

- University of Portland Butine Grant for Research, Summer 2007

- University of Portland Butine Grant for Conference Travel, Spring 2007

- University of Portland Butine Grant for Research and Summer Stipend, Summer 2006

## Research Conferences & Workshops Organized

- Special Session on "Automorphisms of Riemann Surfaces and Related Topics" at the AMS Spring Sectional Meeting, Portland State University, April 2018, Co-organizer and co-chair

- Special Session on "Mapping Class Groups and Their Subgroups" at the Joint AMS/MAA Meetings, Atlanta, January 2017 Co-organizer and co-chair

- Special Session on "Automorphisms of Riemann Surfaces and Related Topics" at the AMS Fall Sectional Meeting, Loyola University, Chicago, October 2015, Co-organizer and co-chair

- Special Session on "Automorphisms of Curves" at the AMS Eastern Sectional Meeting, Pennsylvania State University, October 2009, Co-organizer and co-chair

- Special Session on "Automorphisms of Curves" at the AMS Western Sectional Meeting, University of Arizona, April 2007, Co-organizer and co-chair

- Second Annual Mathematics Graduate Day Mini Conference, University of Arizona, Spring 2000, Co-organizer

# Curation of Educational Resources

## Textbook Collaborations (as a coauthor)

- *Functions Modeling Change: A Preparation for Calculus*, 5th Edition, Connally, Hughes-Hallett, Gleason, et. al., Wiley

- *Applied Calculus*, 5th Edition, Hughes-Hallett, Gleason, Lock, Flath, et. al., Wiley

- *Calculus: Single Variable*, 7th Edition, Hughes-Hallett, Gleason, McCallum, et. al., Wiley

- *Calculus: Multivariable*, 7th Edition, Hughes-Hallett, Gleason, McCallum, et. al., Wiley

## Educational Articles

- T. Drey, A. Lee, A. O'Bryan, A. Uribe, A. Wootton, W. Zahner, *Rates of Change*, Mini Course Module written at "Mapping the Calculus Curriculum" Workshop at the Institute for Mathematics and Education, Tucson, AZ, March 27–29, 2010

## Educational Talks, Workshops and Panels

- *Incorporating Real-World Applications into Calculus and Statistics Courses*, Panel member at Mathfest (as part of Project NexT), Portland, August 2014

- *Incorporating an Online Homework System into a Math Course*, Presentation at ORMATYC, Lincoln City, OR, April 2014

- *Using WeBWorK*, Workshop Leader, MAA Pacific Northwest Regional Meeting, University of Portland, April 2012

- *Using WeBWorK*, Workshop Leader, University of Portland, October 2010

- *Mathematics and Reading*, Workshop Leader, Mary Welty Elementary School, Nogales, Arizona, May 2003

## Other Projects

- A. Wootton, *A First Course in Cryptography*, 192 page open access textbook created for University of Portland Cryptography Course

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# Advocacy and Implementation of Undergraduate Research

## Editorial Roles

- *Foundations for Undergraduate Research in Mathematics*, Series Editor and Founder, Birkhäuser Mathematics

- *A Primer for Undergraduate Research Volume Editor*, FURM, Volume 1, Birkhäuser Mathematics

## Published Articles for Undergraduate Research (authors listed alphabetically)

- V. Peterson, A. Wootton, *A Tale of Two Symmetries: Embeddable and Non-Embeddable Group Actions on Surfaces*, Foundations for Undergraduate Research in Mathematics, Vol. 1, pp 35–60

## Research Talks for Undergraduates

1. *Automorphisms of Surfaces*, College of Idaho Mathematics Colloquium, March 2012.

2. *Automorphisms of Surfaces*, Reed College Mathematics Colloquium, November 2011.

3. *Automorphisms of Surfaces*, University of Portland Mathematics Colloquium, November 2011.

4. *Tilings of Surfaces*, Linfield College Science Colloquium, May 2008

5. *Symmetries of Surfaces and Generating Sets for Groups*, Willamette Valley REU Research Group Presentation, Willamette University, June 2007

6. *Symmetries of Surfaces and Generating Sets for Groups*, Rose Hulman Institute of Technology REU Colloquium, June 2007

7. *Groups of Automorphisms of Compact Riemann Surfaces*, University of Portland Math Colloquium, February 2007

8. *Automorphism Groups of Surfaces*, Willamette University Math Colloquium, October 2006

9. *The Poincare Conjecture*, University of Portland, Math Colloquium, February 2006

10. *To Tile or not to Tile, that is the Question*, Alfred University, Math Club Seminar, February 2005

## Grants Secured for Undergraduate Research Activities

- Mathematical Association of America award to support the ORCA Math Conference for Teachers and Undergraduates in Chico, California, July 2008. Co-Principle Investigator.

- National Science Foundation sub-award from Willamette Valley Consortium for Undergraduate Mathematics Research. Faculty Mentor.

# Undergraduate/Graduate Research Supervised and Outcomes

1. *Group Actions of Genus Levels* 1 *and* 2, REU faculty mentor at the University of Portland, Summer 2007 (with H. Nordstrom)

   - Research article published in Involve Journal (full details under "Research Articles")

2. *Classifying Quasiplatonic Surfaces with Certain Common Automorphism Groups*, University of Portland, Fall 2006 & Spring 2007, honors thesis mentor

   - Awarded best Honors Thesis in the University of Portland for graduating class of 2007
   - Published in the Rose-Hulman Undergraduate Mathematics Journal
   - Scholarly presentation at regional conference

3. *Enumerating Cyclic Quasiplatonic Groups for a Given Signature*, Portland State University, Masters Thesis, 2009-2010, external mentor

   - Research article published in Rocky Journal of Mathematics (full details under "Research Articles")

4. *Groups Actions Uniquely Determined by Skeletal Signature*, REU faculty mentor at the University of Portland, Summer 2013 (with V. Peterson)

5. *Asymptotic equivalence of group actions on surfaces and Riemann-Hurwitz solutions*, Mentored research, Spring 2014

   - Research article published in Arch. Math. (full details under "Research Articles")
   - Scholarly presentations at regional and national AMS conferences
   - Scholarly presentations in university seminars and collquia

6. *Maximality of Cyclic Prime Group Actions on Compact Riemann Surfaces*, REU faculty mentor at the University of Portland, Summer 2013 (with V. Peterson)

   - Research article published in Journal of Algebra (full details under "Research Articles")
   - Scholarly presentations at regional and national AMS conferences

7. *Planar Representations of Group Actions*, faculty mentor for the University of Portland Undergraduate Research Program, Summer 2017

   - Supported by CAS SURE grant
   - Scholarly presentation at regional AMS conference and Founders Day
   - Research article in progress

# Miscellaneous Scholarly Activities

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## Talks, Panels, Workshops and Organizational Roles

- *What do Mathematicians Do?* Presentation to three different grade levels (14, 15 & 16 year olds) at Clevedon Community School, Clevedon, England, March 2013

- *Pursuing a Successful Career in Graduate School* Willamette Valley REU Panel Discussion, University of Portland, July 2007, 2008, 2012 & 2013

- *Publishing Undergraduate Research* Panel Discussion at the MAA Pacific Northwest Regional Meeting, University of Portland, April 2012

  *Academic Jobs at Four Year Colleges: The How to Guide*, Presentation at the University of Arizona Mathematics Graduate Student Colloquium, October 2011

- Organizer of *ORCA Math Conference for Teachers & Undergraduates*, CSU, Chico, California, July 2008

- Organizer of Panel on "Developing a Research Agenda" at the Pacific Northwest Section MAA Meeting, Linfield College, April 2007

- Organizer of local accommodations for the MAA Pacific Northwest Regional Meeting, University of Portland, April 2012 & 2019

# Service

## University Service

- Member of the Executive Committee, Academic Senate (Fall 2015–Spring 2017)

- CAS Faculty Mentor, (2015–present)

- Chair of the Ad-hoc Committee on Student Evaluations (Academic Year 2014-2015)

- Chair, Committee on Teaching and Scholarship, (Fall 2015–Spring 2017)

  - Member from Fall 2014 through the end of Fall 2017

- Member of the Academic Senate, (Academic Year 2013-2014)

- Member of the Presidential Advisory Committee on Technology, (Academic Year 2013-2014)

- Panel Member on "The Adjustment from High School Calculus to College Calculus" Freshman Orientation Week, 2013, 2014

- Judge for the Innovation Award at the First-year Engineering Design Competition, University of Portland, Fall 2012

- Organizer and Chair for Session on "Faculty Research" for the University of Portland Faculty Development Day, 2012

- Co-organizer of Villa Soccer Tournament, 2012

- Panel Member for RA Training: Working with Juniors & Seniors, RA Orientation 2011

- Member of Committee on Committees, 2010 & 2011

- Panel Member for discussion on "What Does the Future Hold for My Liberal Arts Major?", Freshman Orientation Week, 2010 & 2011

- Member of the Search Committee for new Dean of Engineering, (Academic Year 2010-2011)

- Member of CRA Committee, Three year term, 2009-2011

- Member of the Presidents Advisory Committee on Athletics (Academic Year 2007-08)

- Faculty Advisor for Women's Soccer Club (2008-present)

- Faculty Advisor for undeclared students in the College of Arts and Sciences (2006-present)

- Department Representative at Visitation Day (2009, 2010, 2012)

- University of Portland RHA Casino Night, Spring 2006 (Poker dealer) & Spring 2007 (Blackjack dealer)

- Presider for Session on "Computers and the Classroom" for the University of Portland Faculty Development Day, 2006

## Department Service

- Member of Mathematics Search Committee for instructor, (Academic Year 2018-2019)

- Member of Mathematics Search Committee for a one year visiting position, (Spring 2018)

- Chair of Mathematics Search Committee for tenure track line (Academic Year 2016-2017)

- Member of Mathematics Search Committee for tenure track line (Academic Year 2015-2016)

- Member of Mathematics Search Committee for two tenure track lines (Academic Year 2014-2015)

- Member of Mathematics Search Committee for a one year visiting position, (Summer 2014)

- Coauthor and Co-organizer of the Department of Mathematics External Review, (Academic Year 2012–13)

- Library Liason for Department of Mathematics (Fall 2006 –Fall 2012)

- Mathematics Colloquium Organizer (2007–2015)

- Faculty Advisor for mathematics majors (2008–present)

- Member of the Mathematics Search Committee for two tenure track lines, (2008–09)

- Webwork Administrator (2008–present)

# Professional Service

- Co-organizer and Co-chair of Special Session on 'Automorphisms of Riemann Surfaces and Related Topics" at the AMS Spring Sectional Meeting, Portland State University, April 2018

- Co-organizer and Co-chair of Special Session on "Mapping Class Groups and Their Subgroups" at the Joint AMS/MAA Meetings, Atlanta, January 2017.

- Co-organizer and Co-chair of Special Session on "Automorphisms of Riemann Surfaces and Related Topics" at the AMS Fall Sectional Meeting, Loyola University, Chicago, October 2015.

- Co-organizer and Co-chair of Special Session on "Automorphisms of Curves" at the AMS Eastern Sectional Meeting, Pennsylvania State University, October 2009

- Co-organizer and Co-chair of Special Session on "Automorphisms of Curves" at the AMS Western Sectional Meeting, University of Arizona, April 2007

- Organizer of Panel on "Developing a Research Agenda" at the Pacific Northwest Section MAA Meeting, at Linfield College, April 2007

- Language Editor for the Central European Journal of Mathematics (Fall 2005 – Spring 2014)

- Anonymous referee for multiple academic journals

- Reviewer for Mathematical Reviews (Fall 2006–present; 26 total reviews)

- Reviewer for Zentralblatt für Mathematik (Fall 2007–Spring 2016; 33 total reviews)

- Problem author for Webwork

# Community Service

- PTA member and volunteer for James John Elementary School (2017–present)

- Volunteer for The Montessori House preschool (volunteer work primarily for maintenance of the school e.g. painting, carpentry) (2015–2017)

- Faculty Supervisor for University of Portland Freshman Day of Service

    - Fall 2005 – clearing invasive plants in Forest Park
    - Fall 2006 – landscaping the grounds of Portsmouth Middle School
    - Fall 2007 –clearing invasive plants on Sauvie Island
    - Fall 2008 – clearing invasive plants in Forest Park
    - Fall 2009 – clearing invasive plants on Sauvie Island
    - Fall 2010, 2011, 2013 & 2014 – Homebase Crew

- Problem author for HP-$\Sigma$ Invitational Math Contest