

William C. Kronholm

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Employment

Swarthmore College, Visiting Assistant Professor, 2008 to present

University of Oregon, Graduate Teaching Fellow, 2002 to 2008

UO Youth Enrichment & TAG Program, SEP Math Teacher, Summer 2008

Education

Ph.D. Mathematics, University of Oregon, 2008

M.S. Mathematics, University of Oregon, 2004

B.S. Applied Mathematics, Rochester Institute of Technology, 2002 (With Honors)

Research Interests

Equivariant Cohomology and Homology, Algebraic Topology, Applied Algebraic Topology

Interdisciplinary Projects

Interactive Math/Art exhibit where dynamic homological information about the network of users affects the light and sound environment of the installation. Joint with Aaron Bocanegra, Art Institute of California, L.A. (*In progress*)

Papers in Progress

"The $RO(\mathbb{Z}/2)$ -graded Cohomology of Moore Spaces for Cyclic Groups," joint with C. Giusti.

"Coverage in Sensor Networks with Variable Radii via Persistent Homology," *in progress*.

Preprints

"The $RO(G)$ -graded Serre Spectral Sequence," 2008. (Submitted) arXiv:0908.3827

"A Freeness Theorem for $RO(\mathbb{Z}/2)$ -graded Cohomology," 2009. (Submitted) arXiv:0908.3825

Papers

"The $RO(G)$ -graded Serre Spectral Sequence," PhD Thesis.

"Tournaments With a Transitive Subtournament as a Feedback Arc Set," with J. Baldwin and D. Narayan, 2002.

Honors and Awards

Distinguished Graduate Teaching Award, University of Oregon, 2007.

Undergraduate Research Award, Rochester Institute of Technology, 2002.

Invited Talks

“Homological Sensor Networks.” Tetrahedral Geometry/Topology Seminar, April 2009.

“The $RO(G)$ -graded Serre Spectral Sequence.” Special Session on Homotopy Theory and Higher Categories, Joint Mathematics Meetings, January 2009.

“Pancakes, Sandwiches, Coffee, and the Weather” or “Conversational Topology.” Colloquium, Vassar College, December 2008.

Selected Seminars

“Introduction to Equivariant Topology.” Topology Seminar, Oregon State University, May 2008.

“The $RO(G)$ -graded Serre Spectral Sequence.” Algebraic Topology Seminar, University of Chicago, February 2008.

“Introduction to Equivariant Topology.” Colloquium, Swarthmore College, February 2008.

“ $RO(\mathbb{Z}/2)$ -graded Cohomology.” Geometry/Topology Seminar, University of Oregon, October 2007.

Service

Swarthmore College

GRE Math subject test preparation, 2008-2010

Panelist for the Informal Graduate School Workshop, Fall 2009

University of Oregon

Organized University of Oregon Summer Seminar, 2005, 2006.

Coordinated combined final examination for all College Algebra classes, Spring 2003.

Teaching Experience

Swarthmore College

Further Topics in Single-Variable Calculus, Fall 2009

Linear Algebra, Fall 2008

Several-Variable Calculus, Spring 2009, Spring 2010 (*projected*)

Introduction to Real Analysis, Fall 2008

Topology Seminar, Spring 2010 (*projected*)

University of Oregon

Instructor, University Mathematics I, Winter 2004

Instructor, University Mathematics II, Summer 2004, Winter 2008

Instructor, University Mathematics III, Summer 2003

Teaching Assistant, Calculus for Business and Social Sciences, Winter 2003, Fall 2003

Instructor, College Algebra, Fall 2002, Spring 2003, Spring 2004, Summer 2005

Instructor, Elementary Functions, Fall 2004, Winter 2006

Instructor, Calculus for Biological Sciences I, Fall 2007

Instructor, Calculus I, Winter 2005, Fall 2005, Fall 2006

Instructor, Calculus II, Spring 2005, Spring 2008

Instructor, Calculus III, Spring 2006, Winter 2007

Instructor, Discrete Mathematics I, Summer 2006

Instructor, Discrete Mathematics III, Spring 2007

Instructor, Elementary Analysis, Summer 2007

Computer Skills

L^AT_EX

Mathematica

OpenOffice

Graphing Calculator

Blackboard

Personal Interests

Home brewing

Slow Food USA

Ultimate Frisbee

Buffalo Sabres

Scrabble

Cribbage