

Eric Takeo Funasaki

Assistant Professor of Mathematics
Department of Computer Science and Mathematics
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Education

PhD in Mathematics. University of Tennessee, Knoxville. Knoxville, TN. May 1997.
MS in Applied Mathematics. University of Washington. Seattle, WA. June 1992.
BS in Mathematics (with distinction). Harvey Mudd College. Claremont, CA. May 1990.

Professional Experience

Sul Ross State University. Alpine, TX. 2014-present.
Portland Community College. Newberg, OR and Portland, OR. 2010-2013.
George Fox University. Newberg, OR. 2005-2010.
University of Montana-Western. Dillon, MT. 2002-2005.
Georgia Southern University. Statesboro, GA. 1996-2002.

Professional Association

Resource Modeling Association

Publications

- Hallam, T.G. and E.T. Funasaki. 1999. Complexity and Emergence in Models of Chemically Stressed Populations. In *Tempos in Science and Nature: Structure, Relations, and Complexity*. C. Rossi, S. Bastianoni, A. Donati, and N. Marchettini, Eds. New York Academy of Sciences: New York.
- Hallam, T.G. and E.T. Funasaki. 1997. Indicators of Chemical Stressor Levels Derived from Population Time Series: A Retrospective Approach. In *Environmental Toxicology and Risk Assessment: Modeling and Risk Assessment (Sixth Volume)*, ASTM STP 1317. F. James Dwyer, Thomas R. Doane, and Mark L. Hinman, Eds. American Society for Testing and Materials: Philadelphia, PA.
- Hallam, T.G., E.T. Funasaki, K. Lika, and H.L. Lee. 1997. Utility of Dynamics as Indicators of Stress in Population Models. *Environmental Modeling and Assessment*. 2: 1-6.
- Funasaki, E. and M. Kot. 1993. Invasion and Chaos in a Periodically Pulsed Mass-Action Chemostat. *Theoretical Population Biology*. 44(2): 203-224.

Research and Professional Presentations

Oregon Academy of Sciences. Portland, OR. February 2008. Poster Presentation: "Periodic

Population Pulses in a SEIR Model for Childhood Diseases” (given by Kimberly Cullen, George Fox University undergraduate)

Joint Mathematics Meetings. Washington DC. January 2000. Poster Presentation: “Survival of a Consumer with a Periodic Feeding Schedule in a Periodically Pulsed Mass Action Chemostat” (given by Carrie Williams, Georgia Southern University undergraduate)

MAA Southeastern Section Meeting. College of Charleston. Charleston, SC. March 1998. Presentation: “Competition in a Periodically Pulsed Chemostat” (given by Angel Rowe, Georgia Southern University graduate student)

12th International Symposium on the Mathematical Theory of Networks and Systems. Washington University. St. Louis, MO. June 1996. Invited Presentation: “Estimation of Toxicant Levels in a Chemically Stressed Population Model from Summary Statistics and Population Level Parameters” in the Mathematical Modeling in Population Biology session.

Joint Mathematics Meetings. San Francisco, CA. January 1995. Invited Presentation: “Retrospective Risk Assessment of an Individual-based Daphnia Population Model” in the AMS Special Session on Environmental Modeling

International Conference on Differential Equations with Applications to Biology and to Industry. Harvey Mudd College. Claremont, CA. June 1994. Poster Presentation: “Dynamics of an Individual-based Daphnia Population Model”

Southeast Regional Mathematical Biology Meeting. Highlands, NC. March 1993. Presentation: “Invasion and Chaos in a Periodically Pulsed Mass-Action Chemostat”

Northwest Regional Mathematical Biology Meeting. University of British Columbia. Vancouver, BC. March 1991. Presentation: “Dynamics of a Periodically Pulsed Chemostat”

Other Affiliations and Involvement

Professional Experience Details

August 2014 to present

Assistant Professor of Mathematics
 Department of Computer Science and Mathematics
 Sul Ross State University
 Alpine, TX

Teaching

Semester courses teaching:

College Algebra
 Plane Trigonometry
 Differential Equations

Semester courses taught:

College Algebra
 Plane Trigonometry
 Contemporary Mathematics
 Elementary Statistical Methods
 Calculus I/Calculus I Lab
 Calculus II/Calculus II Lab
 Calculus III/Calculus III Lab (multivariable and vector calculus)
 Linear Algebra
 Differential Equations
 Foundations of Higher Mathematics

Research

Collaborating with Dr. Shandelle Henson of the Department of Mathematics at Andrews University on a predator-prey model for bald eagles and seagulls in the Pacific Northwest.

Department Seminars presented:

“Developing a mathematical model for a predator-prey system: bald eagles and seagulls in the Pacific Northwest”

“How a Pure Mathematician and the Binomial Theorem Changed the Study of Population Genetics”

“An Introduction to the Modeling of Infectious Diseases”

“Is there a connection between the Fibonacci sequence and the Golden Ratio?”

“Using Matrices and Vectors to Model Populations”

“An Introduction to Difference Equations and Deterministic Chaos”

“Using Dynamical Systems to Model Populations”

Service

Department committees served on:

Assistant Professor of Computer Science Search

Assistant Professor of Computer Science (Gaming Technology) Search

Mathematics Lecturer Search (chair)

University councils serving on:

Athletics

Faculty Assembly Executive

University committees serving on:

McNair-Tafoya Symposium Review

University Scholarship

Reviewed paper for publication for:

Journal of Biological Dynamics

Secretary/Treasurer for the Faculty Assembly

Departmental representative/presenter at fall and spring Sully Showcases (on-campus undergraduate student recruitment events)

Reviewed and edited a Cyber Security presentation for a computer science colleague.

January 2014 to May 2014

Visiting Assistant Professor of Mathematics

Department of Computer Science and Mathematics

Sul Ross State University

Alpine, TX

Teaching

Semester courses taught:

Introduction to University Mathematics

University Algebra

Geometry

September 2012 to December 2013

Mathematics Tutor

Newberg Center

Portland Community College

Newberg, OR

Held regular tutoring hours each week where students from any mathematics course could come by for help. Worked with students taking Basic Mathematics, Beginning Algebra, Intermediate Algebra, College Algebra, Calculus, and Statistics courses.

September 2010 to December 2013

Adjunct Instructor of Mathematics
Department of Mathematics and Department of College Success Skills
Portland Community College
Newberg, OR and Portland, OR

Teaching

Quarter courses taught:

Basic Mathematics
Introductory Algebra - First Term
Introductory Algebra - Second Term
Intermediate Algebra
College Algebra
Statistics I

Service

Wrote letters of recommendation for students.

January 2010 to May 2010

Adjunct Instructor of Mathematics
Department of Mathematics, Computer Science, and Engineering
George Fox University
Newberg, OR

Teaching

Semester course taught:
College Algebra

August 2005 to July 2009

Associate Professor of Mathematics
Department of Mathematics, Computer Science, and Engineering
George Fox University
Newberg, OR

Teaching

Semester courses taught:
World of Mathematics
College Algebra
Precalculus
Calculus I, II, III (including multivariable and vector calculus)
Discrete Mathematics
Differential Equations with Linear Algebra
Differential Equations
Linear Algebra
Probability

Modern Geometry

Senior Thesis (as an independent study, 1 undergraduate student)

Curriculum development: Added a Real Analysis course to the mathematics course offerings, revised the Differential Equations and Linear Algebra courses, and updated and revised the mathematics major.

Research

During Summer 2007 worked with Kimberly Cullen, an undergraduate mathematics student, on an individual research project entitled "Periodically Pulsed Population Replenishment in an SEIR Model for Childhood Diseases". This work was supported by a grant she received from the Richter Scholars Program. During Fall Semester 2007 she continued working on this project as her senior thesis.

Service

Judge for the student poster session at the 2007 Annual Meeting of the Society for Mathematical Biology.

Served on the Peer Review committee for 1 mathematics faculty member.

Faculty advisor for 4 mathematics majors.

Advisor at Genesis (summer registration events for incoming freshmen students)

Departmental representative to Bruin Preview (on-campus undergraduate student recruitment events)

University committee served on:

Undergraduate Scholarships

Wrote letters of recommendation for students.

Employee leader for the 2008 Serve Day trip to the Portland Rescue Mission.

Employee leader for the 2007 Spring Serve trip to Lapwai, Idaho.

August 2002 to July 2005

Assistant Professor, Associate Professor (promoted 2003), and Department Chair

Department of Mathematics

University of Montana-Western

Dillon, MT

Teaching

Semester courses taught:

Beginning Algebra

Mathematics for Elementary Teachers

Probability and Linear Mathematics

Trigonometry and Complex Numbers

Precalculus

Calculus I, II, III (including multivariable and vector calculus)

Linear Algebra

Experience One (block) semester courses taught:

Intermediate Algebra

Mathematics for the Liberal Arts

Probability and Linear Mathematics

Curriculum development: Worked on redesigning the entire mathematics curriculum as well as the secondary education mathematics major, secondary education mathematics minor, and the elementary education mathematics emphasis area degree programs for the conversion from the traditional semester system to the Experience One (block) semester system. The University of

Montana-Western switched to the Experience One semester system in Fall 2005. (In the Experience One semester system students take one course at a time and each course meets for 3 hours a day for 18 days.) Also worked on designing a secondary education mathematics broadfield degree program.

Research

Continued work done on periodically pulsed chemostat models.
Furthered work done in PhD dissertation "Examination of Dynamical Behavior and Estimation of Toxicant Levels in Chemically Stressed Population Models".

Service

Chair of the Department of Mathematics
Mathematics/Science Upward Bound Mathematics Instructor
Served on the Teacher Education Program portfolio committee for 1 secondary education mathematics student.
Faculty advisor for 12 students (4 secondary education mathematics majors, 2 secondary education majors, 3 elementary education majors, 1 equine studies major, and 2 undeclared majors).
Student recruitment presentation at Kaimuki High School (Honolulu, Hawaii).
Wrote letters of recommendation for students.
University committees served on:
Faculty Senate (departmental representative)
Mathematics Search (chair)
Visiting Assistant Professor Search (chair)
Program in Arts and Sciences (departmental representative)
Reviewed papers for publication for:
Journal of Theoretical Biology
Theoretical Population Biology

September 1996 to July 2002

Assistant Professor of Mathematics (received tenure 2002)
Department of Mathematics and Computer Science
Georgia Southern University
Statesboro, GA

Teaching

Quarter courses taught:
Precalculus
Calculus I, II, III
Applications of Linear Algebra
Differential Equations
Mathematical Models and Applications (undergraduate/graduate course)
Research Project in Mathematics (1 graduate student)
Quarter course developed and taught:
Mathematical Models in Population Ecology (undergraduate/graduate course)
Semester courses taught:
College Algebra
Precalculus
Survey of Calculus (calculus for business majors)
Calculus I, II, III (including multivariable and vector calculus)
Differential Equations

Mathematical Modeling (as an independent study, 1 undergraduate student)
Research Project in Mathematical Ecology (1 undergraduate student)
Senior Thesis (as an independent study, 1 undergraduate student)
Semester course developed and taught:
Mathematical Models in Population Ecology I (undergraduate/graduate course)
Semester courses developed (as part of Undergraduate Research Committee):
Senior Research Project
Undergraduate Seminar
Curriculum development: Worked on redesigning the entire mathematics curriculum and the mathematics major degree programs for the conversion from the quarter system to the semester system. Georgia Southern University switched from the quarter system to the semester system in Fall 1998.

Research

Collaborated with Dr. Sophie George of the Department of Biology on a mathematical model to describe and explain data she collected on the reproductive strategies of seastars off the coast of Washington state.
Continued work done with Angel Abney (Masters student) and Carrie Williams (undergraduate student) on periodically pulsed chemostat models.
Furthered work done in PhD dissertation "Examination of Dynamical Behavior and Estimation of Toxicant Levels in Chemically Stressed Population Models".
Chairperson of Angel Rowe's Masters thesis committee. Her thesis, "Predation and Competition in a Periodically Pulsed Chemostat", was completed in June 1998.
Member of Thomas Park's Masters thesis committee. His thesis, "Alternative Forms of Seasonal Variation in Childhood Epidemics", was completed in June 1998.
Member of Verlynda Slaughter's Masters thesis committee. Her thesis, "Interior-Point Method for a Class of Conic Quadratic Programming Problems", has not been completed.
During Summer 1999 worked with Carrie Williams, an undergraduate mathematics student, on an individual research project entitled "Survival of a Consumer with a Periodic Feeding Schedule in a Periodically Pulsed Mass-Action Chemostat".
During the academic year 1999-2000 she continued working on this project as her senior thesis.

Service

Reviewed papers for publication for:
Journal of Nonlinear Analysis
Electronic Journal of Differential Equations
Natural Resource Modeling
Theoretical Population Biology
Reviewed book proposal (upper level undergraduate mathematical modeling text) for CRC Press.
Judge at the MAA-CUPM undergraduate student poster session at the 2000, 2001, and 2002 Joint Mathematics Meetings.
Co-organized AMS Special Session at 2001 Joint Mathematics Meetings.
University committee served on:
Mathematics Education Advisory
College of Science and Technology committee served on:
Dean's Advisory
Departmental committees served on:
Calculus (chair)
Center for Applied Mathematical Sciences

Faculty Search
Graduate (graduate program)
Foundation Grant (chair, member)
Mathematics (undergraduate program)
Mathematics Tournament
Technical Reports
Undergraduate Research (chair, member)
Departmental advisor for half of the mathematics majors (over 25 students).
Served on 4 MEd in mathematics comprehensive examination committees.
Edited papers for publication for mathematics and computer science colleagues.
Faculty advisor for one of the Georgia Southern University's teams entered in COMAP's 2000 Mathematical Contest in Modeling competition.
Wrote letters of recommendation for students.
Faculty mentor for new faculty members.
Scorekeeper at the annual Georgia Southern University mathematics tournament for high school and middle school students from southeast Georgia.

August 1992 to August 1996

Graduate Teaching Associate and Graduate Research Associate
Department of Mathematics
University of Tennessee, Knoxville
Knoxville, TN

Teaching

Semester courses taught:
Precalculus I
Biocalculus I, II (calculus for life science majors)

Research

Under the supervision of Dr. Thomas Hallam worked on a retrospective risk assessment of an individual-based *Daphnia* population model.

Service

Senator for the College of Arts and Sciences to the Graduate Student Association.

June 1990 to June 1992

Graduate Teaching Assistant and Graduate Research Assistant
Department of Applied Mathematics
University of Washington
Seattle, WA

Teaching

Quarter courses assisted:
Partial Differential Equations
Vector Calculus and Complex Variables
Calculus of Variations (graduate course)

Research

Under the supervision of Dr. Mark Kot worked on a periodically pulsed predator-prey chemostat model.