

Emek Köse

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EDUCATION

- Ph.D. in Mathematics Drexel University, Philadelphia, September 2009.
Dissertation: *Catadioptric Sensors*, advisor : Ronald Perline.
- M.S. in Data Analytics University of Maryland University College, to be completed in Math 2021.
- M.A. in Mathematics Drexel University, Philadelphia, December 2005.
- B.Sc. in Mathematics Middle East Technical University, Turkey, 2001.

APPOINTMENTS

- Associate Professor, St. Mary's College of Maryland, May 2016-present.
- Assistant Professor, St. Mary's College of Maryland, August 2011-May 2016.
- Peace Scholar, University of the Gambia, West Africa, June 6-28, 2014.
- Visiting Research Assistant Professor, Loyola Marymount University, Los Angeles, August 2009 – June 2011.
- Instructor, Loyola University New Orleans, January 2009 – August 2009.
- Teaching Assistant, Drexel University, January 2003 – September 2008.

GRANTS

- Kose, E. (co-PI) and Sandy Ganzell, NSF-REU: Emerging Scholars Program, 2016, \$292,048.
- Kose, E. and Zollinger E., AIM REUF Extension Grant, May 2018, \$2000.
- Kose, E. and Douglas, C., PIC Math Grant, April 2016, \$5000.
- Kose, E., Larson, R., Heckman, K., R. Platt, R., Ishikawa, S. and Grossman, J., *VCalc and STEM Ed*, MIPS (Maryland Industrial Partnership Programs), December 2015, \$84,681.
- Kose, E. and Henderson, A., *Teaching Applied Statistics with Service Learning Component*, Civic Engagement Award, St. Mary's College of Maryland (funded by Mellon Award to St. Mary's College for Integration of Civic Engagement and Service Learning Opportunities), Summer 2015, \$6,670.
- Kose, E. and Douglas, C., *Maps and Mirrors*, Center for Undergraduate Research in Mathematics Continuing Grant, May 2014, \$2,000.
- Kose, E., *Redesigning Mathematics for Teachers I and II*, Civic Engagement Award, St. Mary's College of Maryland (funded by Mellon Award to St. Mary's College for Integration of Civic Engagement and Service Learning Opportunities), Summer 2013, \$3000.
- Kose, E. and Douglas, C., *Maps and Mirrors*, Center for Undergraduate Research in Mathematics Mini-Grant, January 2013, \$17,000.

- Kose, E. *Women in Mathematics with an Outreach Component*, MAA Tensor Grant, April 2011, \$5000.
- Kose, E. Faculty Development Grant, St. Mary's College, 2012-2016, \$9,000.

AWARDS

- St. Mary's College of Maryland, Homer Dodge Award for Excellence in Teaching, 2015.
- Drexel University Excellence in Teaching Award, 2007.
- Drexel University Mathematics Department Albert Herr Excellence in Teaching Award, 2004.
- Graduate Fellowship, Drexel University, 2003-2009.

PUBLICATIONS

Peer-Reviewed Publications:

1. "Modeling the stem cell hypothesis: Investigating the effects of cancer stem cells and TGF-beta on tumor growth," with Sam Elliott, Allison Lewis, Anna Steinfeld* and Elizabeth Zollinger, *Mathematical Biosciences and Engineering*, Vol 16, No. 6, 2019.
2. "The Role of Course-Based Undergraduate Research Experiences in Extending Transformative Learning to All Students," with Amy, *Journal of Transformational Teaching*, Vol 5, No. 2 (2018).
3. "Social and Environmental Justice Impacts of Industrial Agriculture," with Amy Henderson (to appear at the *Mathematics for Social Justice: Perspectives and Resources for the College Classroom, Volume I*, MAA).
4. "Immuno-kinetics of Immunotherapy: Dosing with DCs," with S. Moore, C. Ofodile, A. Radunskaya, E. Swanson, E. Zollinger, *Letters in Biomathematics*, Vol. 4, No 1, 39-58 (2017).
5. "Women in Mathematics: A Nested Approach," with A. Johnson, *PRIMUS Journal*, Vol. 26, No 7, 676-693 (2016).
6. "Equitable Mirrors," with C. Douglas, C. VanBlargan and N. Stack, *Applied Optics*, Vol. 53, No 36, 8471-8480 (2014).
7. "A Survey of Differential Geometry of Discrete Curves," with I. Sterling, D. Carroll and E. Hankins, *The Mathematical Intelligencer*, Vol. 36, No. 4, 28-35 (2014).
8. "Double-Mirror Catadioptric Sensors With Ultra-Wide Field Of View And No Distortion," with R. Perline, *Applied Optics*, Vol. 53, No. 4, 528-536 (2014).
9. "Improving Frenet's Frame Using Bishop's Frame," with I. Sterling and D. Carroll, *Journal of Mathematics Research*, Vol. 5, No. 4, 97-107 (2013).
10. "Climate Modeling in the Calculus and Differential Equations Classroom," with J. Kunze, *College Mathematics Journal*, Vol. 44, No. 5, 424-427 (2013).
11. "Achieving Wide Field of View Using Double-Mirror Catadioptric Sensors," with R. Perline, *Multi-scale Optimization Methods and Applications*, ed. W.M.Hager, S.Huang, P.N.Pardalos and O.A. Prokopyev, Springer 2006.

Other Professional Publications:

1. "Mathematics for Social Justice: Changing the Equation," *14th International Congress on Education Administration Proceedings*, 2019.
2. Editorial, PRIMUS Special Issue Project-Based Curricula, with C. Douglas, 2018.

3. “Linking ‘Women in Mathematics’ and Middle School Girls Through Mentoring,” with A. Johnson, in *Association of Women in Mathematics Newsletter*, Vol. 44, No. 1, 12-14 (2014).
4. “Gender of Mathematics (“Matematigin Cinsiyeti,” in Turkish),” *Amargi*, April 2013.

Manuscripts Under Review and In Preparation:

1. “Modeling Algal Blooms Due to Swine CAFOs in Eastern North Carolina,” with Amy Henderson and Allison Lewis, proposal for a full paper submitted.
2. “Maps and Mirrors,” with Casey Douglas, Anna Steinfeld and Jared Salzberg, submitted.
3. “Method of Micromirrors,” with Ron Perline, in preparation.

CONFERENCE SESSIONS ORGANIZED

- Kose, E., Lewis A. *Mathematics and Social Justice in the Classroom*, SIAM Conference on Applied Mathematics Education, 2018.
- Kose, E., Swanson, E. *Environmental Modeling in the Classroom*, Joint Mathematics Meetings, 2018.
- Kose, E., Swanson, E. *Environmental Modeling in the Classroom Across Curriculum*, SIAM Conference on Applied Mathematics Education, 2016.
- Kose, E., Swanson, E. *CAMP: Calculus Applied Mathematics Projects*, MathFest 2016.
- Kose, E., Douglas, C. *Cartography and Math: Imaging the World Around Us*, Joint Mathematics Meetings, 2015.
- Kose, E., Douglas, C., and Gallegos, A., *Undergraduate Research in Mathematics: How, When, Why*, MathFest 2014.
- Kose, E., Douglas, C., and Gallegos, A., *Project-based Curriculum*, MathFest 2014.
- Kose, E. Khadjavi, L., Lynch, F., *Mathematical Models: Bringing Social and Environmental Justice into the Mathematics Classroom*, Creating Balance for an Unjust World, January 13-15, 2012.

TALKS

Invited Talks:

- “Mathematical Modeling of Cancer: Immunotherapy and the Stem Cell Hypothesis” at Applied Mathematics Institute Colloquium, Middle East Technical University, Ankara, Turkey, May 2019.
- Panelist on “How to attract students to math biology? What kind of curriculum?” at NSF-CBMS Conference, “Mathematical Biology: Modeling and Analysis,” Washington D.C., 2018
- “Mathematical Modeling of Cancer Vaccines,” Applied Mathematics Colloquium, SMCM SIAM Chapter, September 2015.
- “Maps and Mirrors,” EDGE Program, Howard University, June 2015.
- “Math and Mirrors,” AWM Lecture, Hood College, April 2015.
- “The Nuts and Bolts of Undergraduate Research,” Project NExT panelist, January 2014.
- “A Mathematical Way of Looking at Images” and “My Mathematical Life,” at George Washington University Summer Program for Women in Mathematics, July 2013.
- “Math and Mirrors: A Mathematical View of Images,” Faculty Seminar at St. Mary's College of Maryland, April 2013.
- “Differential and Vector Calculus for Mirror Design,” Longwood University Colloquium, February 2012.

- “Frobenius Integration Theorem For Catadioptric Sensor Design,” Claremont Colleges Consortium Math Colloquium, October 2010.
- “Double Mirror Catadioptric Sensors,” Applied and Computational Mathematics Seminar, Tulane University, December 2008.
- “A Method for Catadioptric Sensor Design”, SIAM Annual Meeting, July 2008.

Selected Conference Talks, Seminars:

- “Mathematics for Social Justice: Changing the Equation,” International Congress on Educational Administration, May 2019, Turkey.
- “Mathematical Oncology: Differential Equations to Fight Cancer,” 6th Workshop of the Turkish Women Mathematicians Association (TKMD), April 2019.
- “Modeling Algal Blooms Due to Swine CAFOs in Eastern North Carolina,” IMAME (International Meeting on Applied Mathematics and Evolution), April 2019, France.
- “Answering the Question “When Are We Ever Going to Use This?”; Arming Our Students with the Tools Needed to Change the World for the Better,” SIAM Conference on Applied Mathematics Education, July 2018.
- “Stem-cell Hypothesis for Breast Cancer,” BAMB! (Biology and Medicine Through Medicine), May 2018.
- “A Model for Dendritic Cell Therapy,” BAMB! (Biology and Medicine Through Mathematics), May 2016.
- “Undergraduate Research, Outreach and Student Activities for a “Fair” Mathematical Experience,” MAA MathFest, August 2015.
- “Service Learning in Rural Areas,” Service Learning and Civic Engagements Conference, March 2015.
- “Art, Mirrors, and Math: A Mathematician’s View of Images,” MAA MD-VA-DC Sectional Meeting, April 2014.
- “Linking Women in Mathematics and Middle School Girls Through Mentoring,” MAA (Mathematical Association of America) MathFest, August 2013.
- “Geometry of Discrete Curves,” MAA MD-VA-DC Section Spring Meeting, April 2013.
- “*Computational Sensors as Mathematical Models*,” Joint Mathematics Meetings, January, 2012, Boston, MA.
- “*Mathematical Models: Bringing Social and Environmental Justice into the Mathematics Classroom*,” Creating Balance for an Unjust World, January 13-15, 2012, San Francisco, CA.
- “*Vector Fields and Differential Forms for Optical Design*,” MAA MD-VA-DC Section Fall Meeting, November, 2012, Christopher Newport University, VA.
- “Modeling in Imaging Science for Teaching ODEs and PDEs”, Joint Mathematics Meetings, January 2011.
- “Vector Fields and Differential Forms for Optical Design”, Women in Mathematics in Southern California, November 2010.
- “Imaging Science in Undergraduate Projects Using Vector Calculus and PDEs”, MAA SoCal-Nev Section Meeting, October 2010.
- “Frobenius Integration Theorem For Catadioptric Sensor Design”, MAA SoCal-Nev Section Meeting, October 2009.

UNDERGRADUATE RESEARCH PROJECTS SUPERVISED

- *Mathematical Oncology*, with Leila Shirvan, Fall 2017.
- *Modeling the missing women phenomena in Northwest India*, Viveka Advani, 2017-2018.
- *Modeling How Food Distance and Nutrition Influence In-Hive Population Dynamics of Apis Mellifera*, with Marco Hamins-Puertola, 2015-2016, co-advised with Dr. Samantha Elliott.
- *Modeling Stem Cell Theory in Breast Cancer*, with Anna Steinfeld, Fall 2015, funded by SMCM Faculty Development Grant.
- *Maps and Mirrors*, with Anna Steinfeld and Jared Salzberg, Fall 2014, Spring 2015, funded by the CURM Grant.
- *Mathematical Modeling for High School Curriculum*, with Molly Pittman, Spring 2015.
- *Equitable Mirrors*, with Daniel Carroll, Nora Stack and Caroline Van Blargan, Fall 2013, funded by CURM Grant.
- *Curriculum Development in K-5th Grade Mathematics: Fractions*, with Kelley Merryman, Fall 2013.
- *Catadioptric Sensors with Micromirrors*, with Caroline VanBlargan, Fall 2012, Spring 2013.
- *Catadioptric Sensors*, with Shalise Ayromloo (SMCM), Abu Kebbie-Anthony (SMCM), Ozias Mackenzie (WVU), Mahalia Sapp (WC), St. Mary's College of Maryland Emerging Scholars Program REU 2012, Mentor.
- *Modeling and Teaching Climate: A Stochastic Approach*, Jennifer Kunze, St. Mary's Project, 2012.
- *Point Break: A Stochastic Markov Chain Model of the Game of Tennis*, Dana Savage, Roy Snyder, Spring 2012.

OUTREACH ACTIVITIES

- Invited speaker, Wonder Woman, STEMMING 2017, an outreach program for middle school girls.
- Advisor for Math Girls Day, Fall 2012-Spring 2016, once a semester.
- Class visits to Spring Ridge Middle School for "How Do You Interact with Math Everyday" series, with Survey of Mathematics students, Summer 2014.
- Ran an afterschool program at Carver Recreation Center, for K-5 students, Fall 2013.
- Ran a mentoring program for middle school girls, Spring Ridge Middle School, Spring 2013.
- Ran an afterschool program for K-5th grade students, Lexington Park Library, Fall 2012.
- Speaker for Math Girls Day, Fall 2011.

SERVICE

- Member of AWM Student Chapters National Committee, 2018-
- Director, ESP-REU, St. Mary's College of Maryland, 2018.
- Strategic Planning Implementation Team (SPIT: Fire) member, 2017-
- External member of the Search Committee for English Department, 2017.
- AWM National Committee of Student Chapters, member, August 2017-2020
- Editor for Special Issue on Project-Based Teaching in PRIMUS Journal, 2016-2018
- St. Mary's College of Maryland NIH Brad Steering Committee, May 2016-
- Senator for Mathematics and Computer Science Department, 2015-2016
- Judge for Moody's Math Challenge, organized by SIAM, 2015-
- Member of the Academic Policy Committee, 2014-2016

- Pre-doctoral mentor for the National Alliance for Doctoral Studies in the Mathematical Sciences, 2014-
- Advisor for the Society for Industrial and Applied Mathematics (SIAM) Student Chapter, 2014-
- Advisor for the Association for Women in Mathematics (AWM) Student Chapter, 2014-
- College supervisor for interns at SMCM MAT Program, 2014-2016.
- Department liaison for DeSousa-Brent Scholars Program, 2014-
- Department liaison for Admissions, 2013-2015
- Graduate school coordinator for the Mathematics Department, 2013-
- Mentor for AWM Mentor Network, 2012-
- Advisor for the Math Club, St. Mary's College of Maryland, 2013-2015
- Advisor for the Women in Science House, St. Mary's College of Maryland, 2012-2017
- Advisor for St. Mary's COMAP team, 2012-2014
- Research advisor for ESP-REU at St. Mary's College of Maryland, 2012

REFEREE

- NSF Grant Panel, 2014.
- PRIMUS, 2014-present.
- Moody's Math Mega Challenge, a national mathematical modeling contest for high school students, organized by the SIAM, 2015-present.
- Book reviewer for OpenStax, Introduction to Statistics, 2016.
- MAA Tensor Grant Panel, 2016.
- Optical Society of America, Applied Optics, 2017-present.
- Letters in Biomathematics, 2017-present.
- SIURO, SIAM Undergraduate Online Journal, 2018-present.
- JOSA A- Journal of Optical Society of America , 2015-present.
- Journal of Humanistic Mathematics, 2018-present.

PROFESSIONAL DEVELOPMENT

- Agent/Individual-Based Modeling Faculty Mentoring Network Fellow, Quantitative Undergraduate Biology Education and Synthesis (QUBES), Fall 2019.
- Certificate of completion: *Inclusive Teaching: Supporting All Students in the College Classroom*, Columbia University, 2019.
- American Institute of Mathematics, "Research Experiences for Undergraduate Faculty," 2015.
- Section Project Next Fellow, MAA MD-VA-DC Section, class of 2013.
- Participant at Institute for Advanced Study-Park City Mathematics Institute Graduate School, "Image Processing," 2010.
- Participant for the Industrial Math and Statistical Modeling Workshop for Graduate Students at Statistical and Applied Mathematics Institute (SAMSI), 2005.

PROFESSIONAL AFFILIATIONS

- Mathematical Association of America (MAA)
- Society for Industrial Mathematics (SIAM)
- Association for Women in Mathematics (AWM)
- National Alliance for Doctoral Studies in the Mathematical Sciences (Math Alliance)

COURSES TAUGHT

St. Mary's College of Maryland

- MATH 131: Women in Mathematics, Spring 2013
- MATH 151: Calculus I, Fall 2011, Summer 2013, Fall 2013, Fall 2015
- MATH 152: Calculus II, Spring 2013, Fall 2014, Fall 2015, Spring 2016
- MATH 161: Mathematics for Teachers, Spring 2012, Fall 2012 and 2013
- MATH 255: Vector Calculus, Spring 2012, Fall 2012
- MATH 256: Linear Algebra, Fall 2017
- MATH 281: Foundations of Mathematics, Spring 2018
- MATH 312: Differential Equations, Spring 2014, 2015 and 2016
- MATH 380: Mathematical Biology, Spring 2014
- MATH 411: Partial Differential Equations, Fall 2012
- MATH 412: Industrial Mathematics, Spring 2017
- MATH 415: Applied Statistics, Spring 2016
- MATH 444: Mathematical Modeling, Fall 2011, 2014, 2016, 2017
- MATH 495: Advanced Topics in Mathematical Modeling, Fall 2015

Loyola Marymount University

- MATH 111: Mathematical Analysis for Business, Fall 2009
- MATH 120: Precalculus, Fall 2009
- MATH 131: Fall 2010, Spring 2010
- MATH 234: Calculus III, Fall 2009, Spring 2010
- MATH 250: Linear Algebra, Spring 2011

Loyola University of New Orleans

- MATH A115: Introduction to Finite Mathematics, Summer 2009
- MATH A257: Calculus I, Spring 2009

Drexel University

- MATH 101: Introduction to Analysis, Winter 2003
- MATH 119: Mathematical Foundations for Design, Spring 2013
- TDEC 110: Engineering Calculus I, Winter 2005, 2006
- TDEC 112: Engineering Calculus II, Spring 2005
- TDEC 114: Engineering Calculus III, Summer 2003
- MATH 121: Calculus I, Fall 2003
- MATH 122: Calculus II, Winter 2004, Summer 2005
- MATH 123: Calculus III, Spring 2008
- MATH 290: Linear Modeling for Engineers, Spring, Fall 2004, Fall 2006, Fall, Spring 2007
- MATH 291: Complex and Vector Analysis for Engineers, Winter 2007, 2008
- MATH 323: Partial Differential Equations, Spring 2006