

Jeffrey K. Landgren

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EDUCATION

Ph.D., Applied Mathematical and Computational Sciences,

University of Iowa, expected 2016

Thesis Advisor: Professor Gerhard Strohmmer (Mathematics)

Thesis Advisor: Professor Johna Leddy (Chemistry)

Thesis Title: An Acoustic Eigenvalue Problem and its Application to Electrochemistry

M.S., Chemistry, University of Iowa, expected 2016

Graduate Certificate in College Teaching, Office of Graduate Teaching Excellence
University of Iowa, expected 2016

M.S., Mathematics, University of Iowa, 2012

B.S., Applied Mathematics, Georgia Institute of Technology, 2009

RESEARCH INTERESTS

Partial Differential Equations, Numerical Analysis, and Electrochemistry

TEACHING EXPERIENCE

University of Iowa

Course Instructor – responsible for all course duties

- College Algebra (MATH:1005): two sections – lectured one day per week, monitored student progress on web-based learning system ALEKS three days per week, Fall 2014
- Qualifying Exam Preparation Seminar (MATH:5950 – **Graduate Course**): one section – helped graduate students prepare for the ODE and PDE qualifying exams, Summer 2014
- College Algebra (MATH:1005): one section – lectured on a blackboard four days a week, Fall 2012

Teaching Assistant – led discussions, graded homework/quizzes/exams, held office hours, made practice exams, held review sessions

- Multivariable Calculus for Engineers (MATH:1560): two sections, Fall 2015
- Partial Differential Equations with Numerical Methods (MATH:5700 – **Graduate Course**): one section, Spring 2014
- Nonlinear Dynamics with Numerical Methods (ODE's) (MATH:5600 – **Graduate Course**): one section, Fall 2013
- Calculus I (MATH:1850): three sections, Spring 2013
- Calculus for the Biological Sciences (MATH:1460): three sections, Fall of 2011
- Calculus for the Biological Sciences (MATH:1460): two sections, Spring of 2011
- Calculus and Matrix Algebra for Business (MATH:1380): two sections, Fall 2010

Course Tutoring

- University of Iowa Mathematics Tutorial Lab (provided drop-in tutoring for students enrolled in courses ranging from basic algebra through linear algebra and differential equations), Fall 2010 – Spring 2016
- Private tutor for Calculus II, Spring 2015

SELECTED AWARDS & RECOGNITION

- NSF Grant – Title: *Thin Layer Sonoelectrochemistry*, (worked in support of Professor Johna Leddy), Spring and Summer 2015
- Graduate College Summer Fellowship, Summer 2014
- Applied Mathematical and Computational Sciences Summer Merit Fellowship, 2011, 2012, 2013
- Catherine Wagner Teaching Award: awarded to outstanding teaching assistants in the mathematics department, Spring 2012
- Nominated for the University of Iowa Outstanding Teaching Award: awarded annually to teaching assistants across all departments in the university, Spring 2012
- Appalachian Trail Certificate: received for completion of hiking the Appalachian Trail (2,180 miles), May – August 2009
- Awarded Eagle Scout, Spring 2005

PRESENTATIONS

Mathematics

- Jakobsen Graduate Conference (March 2016 – poster). Title: “An Acoustic Eigenvalue Problem and its Application to Electrochemistry”
- Joint Math Meetings, Seattle (January 2016 – oral). Title: “Modeling the Effects of Sound in Chemical Reactions”
- Partial Differential Equations Seminar, University of Iowa (November 2015 – oral). Title: “Modeling Standing Waves in Electrochemistry”

- Partial Differential Equations Seminar, University of Iowa (November 2015 – oral). Title: “Modeling Variable Height in Sea Ice Drag”
- American Mathematical Society – Mathematics Research Communities, Snowbird, Utah (June 2015 – oral). Title: “Air Drag Dependence on the Height of Ridges”
- SIAM Central States Sectional Meetings (April 2015 – oral (given by my adviser)). Title: “An Acoustic Eigenvalue Problem and its Application to Electrochemistry”
- Three Minute Thesis Competition, University of Iowa Mathematics Department (April 2015 – oral). Title: “Modeling the Effects of Sound in Chemical Reactions”
- Partial Differential Equations Seminar at the University of Iowa (April 2014 – oral). Title: “An Acoustic Eigenvalue Problem in Electrochemistry”

Chemistry

- Electrochemical Society Conference (May 2016 – oral). Title: “Modeling Acoustic Energy in a Thin Layer Sonochemical System”
- Electrochemical Society Conference (May 2015 – poster). Title: “Modeling Standing Waves in a Thin Layer Sonochemical System”
- Analytical Chemistry Seminar, University of Iowa (April 2015 – oral). Title: “Modeling Standing Waves in a Thin Layer Sonochemical System”
- Electrochemical Society Twin Cities Section (October 2014 – poster). Title: “Convolution of Currents at Electroinactive Films on Electrodes”
- Electrochemical Society Conference (May 2014 – oral). Title: “Sonochemistry: Modeling Acoustic Energy in a Thin Layer System”
- Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (PITTCON) (March 2014 – poster). Title: “Convolution of Currents at Electroinactive Films on Electrodes”

Other

- Heartland Program Talk – Presentation given to undergraduates about the fundamentals of the Google Search Algorithm.
 - Central College (Spring 2013)
 - Cornell College (Spring 2013)
 - University of Iowa (Graduate and Undergraduate Student Seminar) (Spring 2013)
- Appalachian Trail Talk – Presentation given to students and faculty about my hike of the Appalachian Trail in 2009.
 - University of Iowa (Fall 2010, Spring 2011, Fall 2011)
 - Adelphi University (Spring 2016) – anticipated

PROFESSIONAL DEVELOPMENT

- AMS - MRC Workshop (Differential Equations, Probability, and Sea Ice) June 21-27, 2015.

- Secondary Student Training Program (SSTP) – High school students engage in a five-week summer research program at the University of Iowa. I guided a student under a math/engineering research project involving sea ice air drag, July 2015.
- Undergraduate Research – I will advise an undergraduate student on a research project involving both chemistry and mathematics, Spring 2016.
- Graduate education courses taken in partial fulfillment of the Graduate Certificate in College Teaching:
 - Teaching and Learning in Higher Education, Spring 2015
 - Seminar in College Teaching, Spring 2013

PUBLICATIONS

- *An Acoustic Eigenvalue Problem and its Relation to Electrochemistry* (with Gerhard Strohmer), in preparation.
- *Thin layer Sonochemistry Impacts Rates of Electrode Reactions* (with Johna Leddy and Gerhard Strohmer), in preparation.

SERVICE

Mathematics

- Lucas Elementary Math Day – Volunteer helper playing 3 different math games with students, April 2015.
- Iowa Math Modeling Competition – Co-Organizer, judge for the competition, and built a website for the contest, Fall 2013, 2014, 2015.
- Iowa Math Modeling Competition – Judge for the competition, Fall 2010.
- Panel discussion on teaching assistantships, University of Iowa, April 2012, April 2014.
- Sonia Kovalevsky Day Games Coordinator and Recruiter – Celebration day of women in mathematics where we invite local high school girls to come learn about math, April 2012.

Chemistry

- Advertising Representative of the University of Iowa Electrochemical Society - Student Chapter, 2014 – 2016.
- Business Representative of the University of Iowa Solar Car Team, 2014 – 2016.
- President of the University of Iowa Solar Car Team, 2012 – 2014.
 - Established open line of communication with businesses for funding opportunities
 - Created a network for recruiting new members
 - Helped with senior design projects, expos, grants (helped raise over \$12,000, in addition to material donations)
- Original founder of the University of Iowa Solar Car Team, founded May 2012.

Other

- Sat in on Sustainability Charter Committee, 2014 – 2016.

- We recommend policy and provide advice on matters pertaining to sustainability practices at the University of Iowa.
- University of Iowa's Big Ten Conference Student Representative in Sustainability, 2014 – 2015.
- Lead organizer for introducing a new course at the University of Iowa required by all students in the College of Liberal Arts and Sciences, 2014 – 2016. Topics covered in the course:
 - Health
 - Sustainability
 - Diversity

PROFESSIONAL MEMBERSHIPS

Society for Industrial and Applied Mathematics (since 2009)
 American Mathematical Society (since 2009)
 Electrochemical Society (since 2012)
 Appalachian Trail Conservancy (since 2012)

PROGRAMMING SKILLS

MATLAB
 Java
 Mathematica

Visual Basic
 C++
 PHP & Microsoft SQL

REFERENCES

Dr. Gerhard Strohmer, Professor and Thesis Advisor
 Department of Mathematics
 University of Iowa
 Iowa City, IA 52242-1419

Dr. Johna Leddy, Associate Professor and Thesis Advisor
 Department of Chemistry
 University of Iowa
 Iowa City, IA 52242-1419

Dr. Samuel A. Burer, Professor (teaching)
 Department of Management Sciences
 University of Iowa
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Elizabeth Christiansen, Director of Sustainability (service)
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