

Lisa Rogers

Mathematician

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Education

- 2006–2010 **PhD, Mathematics**, *Rensselaer Polytechnic Institute*, Troy, NY.
2002–2006 **BS, Mathematics**, *Rensselaer Polytechnic Institute*, Troy, NY.

Quantitative Research Experience

- 2010–2013 **National Science Foundation Postdoctoral Research Fellow**, *NYU - Courant Institute of Mathematical Sciences*.
Developed mechanistic mathematical model of chemical and electrical neuron activity governing human sleep-wake cycle dynamics. Implemented numerical algorithms for simulating and solving own mathematical model and others. Extensively recorded and presented research findings.
- 2012–2013 **Summer Undergraduate Research Experience Mathematical Research Advisor**, *NYU - Courant Institute of Mathematical Sciences*.
Coordinated and conducted weekly group research meetings and discussions. Trained undergraduates with a variety of projects and backgrounds to conduct and present mathematical and computational research. Advised and managed individual projects of students studying mammalian sleep wake cycles, mammalian cochlear development and financial optimization strategies.
- 2013 **Mathematical Modeling Instructor**, *NYU - Courant Institute of Mathematical Sciences*.
Developed and taught own Mathematical Modeling course material on various applied topics. Developed core algorithm for constructing a mathematical model to be applied to all physical systems. Developed objective methods for student project evaluation. Trained students in quantitative and qualitative interdisciplinary research techniques needed for real-world problem solving.
- 2008–2010 **Mathematics Research Assistant**, *RPI*, Advisor: Dr. Mark Holmes.
Performed mathematical and biological studies of neuronal regulation mechanisms and dynamics governing human sleep-wake cycles and circadian rhythms. Developed theoretical mathematical framework and model of human sleep-wake system. Completed and extensively presented research project for thesis work.
- 2009 **Mathematics and Biology Research Assistant**, *Beth Israel Deaconess Medical Center Scammell Lab, Harvard Medical School*, Advisor: Dr. Tom Scammell.
Completed training in Animal Subject Research Practices, SleepSign sleep scoring software and experimental sleep stage analysis. Performed prolonged wake studies on orexin knockout mice. Adapted sleep scoring software output for MATLAB analysis. Gained in-depth, first hand biological knowledge from lab discussion, experiment observation, clinical observation and literature review for thesis project. Presented research findings at lab meetings.
- 2006–2008 **Computational Science Training for Undergraduates in the Mathematical Sciences (CSUMS) Research Advisor**, *RPI*.
Trained undergraduates in numerical implementation skills, modeling skills as well as written and oral presentation skills in the computationally intensive sciences. Advised and managed projects for all students during semester as well as a select group who continued to do funded research during the summer. Facilitated group research discussions and work sessions.

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Additional Experience

- 2006–2013 **Mathematical Contest in Modeling Group Mentor and Organizer**, *NYU and RPI*.
Developed and ran weekly applied problem sessions for undergraduates, training them for the Mathematical Contest in Modeling.
- 2011 **Computers in Medicine and Biology Lab Assistant**, *NYU*.
Advised undergraduate and graduate students during research project development and implementation. Taught students use of MATLAB for simulation and numerical implementation of solving algorithms.
- 2006–2009 **Dynamical Systems Seminar Organizer**, *RPI*.
Conducted weekly seminars on Dynamical Systems topics for faculty, postdocs and graduate students. Scheduled speakers, performed all administrative activities and facilitated discussion within the group.
- 2010–2013 **Calculus 2 and 3 Instructor**, *Courant Institute of Mathematical Sciences*.
Developed and taught material for application-driven Calculus lessons and labs.

Technical Skills

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| Computer Languages and Software | MATLAB, Python, Maple, Octave, XPP, LaTeX, MS Office and OpenOffice |
| Operating Systems | OSX, Windows, Ubuntu and Red Hat Linux |