

Nathaniel David Bade

Postdoctoral Instructor

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Current Position

Postdoctoral Instructor at the University of British Columbia, August 2016 - July 2018

Education

Ph.D. in Mathematics, Northeastern University, May 2016.

Doctoral thesis: *Anomalies and Holomorphy Super-Chern-Simons Matter Theories*

Thesis advisor: Chris Beasley

M.S. in Mathematics, Northeastern University, May 2011.

B.S. in Mathematics, University of Washington, June 2008.

Areas of Research

Mathematical physics with a focus on quantum field theory and representation theory.

Education Research in data driven course design

Papers and Publications

“Anomalies and Holomorphy in Supersymmetric Chern-Simons-Matter Theories,” joint with C. Beasley, to appear.

”Programming with MATLAB: A Project Based Approach.” MathWorks MATLAB Courseware.

Awards and Honors

Northeastern University “Outstanding Graduate Student Award for Teaching in the Sciences,” 2016.

Mathematics Department’s “Best TA Teaching Award, 2013-2014”.

Talks

“Evaluating exams: a field guide to effective multiple choice questions,” UBC Lunch Series on Teaching and Learning, November 30, 2017.

“How mathematicians talk about space,” Archimedes Talks for Vancouver Public Schools, November 19th, 2017.

“Factorization of the partition function for 3d SCFT’s on S^3 ,” Boston University Geometry and Physics Seminar, February 23, 2016.

“A higher dimensional Jordan lemma and the factorization of 3d SCFT’s on S^3 ,” Northeastern University Research Seminar in Mathematics, November 3, 2015.

“Homological mirror symmetry,” Northeastern University Mathematics Graduate Student Seminar, February 5, 2015.

“Quantum field theory and the Jones polynomial,” Northeastern University Mathematics Graduate Student Seminar, February 3, 2014.

Conferences Attended

“Black Holes, Holography and Strings: A Celebration of the Science of Andrew Strominger,” Harvard University, July, 2015.

“Recent Progress in String Theory and Mirror Symmetry,” Brandeis University, March, 2015.

“SMS Summer School - Physics and Mathematics of Link Homology,” Centre de Recherche Mathématiques, 2013.

Other Activities

Cofounder/Admin, Northeastern University Mathematics Graduate Student Association, 2012-2015.
President, Northeastern University Mathematics Graduate Student Association, 2013-2014.

Teaching Experience

Postdoctoral Teaching at University of British Columbia

Instructor, Multivariable Calculus, Spring 2018.

Instructor, First Year Linear Algebra, Spring 2018.

Instructor, Calculus I for Business and Economics, Fall 2017.

Instructor, Introduction to Mathematical Proof, Spring 2016.

Instructor, Calculus II for Biology and Life Sciences, Spring 2016.

Instructor, Multivariable Calculus, Fall 2016.

Instructor, Calculus I for Biology and Life Sciences, Fall 2016.

Curriculum Designer and Instructor

Co-designer of Northeastern Mathematics Workshops in Mathematical Modeling, Fall 2015. A workshop for undergraduate and graduate students on image processing and modeling differential equations using C++.

Bridge to Calculus - Intro to Programming with Boston Public Schools, Summer 2015. A new programming component for a summer school directed at incoming high school seniors interested in calculus. MathWorks has requested this curriculum be published on their MATLAB Courseware website.

R and Statistical Computing for Incoming Math Majors, Spring 2015. Project based lecture/lab class on using R for statistical analysis and financial portfolio risk analysis.

Programming with Matlab for Incoming Math Majors, Spring 2014, Fall 2014. Project based lecture/lab class where students learned to use Matlab to solve problems in computational mathematics.

Johns Hopkins University Center for Talented Youth - Paradoxes and Infinities, Summer 2012. Two three week courses. In each course, 12-16 year old students participated in a five day a week, seven hour a day intensive learning experience on logic, set theory and modern mathematics.

Standard Lecture Courses at Northeastern University

Instructor, Calculus for Biology I&II, Fall 2012, Spring 2013.

Instructor, Calculus I for Life Sciences, Fall 2011, Spring 2012.

Instructor, Multivariable Calculus for Science and Engineering, Fall 2010, Spring 2011.

Undergraduate Research Mentor

Head mentor for PRISM - Proactive Recruitment In Science and Mathematics - undergraduate research program, Summer 2013 - Summer 2014.

The PRISM program was an NSF grant to develop undergraduate research opportunities for incoming students. As head mentor, I oversaw a group of thirty incoming freshmen and helped them engage in faculty facilitated research throughout their first year.

Letters of Reference

Chris Beasley
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