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**EDUCATION**

# *Carnegie Mellon University* D.A., Mathematical Sciences 2011

 M.S., Mathematical Sciences 2008

* Graduate QPA: 4.15 (includes A+ grades)
* Graduate coursework includes multiple courses in set theory, logic, analysis, and discrete mathematics.
* The D.A. degree focuses on teaching. As part of the degree, I wrote a textbook as a teaching thesis (details below).

*Carnegie Mellon University* B.S., Computer Science, Discrete Math & Logic 2005

* Undergraduate QPA: 3.98 (University Honors), Dean’s List each semester

**TEACHING THESIS**

*Analysis for the Beginning Mathematician*. Completed March 2011

* + A writing sample from this book is available upon request.

This is a textbook which teaches the topics of a typical first-year calculus course but focuses on proof. Students learn how to rigorously justify the main theorems of calculus. The book is written primarily for a first-year audience. Important features of the book include:

* + 10 chapters, covering two semester-long classes (Analysis I and Analysis II).
	+ At least 700 exercises for students to solve, with about 15 exercises on average per section of material. Exercises cover a wide variety of topics with varying difficulty.
	+ Casual yet precise writing style, in contrast to many texts which are either extremely dense (such as *Calculus: Volume I* by Tom Apostol) or do not require students to provide frequent proofs (such as *Calculus: Early Transcendentals* by James Stewart)
	+ Informal discussion of strategy before proofs of most theorems
	+ Provides repeated exposure to theoretically-illustrative counter-intuitive examples, encouraging students to think beyond commonplace functions

**TEACHING EXPERIENCE (AS FACULTY)**

*Lecturer at University of Georgia:*

Modern Algebra and Geometry I (MATH 4000) Spring 2015, Fall 2013

Introduction to Higher Mathematics (MATH 3200) Spring 2014, Spring 2013, Fall 2012

Sequences and Series (MATH 3100) Fall 2015, Fall 2014

Calculus II (MATH 2260)

 Fall 2014, Spring 2014, Fall 2013, Spring 2013, Spring 2012

Calculus I (MATH 2250) Fall 2015, Fall 2012, Fall 2011

Precalculus (MATH 1113)

 Fall 2015, Spring 2015, Spring 2014, Spring 2013, Spring 2012, Fall 2011

* + All courses except Calculus are 3-credit courses which meet 3 days a week for 50 minutes each (or 2 days a week for 75 minutes each). Calculus I and Calculus II are 4-credit courses, which meet 4 days a week for 50 minutes each. The semesters last 15 weeks.
	+ In Precalculus, I only designed lectures and quizzes; I did not write the tests.
	+ For all other courses, I created all the assignments, including tests.

**TEACHING EXPERIENCE (AS GRADUATE OR UNDERGRADUATE STUDENT)**

*Lecturer at Carnegie Mellon University:*

Analysis II Spring 2011

Analysis I Fall 2010

Concepts of Mathematics Summer 2009, Summer 2010

Differential Equations and Approximation Summer 2008

Precalculus Summer 2007

Calculus of Approximation (half-semester course) Summer 2007

* Summer courses included both Carnegie Mellon undergraduates and advanced high-school students, except for Precalculus in Summer 2007. That course was run for Carnegie Mellon's Summer Academy for Math and Sciences (SAMS), which taught only high-school students.
* Summer courses meet daily for 6 weeks in 80-minute lectures. The other courses meet three times a week for 15 weeks in 50-minute lectures.
* Analysis I and Analysis II, during 2010-2011, were taught using my teaching thesis described above. Precalculus, during Summer 2008, was taught using my own course notes. Every other course used the previously-used textbooks.
* I designed all homework assignments, quizzes, and tests for these courses.

# *Teaching Assistant at Carnegie Mellon University:*

# Analysis II Spring 2009, Spring 2010

Analysis I Fall 2008, Fall 2009

Integration and Differential Equations Fall 2007

Differential and Integral Calculus Spring 2006, Spring 2008

Concepts of Mathematics Fall 2003, Fall 2005, Spring 2006

Great Theoretical Ideas in Computer Science Spring 2003

Differential Equations and Approximation Fall 2002

* + Responsibilities: Running recitation sections twice a week for 50 minutes, grading homework and exams (this responsibility was shared), holding weekly office hours, proctoring exams, and occasionally reviewing / designing assignments and exams

*Completed teaching preparation with the Eberly Center for Teaching Excellence at Carnegie Mellon University:*

Completed the College and University Teaching course Spring 2010

Attended teaching seminars (see transcript from the Eberly Center) 2006-2007

* + Studied many different facets of course design and instruction

*Instructor at Andrew's Leap, a summer program at Carnegie Mellon for advanced high-school students exploring collegiate computer science:*

Teacher of computer science theory Summer 2006

Teacher of beginning programming Summer 2002

* + Created challenging problems and supervised students in solving them

*Tutoring through Academic Development at Carnegie Mellon University:*

One-on-one tutor 2002-2005, 2006-2008

* Tutored advanced undergraduate math courses during weekly standing appointments, such as for Algebraic Structures, Combinatorial Analysis, or Set Theory

**DEPARTMENTAL SERVICE AT UNIVERSITY OF GEORGIA**

* Organized the Undergraduate Mathematics Major Fair in Springs 2012-2015, featuring guest speakers, undergraduate research, and faculty presentations
	+ Attendance varied from 40-70 students each year.
* Attends the Curriculum Committee
* Volunteered for UGA High School Mathematics Tournament in Falls 2011-2014. I supervised one third of the students, giving directions and organizing manpower.
* Co-wrote a uniform final exam for the Calculus I course (MATH 2250) for Spring 2015 (along with Dr. Lisa Townsley), as well as organized proctoring duties for the exam

**SERVICE OUTSIDE THE DEPARTMENT**

* *Volunteer with Learning Ally (since Fall 2012)*: I read and record textbooks to provide audio resources for students.

**SKILLS**

*Teaching Skills:*

* + Can perform all parts of running a course, such as preparing a syllabus, creating grading rubrics, designing a curriculum, teaching lectures, creating assignments and exams, grading assignments and exams, and writing letters of recommendation
	+ Can teach a wide range of undergraduate material: previous teaching experience includes discrete mathematics and advanced analysis
	+ Can teach at a range of difficulty levels to suit different audiences
	+ Strong at one-on-one consultation, via office hours or appointments
	+ High faculty evaluation scores: rated at least 3.75 out of 5 overall on average during undergraduate and graduate teaching

*Computer Skills:*

* + Basic document creation software, such as Microsoft Word, Excel, and Powerpoint
	+ Significant experience with LaTeX (such as my textbook)
	+ Symbolic computation software, such as Mathematica and Matlab
	+ Programming in C, C++, Java, or SML

**AWARDS**

Hugh D. Young Graduate Student Teaching Award 2011

* + This award recognizes graduate student teaching in the Mellon College of Science, one of the seven colleges of Carnegie Mellon University

Graduate Student Teaching Award – 2nd Place 2011

* + This award recognizes graduate student teaching in all of Carnegie Mellon University. There isn’t usually an award presentation for the runner-up, but that year the award committee decided to make an exception.

Phi Kappa Phi National Honor Society 2005

Phi Beta Kappa National Honor Society 2004