

Jonathan Bayless

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EDUCATION

Dartmouth College

Fall 2003 – Present

Ph.D., Mathematics [June 2008],
thesis: *On the unit group function*
advisor: Carl Pomerance
specialization: analytic number theory
A.M., Mathematics

Clemson University

Fall 1999 – Spring 2003

B.A., Mathematical Sciences. *Summa Cum Laude*. Minor in Philosophy.

TEACHING EXPERIENCE

Instructor, Dartmouth College Mathematics Department

MATH 22 (Linear Algebra with Applications) Summer 2007
MATH 6 (Introduction to Finite Math) Spring 2007
Exploring Mathematics (Noneuclidean Geometry, Number Theory) July 2006

Full responsibility for all courses, including choice of textbook, syllabus, leading class sessions, creating course website, homework and exam content, and assignment of final grades.

Teaching Assistant, Dartmouth College Mathematics Department

Honors Linear Algebra, Calculus II, Introductory Statistics, Honors Calculus II (twice),
Multivariable Calculus Fall 2003 - Spring 2006

Led three tutorial/review sessions per week, assisted students with homework, graded exams, taught two class sessions (Honors Calculus II, Fall 2004), held office hours.

Tutor,

Precalculus Summer 2005

Tutored a high school freshman for an independent study of precalculus, designed a syllabus, assigned homework, wrote and graded exams to prepare the student for an exemption exam.

Grader, Clemson University

Calculus of Several Variables, Introduction to Ordinary Differential Equations,
Introduction to Modern Algebra, Linear Algebra Fall 2000 - Spring 2003

Graded all of the above multiple times with the exception of Modern Algebra. Created answer key, graded exams, graded proofs on homework (Modern Algebra).

PUBLICATIONS

‘The Lucas-Pratt primality tree’, in *Mathematics of Computation*, **77** (2008), 495–502.

‘Average Frobenius distributions for elliptic curves with nontrivial rational torsion’ (with Jonathan Battista, Dimitriy Ivanov, and Kevin James), in *Acta Arithmetica*, **119** (2005) no. 1, 81–91.

‘On the permutation group generated by an n -cycle and a product of two transpositions’, Clemson University Honors Thesis (2003).

PRESENTATIONS

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|--|-----------------|
| <i>On the unit group function</i> | [January 2008], |
| <i>The Lucas-Pratt primality tree</i> | January 2007 |
| Contributed Talks– AMS/MAA Joint Meetings, San Diego, CA and New Orleans, LA | |
| <i>A group analogue of Carmichael’s conjecture</i> | November 2007 |
| NES/MAA Graduate Student Paper Session, Framingham State College (MA) | |
| <i>On the unit group function</i> | October 2007 |
| Talk– Integers Conference 2007, University of West Georgia | |
| <i>An analogue of Carmichael’s conjecture,</i> | October 2007, |
| <i>Partition Numbers,</i> | May 2007, |
| <i>The Lucas-Pratt primality tree,</i> | May 2006, |
| <i>Elliptic curves and the Lang-Trotter conjecture</i> | November 2005 |
| Talks– Graduate Student Seminar, Dartmouth College | |
| <i>An analogue of Carmichael’s conjecture</i> | September 2007 |
| Talk– Maine/Québec Number Theory Conference, University of Maine | |
| <i>The Lucas-Pratt primality tree,</i> | May 2006, |
| <i>The partition function modulo m</i> | November 2005 |
| Talks– Number Theory Seminar, Dartmouth College | |
| <i>Groups,</i> | |
| <i>Permutation groups,</i> | Winter 2003 |
| <i>A special type of permutation groups</i> | |
| Talks– Undergraduate Mathematics Seminar, Clemson University | |
| <i>REU report: the Lang-Trotter conjecture</i> | November 2002 |
| Talk– Number Theory Seminar, Clemson University | |
| <i>Gödel’s incompleteness theorem,</i> | |
| <i>Elliptic curves and cryptography</i> | June 2002 |
| Talks– REU, Clemson University | |
| <i>On the generation of S_n and A_n by an n-cycle and an involution</i> | July 2001 |
| Talk– REU Miniconference, University of Idaho at Moscow | |

Professional Activities

AMS/MAA Minicourses

Directing Undergraduate Research January 2007

Teaching Seminar Summer 2006

An intensive ten-week course analyzing and practicing various methods in mathematics education. Studied biochemical and psychological theory related to learning mathematics and the efficacy of certain teaching techniques, e.g. cooperative learning and using writing assignments. With the other six participants, taught two week-long courses to local high school students. Guest lectured in MATH 3 (Calculus I).

Graduate Student Teacher Training Workshop Spring 2006

Participated in various readings, activities, and lectures designed to teach strategies for lesson design, course design, assessment techniques, and ideas for incorporating active learning in the classroom. Concluded term in a microteaching experience, teaching proof by induction to a general audience.

Organizer - Undergraduate Mathematics Seminar, Clemson University Spring 2003

Founded the seminar, arranged for eight different speakers including one visiting speaker, gave three talks.

REU Program in Computational Number Theory, Clemson University Summer 2002

Studied elliptic curves and partition numbers, participated in a weekly number theory seminar, gave presentations on number theory topics.

REU Program in Discrete Mathematics, University of Idaho Summer 2001

Studied graph theory and permutation groups, gave culminating presentation on permutation groups project.

HONORS AND AWARDS

Dartmouth College

GAANN Fellowship 2007 – 2008
 Dartmouth Fellowship 2003 – 2007

Clemson University

Outstanding Senior Science Student, College of Engineering and Science 2003
 Samuel Maner Martin Award (senior math major) 2003
 Charles Harden, Jr. Award (junior math major) 2002
 Mathematical Sciences Faculty Award (junior/senior math major) 2000, 2001

SKILLS

Proficient in reading mathematical French

Mathematical Software: \LaTeX , Maple, Mathematica, PARI-GP

Programming Languages: Java, HTML

PROFESSIONAL AFFILIATIONS

American Mathematical Society (2003-present)
Mathematical Association of America (2006-present)

REFERENCES

Carl Pomerance (advisor)
Department of Mathematics
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Peter Winkler
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