WHY STUDY AT VANDERBILT?

- The most recent (2010) National Research Council (NRC) report on U.S. math graduate programs places our department in the top group of graduate programs surveyed.
- The Department of Mathematics has a distinguished international faculty that includes a Fields Medalist and International Congress of Mathematicians invited speakers.
- The department also has a variety of research groups: universal algebra, group theory, approximation theory, noncommutative geometry, operator algebras, mathematical biology, partial differential equations, and graph theory.
- The stimulating research environment is supported by an ongoing program that attracts visiting scholars from institutions around the world and hosts several major conferences a year.
- The Department of Mathematics has approximately fifty research faculty and forty resident graduate students. It is large enough to support a wide range of courses, but small enough for students to receive individual attention from faculty members.
- Graduate students are given one to two years of training to teach at the college level. After that period, they generally serve as TAs and eventually instructors in calculus classes. This opportunity provides valuable experience in communication, even for students who do not pursue careers in academia.
- Our graduate students are very successful at securing jobs.
- Nashville offers the amenities of a large city and the friendliness of a small town.

PROGRAMS

The Department of Mathematics offers doctor of philosophy, master of science, and master of arts degrees in mathematics. Most of our students pursue the Ph.D.

The Ph.D. program requires 72 credit hours of course work, including dissertation research. Doctoral candidates complete a core curriculum in algebra, analysis, and topology. After passing preliminary exams in two of these three areas, students study in their area of concentration. For Ph.D. candidacy, students pass a qualifying examination, involving either an oral examination in their specialty or an expository paper. Once students have qualified for Ph.D. candidacy, they concentrate on dissertation research.

FINANCIAL SUPPORT

Most Ph.D. students in mathematics receive a teaching assistantship or fellowship that provides a tuition waiver, a stipend, and a health insurance plan. Support is usually provided for a five-year period.

Teaching assistants for 2013/14 receive a twelve-month stipend of $21,200. Stipends are expected to increase for 2014/15. Some highly qualified applicants are awarded fellowships with an additional stipend: University Graduate Fellowships provide an additional $10,000, Harold Stirling Vanderbilt Scholarships provide an additional $6,000, and the Graduate School awards several Provost’s Graduate Fellowships that provide an additional $10,000 to highly qualified students from underrepresented groups.

Students who do not have financial aid pay a tuition of $1,747 per credit hour.

GRADUATE STUDENT TEACHING

First-year graduate students participate in a weekly teaching seminar and conduct tutored study halls for calculus.

Second- and third-year students serve as TAs. Responsibilities include attending class meetings, conducting a weekly recitation section, holding office hours, and grading papers.

Fourth- and fifth-year students with good teaching evaluations and strong recommendations from their faculty mentors are assigned to teach a first-year calculus course.

FACILITIES

Vanderbilt University’s libraries are among the top research libraries in the nation, home to more than eight million items, including print publications, microfilm items, and digital collections. The mathematics collection is housed in the Science and Engineering Library, conveniently located in the math building. This collection is excellent, both in books and access to electronic resources, including e-journals and online databases such as MathSciNet and Web of Science. Items not available locally can be borrowed through an interlibrary loan, which is free of charge to graduate students.

Computational resources available to graduate students include access to the university’s large cluster and desktop computers equipped with computer algebra software and LaTeX. Graduate students may use these facilities freely for research, writing, and teaching.

Furthermore, the graduate students’ office suite is a newly renovated state-of-the-art facility.

HOUSING

Ample private housing is available within walking distance of the campus. The Office of Housing and Residential Education maintains an off-campus housing referral service. Visit their webpage at vanderbilt.edu/ResEd.

VANDERBILT AND NASHVILLE

Vanderbilt is a private university, founded in 1873. The university includes four undergraduate schools, the Graduate School, and eight professional schools.

Located approximately two miles from downtown Nashville, Vanderbilt is situated on 330 acres and is designated as an arboretum. A diverse student body of about 6,800 undergraduates and 6,000 graduate and professional students is taught by more than 3,500 full-time faculty members. Vanderbilt is the largest private employer in the region.

The metropolitan Nashville area, in the heart of Middle Tennessee, has a population of over one million. The city, a center for music of all kinds, has many other cultural and entertainment opportunities, including theatre, film, museums, symphony, recreation areas, and two major league sports teams.

INFORMATION AND APPLICATIONS

- Visit vanderbilt.edu/math for information about the Department of Mathematics (especially the “Graduate” link). Questions specifically concerning the mathematics graduate program should be emailed to mathgrad@vanderbilt.edu.

- Visit vanderbilt.edu/gradschool for general information about graduate studies at Vanderbilt. Online applications are sent directly to the Graduate School and can be accessed from the “Applications and Information” link. Application questions not addressed at the Graduate School website should be emailed to vandygrad@vanderbilt.edu.

- Applications and all supporting materials are due on January 1, 2014. Late applications may be considered if positions are still available. We require both the General and Mathematics Subject GREs (Graduate Record Examinations). The Subject Test result is especially important in evaluating applications. Applicants whose native language is not English and who have not been educated at an English-speaking university must also take the TOEFL (Test of English as a Foreign Language).
Departmental Administration
Chair: Dietmar Bisch
Vice Chair: Mike Neamtu
Director of Graduate Studies: Akram Aldroubi
Director of Undergraduate Studies: John Rafter

RESEARCH FACULTY AND THEIR AREAS

Algebra and Logic

Ralph McKenzie, Ph.D. (University of Colorado)
Algebra and Logic

Michael L. Mihalik, Ph.D. (SUNY, Binghamton)
Geometric Group Theory

Alexander Yu. Olshanskiy, Ph.D. (Moscow State University, Russia)
Group Theory

Denis Osin, Ph.D. (Moscow State University, Russia)
Geometric Group Theory

John G. Ratcliffe, Ph.D. (University of Michigan)
Geometric Group Theory

Mark V. Sapir, Ph.D. (Moscow Pedagogical Institute, Russia)
Group Theory, Algorithmic Problems in Algebra

Steven T. Tschantz, Ph.D. (University of California, Berkeley)
Logic, Universal Algebra, Computer Algebra

Constantine Tsinakis, Ph.D. (University of California, Berkeley)
Algebraic Logic, Order Algebra

Analysis and Applied Analysis

John F. Ahner, Ph.D. (University of Delaware)

Akram Aldroubi, Ph.D. (Carnegie Mellon University)
Harmonic Analysis, Sampling Theory, Mathematical Biology

Dietmar Bisch, Ph.D. (University of California, Los Angeles)
Operator Algebras, Quantum Physics, Quantum Information Theory

Philip S. Crooke III, Ph.D. (Cornell University)
Differential Equations, Mathematical Biology, Mathematics Education

Emmanuele DiBenedetto, Ph.D. (University of Texas, Austin)
Partial Differential Equations, Mathematical Biology

Yanqin Fan, Ph.D. (University of Western Ontario)
Nonparametric Statistics, Econometrics

Douglas P. Hardin, Ph.D. (Georgia Institute of Technology)
Harmonic Analysis, Fractal Geometry, Biomedical Informatics

Vaughan Jones, Ph.D. (University of Geneva, Switzerland)
Von Neumann Algebras

Jesse Peterson, Ph.D. (University of California, Los Angeles)
Operator Algebras, Ergodic Theory

Alexander M. Powell, Ph.D. (University of Maryland)
Harmonic Analysis, Signal and Image Processing

Edward B. Saff, Ph.D. (University of Maryland)
Complex Analysis, Potential Theory

Gieri Simonett, Ph.D. (University of Zürich, Switzerland)
Partial Differential Equations, Free Boundary Problems

Glenn F. Webb, Ph.D. (Emory University)
Mathematical Biology, Population Dynamics, Models of Tumor Growth, Differential Equations

Daoxing Xia, Ph.D. (Jijiang University, China)
Operator Theory and Its Applications

Dechao Zheng, Ph.D. (SUNY, Stony Brook)
Functional Analysis, Operator Theory, Complex Analysis, Harmonic Analysis

Computational Mathematics

Akram Aldroubi, Ph.D. (Carnegie Mellon University)
Wavelet Theory, Image and Signal Processing

Yanqin Fan, Ph.D. (University of Western Ontario)
Nonparametric Statistics, Econometrics

Douglas P. Hardin, Ph.D. (Georgia Institute of Technology)
Wavelet Theory, Image Processing

Mike Neamtu, Ph.D. (University of Twente, Netherlands)
Approximation Theory, Spline Theory, Numerical Analysis

Alexander M. Powell, Ph.D. (University of Maryland)
Harmonic Analysis, Signal and Image Processing

Edward B. Saff, Ph.D. (University of Maryland)
Approximation Theory, Orthogonal Expansions

Larry L. Schumaker, Ph.D. (Stanford University)
Approximation Theory, Spline Theory, Computer-Aided Design

Geometry and Topology

C. Bruce Hughes, Ph.D. (University of Kentucky)
Geometric and Algebraic Topology, Manifold Theory, Controlled Topology, Stratified Spaces

Gennadi Kasparov, Ph.D. (Moscow State University, Russia)
K-Theory, Noncommutative Geometry, Operator Algebras

Michael L. Mihalik, Ph.D. (SUNY, Binghamton)
Algebraic Topology, Low Dimensional Topology, Geometric Group Theory

Alexander Yu. Olshanskiy, Ph.D. (Moscow State University, Russia)
Geometric Group Theory

Denis Osin, Ph.D. (Moscow State University, Russia)
Geometric Group Theory

John G. Ratcliffe, Ph.D. (University of Michigan)
Low Dimensional Topology, Hyperbolic Geometry

Mark V. Sapir, Ph.D. (Moscow State Pedagogical Institute, Russia)
Geometric Group Theory, Algorithmic Problems in Algebra

Ioana Suvaina, Ph.D. (SUNY, Stony Brook)
Differential Geometry, Kähler Geometry, Seiberg-Witten Theory and Symplectic Topology

Steven T. Tschantz, Ph.D. (University of California, Berkeley)
Group Theory, Hyperbolic Geometry

Graph Theory and Combinatorics

Paul H. Edelman, Ph.D. (Massachusetts Institute of Technology)
Algebraic Combinatorics, Geometric Combinatorics, Cooperative Games

Mark N. Ellingham, Ph.D. (University of Waterloo, Canada)
Graph Theory, Paths and Cycles, Topological Graph Theory
2013/2014 POSTDOCTORAL FELLOWS

Roza Aceska, Ph.D. (University of Vienna, Austria)
  Applied Harmonic Analysis

Yago Antolin-Pichel, Ph.D. (University of Barcelona, Spain)
  Combinatorial/Geometric Group Theory

Arnaud Brothier, Ph.D. (University of Paris Diderot, France)
  Von Neumann Algebras

Cameron Browne, Ph.D. (University of Paris Diderot, France)
  Mathematical Biology

Chris Conidis, Ph.D. (University of Waterloo, Canada)
  Mathematical Logic and Computability Theory

Remi B.G. Coulon, Ph.D. (University of Strasbourg, France)
  Group Theory

Darren Creutz, Ph.D. (University of California, Los Angeles)
  Ergodic Theory

Marcelo Disconzi, Ph.D. (SUNY, Stony Brook)
  Partial Differential Equations

Timothy Ferguson, Ph.D. (University of Michigan)
  Classical and Applied Analysis

Michael Goff, Ph.D. (University of Washington)
  Combinatorics

Alexander Kazda, Ph.D. (Charles University, Prague)
  Algebra and Complexity Theory

Caner Koca, Ph.D. (SUNY, Stony Brook)
  Complex Differential Geometry

Charles Z. Martin, Ph.D. (University of California, Santa Barbara)
  Potential Theory

Matthew Moore, Ph.D. (University of Colorado)
  Algebra and Logic

Rares Rasdeaconu, Ph.D. (SUNY, Stony Brook)
  Differential and Symplectic Geometry

Kamran Reihani, Ph.D. (Tarbiat Modares University, Iran)
  C*-Algebras, Low-dimensional groups

Jorge Roman, Ph.D. (University of Florida)
  Statistics

Brian Simanek, Ph.D. (California Institute of Technology)
  Orthogonal Polynomials, Potential Theory and Spectral Theory

Rebecca Steiner, Ph.D. (CUNY, Graduate Center)
  Mathematical Logic and Computability Theory