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 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 Graduate Teaching Assistantship or a University Fellowship and support is usually provided for a five-year period. Teaching assistants receive a University Tuition Scholarship and a twelve-month stipend. For 2015/16 the stipend is $21,200. Stipends are expected to be increased for 2016/17. 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.

University Tuition Scholarships are service-free awards that pay all or part of tuition costs. The following graduate awards are normally supplemented by a full University Tuition Scholarship, which usually includes student health insurance coverage: University Fellowships, Graduate Teaching Assistantships, Graduate Research Assistantships, Traineeships, and Teacher Training Awards.

Students who do not have financial aid pay tuition of $1818 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 recently 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 3,700 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 “Application” link. Application questions not addressed at the Graduate School website should be emailed to apply@vanderbilt.edu.

• Applications and all supporting materials are due on January 1, 2016. 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).

FURTHER INFORMATION
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Email: mathgrad@vanderbilt.edu
Telephone: (615) 322-6672
Fax: (615) 343-0215
Departmental Administration
Chair: Dietmar Bisch
Vice Chair: Mike Neamtu
Director of Graduate Studies: Denis Osin
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)
Ordered Algebraic Structures, Logic

Analysis and Applied Analysis

John F. Ahner, Ph.D. (University of Delaware)
Integral Equation Methods in Scattering and Potential Theory,
Fractional Calculus and Mixed Boundary Value Problems, Elasticity
Theory, Conservation Laws

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

Dietmar Bisch, Ph.D. (University of California, Los Angeles)
Operator Algebras

Philip S. Crooke III, Ph.D. (Cornell University)
Biomathematics

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

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

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

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, Approximation 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

Douglas P. Hardin, Ph.D. (Georgia Institute of Technology)
Inverse Problems, Wavelet Theory, Fractal Geometry

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

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

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

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

Geometry and Topology

Anna Marie Bohmann, Ph.D. (University of Chicago)
Algebraic Topology, Homotopy Theory

Marcelo Disconzi, Ph.D. (SUNY, Stony Brook)
Geometric Analysis

Spencer D. Dowdall, Ph.D. (University of Chicago)
Geometric Topology and Geometric Group Theory

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

2015/2016 POSTDOCTORAL FELLOWS

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

Marcel Bischoff, Ph.D. (University of Rome, Italy)
Operator Algebras, Mathematical Physics

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

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

Victor Falgas-Ravry, Ph.D. (University of London, UK)
Combinatorics

Jose Gil-Ferez, Ph.D. (University of Barcelona, Spain)
Mathematical Logic

Gili Golan, Ph.D. (Bar Ilan University, Israel)
Group Theory

Keaton P. Hamm, Ph.D. (Texas A&M University)
Applied Harmonic Analysis

Benjamin R. Hayes, Ph.D. (University of California, Los Angeles)
Functional Analysis and Operator Algebras

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

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

Aleksandr B. Reznikov, Ph.D. (Michigan State University)
Harmonic Analysis

Rudy Rodspphon, Ph.D. (University of Lyon 1, France)
Noncommutative Geometry, Index Theory

Andrew W. Sale, Ph.D. (University of Oxford, UK)
Geometric Group Theory

Songling Shan, Ph.D. (Georgia State University)
Graph Theory

Maria Van Der Walt, Ph.D. (University of Missouri, St. Louis)
Applied Harmonic Analysis

Kun Wang, Ph.D. (The Ohio State University)
Topology, Geometric Group Theory, K- and L- Theory