GRADUATE STUDIES IN
MATHEMATICS
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, geometry/topology, 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 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 and support is usually provided for a five-year period.

Teaching assistants receive a University Tuition Scholarship (a service-free award that pays all tuition costs), student health insurance coverage, and a twelve-month stipend. For 2017/18 the stipend is $26,000. Stipends are expected to increase for 2018/19. Some highly qualified applicants are awarded Honor Fellowships: University Graduate Fellowships provide an additional stipend up to $10,000 and the Harold Stirling Vanderbilt Scholarships provide an additional stipend up to $6,000. Also, 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 tuition of $1,910 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, providing nearly five million items and access to millions more resources through nine campus libraries that share an online portal. 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 5,700 graduate and professional students is taught by more than 3,800 full-time faculty members affiliated with Vanderbilt University and Vanderbilt University Medical Center.

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 gradschool.vanderbilt.edu 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 gradschool.vanderbilt.edu for general information about graduate studies at Vanderbilt. Online applications are sent directly to the Graduate School and can be accessed from the “Application Process” 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, 2018. 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).
Harmonic Analysis, Signal and Image Processing

Alexander M. Powell, Ph.D. (University of Maryland)
Operator Algebras, Ergodic Theory

Jesse Peterson, Ph.D. (University of California, Los Angeles)

Von Neumann Algebras

Vaughan Jones, Ph.D. (Georgia Institute of Technology)
Harmonic Analysis, Potential Theory, Fractal Geometry

Douglas P. Hardin, Ph.D. (University of Texas, Austin)

Biomathematics

Emmanuele DiBenedetto, Ph.D. (University of Delaware)

Approximation Theory, Spline Theory, Computer-Aided Design

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. (Jiijiang 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

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

Steven T. Tschau, 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
2017/2018 POSTDOCTORAL FELLOWS

Valeriano Aiello, Ph.D. (University of Rome, Italy)
Operator Algebras

Scott Atkinson, Ph.D. (University of Virginia)
Operator Algebras, Functional Analysis

Jonathan Campbell, Ph.D. (Stanford University)
Algebraic Topology

Cheng Chu, Ph.D. (Washington University, St. Louis)
Operator Theory, Complex Analysis

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

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

Matthew Haulmark, Ph.D. (University of Wisconsin, Milwaukee)
Geometric Group Theory

Woden Kusner, Ph.D. (University of Pittsburgh)
Discrete Geometry, Geometric Optimization

Chenyun Luo, Ph.D. (Johns Hopkins University)
Partial Differential Equations

Giusy Mazzone, Ph.D. (University of Pittsburgh)
Partial Differential Equations, Fluid Mechanics

Robert McRae, Ph.D. (Rutgers University)
Vertex Operator Algebras

Andrew Moorhead, Ph.D. (University of Colorado, Boulder)
Algebraic Systems, Algebra and Logic

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

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

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

Caglar Uyanik, Ph.D. (University of Illinois Urbana-Champaign)
Geometric Group Theory, Geometric Topology and Dynamics

Grace Work, Ph.D. (University of Illinois Urbana-Champaign)
Hyperbolic Geometry, Dynamics

Yixiang Wu, Ph.D. (University of Louisiana, Lafayette)
Partial Differential Equations, Mathematical Biology