APPLIED MATHEMATICS - PH.D.

College of Sciences and Humanities
Department of Mathematical Sciences
www.kent.edu/math

About This Program

Advance the frontiers of mathematical discovery while applying powerful analytical tools to real-world challenges across science, industry and technology. This rigorous, research-focused Ph.D. prepares you to conduct original scholarship and develop innovative solutions through advanced modeling, computation and analysis. Read more...

Contact Information

- **Artem Zvavitch** | azvavitc@kent.edu | 330-672-3316
- Connect with an Admissions Counselor

Program Delivery

- **Delivery:**
  - In person
- **Location:**
  - Kent Campus

Examples of Possible Careers and Salaries*

Data scientists and mathematical science occupations, all other

- 30.9% much faster than the average
- 33,200 number of jobs
- $98,230 potential earnings

Mathematical science teachers, postsecondary

- 1.3% slower than the average
- 60,100 number of jobs
- $73,650 potential earnings

Mathematicians

- 3.0% about as fast as the average
- 2,900 number of jobs
- $110,860 potential earnings

Natural sciences managers

- 4.8% about as fast as the average
- 71,400 number of jobs
- $137,940 potential earnings

Statisticians

- 34.6% much faster than the average
- 42,700 number of jobs
- $92,270 potential earnings

* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics' Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at which half of the workers in the occupation earned more than that amount and half earned less.

For more information about graduate admissions, visit the graduate admission website. For more information on international admissions, visit the international admission website.

Admission Requirements

- Bachelor's degree or higher from an accredited college or university
- Minimum 3.000 undergraduate GPA on a 4.000-point scale
- Official transcript(s)
- Résumé or vita
- Goal statement
- Three letters of recommendation
- English language proficiency - all international students must provide proof of English language proficiency (unless they meet specific exceptions to waive) by earning one of the following:[1]
  - Minimum 71 TOEFL iBT score
  - Minimum 6.0 IELTS score
  - Minimum 50 PTE score
  - Minimum 100 DET score

[1] International applicants who do not meet the above test scores may be considered for conditional admission.

Application Deadlines

- **Fall Semester**
  - Application deadline: March 1
- **Spring Semester**
  - Application deadline: October 1
- **Summer Term**
  - Application deadline: March 1

All application materials (including applicable fee, transcripts, recommendation letters, etc.) submitted after these deadlines will be considered on a space-available basis.

Program Requirements

Major Requirements

Code	Title	Credit Hours
Major Requirements		
Mathematics (MATH) Doctoral-Level courses (70000 or 80000 level) [1]		16-47
Mathematics Electives, choose two sequences from the following: [2]		13-14
MATH 70051 & MATH 70052	PROBABILITY I and PROBABILITY II	
MATH 70061 & MATH 70062	MATHEMATICAL STATISTICS I and MATHEMATICAL STATISTICS II	

MATH 72041 & MATH 72042	METHODS OF APPLIED MATHEMATICS I and METHODS OF APPLIED MATHEMATICS II	
MATH 72251 & MATH 72252	NUMERICAL ANALYSIS I and NUMERICAL ANALYSIS II	
Culminating Requirement		
MATH 87199	DISSERTATION I [3]	30
Minimum Total Credit Hours for Post-Baccalaureate Students		**90**
Minimum Total Credit Hours for Post-Master's Students		**60**

1 A cognate of maximum 10 credit hours may be counted toward the completion of the degree subject to the approval of the student's advisor and the graduate studies committee.

2 Each student is required to pass the departmental qualifying examination at the doctoral level. Students must choose two out of the four offered qualifying exams: probability, statistics, numerical analysis and methods of applied mathematics.

3 Each doctoral candidate, upon admission to candidacy, must register for MATH 87199 for a total of 30 credit hours. It is expected that a doctoral candidate will continuously register for Dissertation I, and thereafter MATH 87299, each semester, until all requirements for the degree have been met. It is expected that candidates will present the results of their research in a defense open to students and faculty, at which the dissertation will be presented and defended before the dissertation committee.

Candidacy

This examination will be a comprehensive examination in the field of the major subject, and will be a substantially deeper test than the qualifying examination.

Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
-	3.000

Program Learning Outcomes

Graduates of this program will be able to:

1. Understand and appreciate connections between mathematics and other disciplines.
2. Be aware of and understand a broad range of mathematical subdisciplines.
3. Obtain a broader and deeper understanding of core applied mathematics subdisciplines, including numerical analysis, probability and mathematical statistics.
4. Obtain a deep understanding of some subdiscipline.
5. Engage effectively in problem solving, including exploring examples, devising and testing conjectures and assessing the correctness of solutions.
6. Reason in mathematical arguments at a level appropriate to the discipline, including posing problems precisely, articulating assumptions and reasoning logically to conclusions.
7. Approach mathematical problems creatively, including trying multiple approaches and modifying problems when necessary to make them more tractable.
8. Develop and carry out a research program in applied mathematics.
9. Communicate mathematics clearly both orally and in writing.
10. Teach university-level mathematics effectively.

Full Description

The Ph.D. degree in Applied Mathematics is for those interested in becoming professional scholars, college and university teachers or independent workers in private, industrial or government research institutions. Original research in applied mathematics, is required, and the Ph.D. dissertation must be orally defended. Two years of graduate coursework and three years of research are typical.