

# UNIVERSITY OF DALLAS



## Mathematics Department

The discipline of mathematics is defined as much by its methodology as by its content. Indeed, it is this methodology that unifies the different areas of mathematics. The Department of Mathematics seeks to involve students at all levels in the thoughts and methods of mathematics in a creative, lively way.

The purpose of the major is to immerse you in the content and methodology of mathematics as it is practiced by active mathematicians. The basic requirements in the major introduce the central ideas of the discipline. Electives within the major permit you to pursue further areas of interest.

Mathematical concepts have a profound influence on the world outside of mathematics. Equally important, the world external to mathematics has helped shape the discipline. It is important for majors to experience this interaction and to see the power and limitations of mathematics. Courses such as **Calculus I, II and**

**III, Linear Algebra, Differential Equations, Probability, Statistics, Numerical Analysis and Introduction to Computer Science** as well as the physics requirement aid in development of this perspective.

### Comprehensive Exam

A comprehensive exam is required of all majors in their final year. It is administered by the mathematics faculty and covers all required courses for the B.A. or B.S. degree. The exam is offered once in the fall semester and twice in the spring semester. The comprehensive exam consists of a written section covering four major disciplinary areas: Abstract Algebra, Real Analysis, Pure Math and Applied Math. A score of 70 percent or better qualifies you to proceed to the oral examination. The oral section of the comprehensive exam is intended to further explore your understanding of mathematics, your facility with the concepts and processes of mathematical thought, your approach to problems using the mathematical tools you've been given, and your ability to communicate your thoughts and ideas.

### Mathematics Four-Year Plan:

#### Freshman Year

Physics 2311	3	Physics 2312	3
Physics 2111	1	Physics 2112	1
English 1301	3	English 1302	3
Language 2311	3	Language 2312	3
Mathematics 1404	4	Mathematics 1411	4
Philosophy 1301	3	Computer Sci. 2410 or Elective	4
<b>Fall Semester Credits</b>	<b>17</b>	<b>Spring Semester Credits</b>	<b>18</b>

#### Sophomore Year (Spring semester spent in Rome.)

English 2312	3	English 2311	3
Mathematics 2412	4	Theology 2311	3
Mathematics 3321	3	Philosophy 2311	3
Economics 1311	3	History 2301	3
Theology 1310	3	Art 2311	3
<b>Fall Semester Credits</b>	<b>16</b>	<b>Spring Semester Credits</b>	<b>15</b>

#### Junior Year

Mathematics 3310	3	Mathematics Elective	3
Mathematics 4341 or 4332	3	Mathematics 4342 or 4333	3
History 1311	3	Philosophy 3311	3
Life Science	3	History 1312	3
Mathematics 3159	1	Elective	3
<b>Fall Semester Credits</b>	<b>13</b>	<b>Spring Semester Credits</b>	<b>15</b>

#### Senior Year

Mathematics 4332 or 4341	3	Mathematics Elective	3
Mathematics Elective	3	Electives	9
Politics 1311	3		
History 2302	3		
Elective	3		
<b>Fall Semester Credits</b>	<b>15</b>	<b>Spring Semester Credits</b>	<b>12</b>

# UNIVERSITY OF DALLAS



## Mathematics Concentrations

### Applied Mathematics Concentration

The concentration, consisting of five courses, reflects the historic interplay between pure and applied mathematics by presenting topics of obvious interest to applied scientists as well as being of purely mathematical interest.

### Pure Mathematics Concentration

The concentration provides a coherent set of courses for students interested in mathematics, short of a major, in areas distinct from those of applied mathematics. It also consists of five courses.

### Experiential Learning

The Mathematics Department sponsors a weekly Mathematics Colloquium to discuss topics of interest to both majors and nonmajors. Consult the department website for details.

### Clare Boothe Luce Scholarship Program

The Henry Luce Foundation has provided a grant for **eight one-year full-tuition scholarships for female students at the University of Dallas majoring in computer science, mathematics, physics or engineering.** Students receiving these Clare Boothe Luce (CBL) Scholarships will be named CBL Scholars. UD has offered an additional award to supplement the Henry Luce Foundation grant to provide 10 CBL Scholarships so that two awards can be given each of the academic years 2015-2016 and 2016-2017 and three in 2017-2018 and 2018-2019.

In addition to the scholarships, the university will establish a **Clare Boothe Luce Speaker Series, Clare Boothe Luce Discussion Panels for Undecided Students** and a support organization for women in the sciences. These initiatives are designed to attract women into physical science, engineering and mathematical areas and to support them once there.

### Action Items for Mathematics Majors:

- Join campus clubs and organizations that match your interests. Explore what each organization has to offer and what skills you can offer in return. Attend the weekly **Mathematics Colloquium** to hear from speakers on relevant topics.
- **Explore electives beyond your mathematics coursework.** While the Core curriculum will teach you to present complex ideas clearly and persuasively, electives from other departments such as business, art or natural sciences could benefit your career as well.
- Work with your academic adviser and the Office of Personal Career Development to explore **internships and research opportunities** that complement your study of mathematics.
- **Present your research to the wider community.** Work with your academic adviser to find opportunities to present at an academic conference or other appropriate venue.

## Applying your interests, skills and values in a changing world

**Below are a few of the professional destinations of recent mathematics graduates:**

Actuarial Analyst, Milliman Inc.
One Irving Campaign Coordinator, Greater Irving Las Colinas Chamber of Commerce
Bankruptcy Analyst, Real Time Resolutions
Algebra I Teacher, Temple High School
Teaching Assistant, University of Texas at Dallas
Software Developer, Fidelity Investments

**Examples of the institutions where recent mathematics graduates pursued graduate-level degrees include:**

Yale University
University of Texas at Dallas
Arizona State University