Mathematics | Major

PROGRAM HIGHLIGHTS IN BRIEF
Alvernia is a Franciscan university dedicated to the ideals of academic achievement, community service and the personal and professional fulfillment of our students. Mathematics classes are taught by dedicated faculty, committed to the ideal that advanced knowledge and skills in the area of quantitative reasoning is a valuable human endeavor that contributes to our everyday lives and helps to advance the world for a better and more sustainable future.

Mathematics courses are taught in the O’Pake Science Center, a $9.3 million state-of-the-art teaching and research facility, which opened in 2006. The O’Pake Science Center added 31,582 square feet of classroom, laboratory and faculty office space to Alvernia’s campus. Two floors of laboratory/classroom space, all of which have the latest in educational technology, allow Mathematics students to employ a variety of computational software in evaluating complex mathematical and statistical relationships.

ACADEMIC QUALITY
The Mathematics curriculum provides students with a solid foundation in Math theory and practice permitting students to pursue graduate work in Mathematics or one of the many sub-fields of Statistics, quantitative research in academic, corporate or governmental setting, as well as preparing students to be successful and highly sought after Mathematics teachers.

In addition to gaining expertise in theoretical and applied Mathematics, majors also become proficient in the essential skills of communication, organization and leadership. This broad-based approach prepares each student to succeed in a professional position and to develop the attributes necessary for career advancement. In addition, Mathematics students enjoy the benefits of contemporary computer technology paired with one-on-one faculty attention that stresses the development of problem-solving skills.

Government agencies and corporations that deal with human behaviors, like traffic analysis, product sales or any type of risk/benefit analysis employ many mathematicians to develop mathematical models to predict human activity. Mathematicians also contribute to quantitative research in areas like environmental analysis and public resource allocation. One of the major areas open to Math students is the area of biostatistics which is seeing a huge demand for analytical statisticians in optimizing healthcare treatments and delivery of care.

INTERNSHIP OPPORTUNITIES
American Association for the Advancement of Science
Capital Semester Internship Program
GPU Energy
Mayo Clinic-Department of Biostatistics
OSHA
National Center for Research Resources –SIBS program
Novartis Inc.
University of Pittsburgh-Department of Biostatistics

CAREER SUCCESS
Graduates of the Mathematics programs at Alvernia have been accepted into respected post-baccalaureate programs, find teaching positions in secondary and college education, and managerial positions in private industry, public utilities and social agencies including GPU and the Catholic Social Agency.
**CURRICULUM OVERVIEW**

**Mathematics Major Requirements (53-57 Credits)**
- MAT 131  Precalculus (recommended)
- MAT 230  Calculus I
- MAT 231  Calculus II
- MAT 307  Abstract Algebra
- MAT 332  Calculus III
- MAT 401  Real Analysis
- MAT 415  Mathematics Seminar
- MAT 480  Mathematics Internship  -OR-
- MAT 316  Intro to Math/Stats Research  -OR-
- MAT 317  Exper. in Math/Stats Research  -OR-
- MAT 407  Data Analysis Math/Stats Research

**Mathematics Related Requirements (14 credits)**
- CIS 151  Intro to Computer Information Systems I
- CIS 152  Intro to Computer Information Systems II
- PHY 110  General Physics I
- PHY 111  General Physics II

**Mathematics Electives (12-13 credits)**
- MAT 204  Intro to Math Logic
- MAT 209  Probability & Statistics
- MAT 210  Inferential Statistics
- MAT 240  Linear Algebra
- MAT 304  Numerical Analysis
- MAT 308  Modern Geometry
- MAT 403  Complex Variables

**Mathematics Minor Requirements (17-18 Credits)**
- MAT 209  Probability and Statistics
- MAT 230  Calculus I
- MAT 307  Abstract Algebra
- Choose two from the following:
  - MAT 204  Introduction to Mathematical Logic
  - MAT 231  Calculus II
  - MAT 240  Linear Algebra
  - MAT 304  Numerical Analysis
  - MAT 308  Modern Geometry

**Mathematics Secondary Education Major (34 credits)**
- MAT 131  Precalculus Mathematics
- MAT 204  Introduction to Mathematical Logic
- MAT 209  Probability and Statistics
- MAT 230  Calculus I
- MAT 231  Calculus II
- MAT 240  Linear Algebra
- MAT 307  Abstract Algebra
- MAT 308  Modern Geometry
- MAT 332  Calculus III
- MAT 415  Mathematics Seminar

**Required Liberal Arts Core:**
- PSY 101  Introductory Psychology

**Related Requirements:**
- CIS 151  Intro to Computer Information Systems I
- CIS 152  Intro to Computer Information Systems II
- PHY 110  General Physics I
- PHY 111  General Physics II
- PSY 210  Educational Psychology

**Secondary Education Professional Education:**
- SPE 100  Intro to Exceptionalities in Children and Youth
- ED 200  Foundations of Education
- ED 206  Field Experience I
- ED 306  Field Experience II
- ED 313  Classroom Management
- ED 330  Curriculum Design and Assessment
- ED 333  Literacy Methods for Secondary Inclusive Classroom
- ED 416  Field Experience III
- ED 433  Methods of Teaching Secondary Mathematics
- ED 470  Student Teaching
- ED 472  Student Teaching Seminar

**CONTACT INFORMATION**

Elizabeth Gardner, Ph.D.
Chair of Mathematics and Sciences
1-610-796-8247
elizabeth.gardner@alvernia.edu

Office of Admissions
1-610-796-8269
admissions@alvernia.edu