SIENA HEIGHTS UNIVERSITY
MATHEMATICS
ABOUT THE PROGRAM

Bachelor of Arts Degree
In Mathematics

The job market for graduates with degrees in mathematics remains strong. Siena Heights University offers bachelor's degrees in mathematics to suit every specialty. If you are interested in teaching (at the elementary, secondary, or junior college level), applied math, statistical/actuarial science, or pre-engineering, Siena Heights University has the program to suit your needs and interests.

Math classes for majors are small, allowing our professors to provide all of the individual attention that our students might require. Plentiful office hours, student-centered faculty, large study areas with fully-equipped computers, and state-of-the-art Smart classrooms make learning personal, interesting, and interactive. We can get you started at whatever level suits your background, and take you on your journey right through to the degree of your choice. Regardless of your specialty, the program will serve your needs. Students planning to be math teachers will be prepared in accordance with Michigan certification standards. Those planning to attend graduate school will receive a thorough and wide-ranging undergraduate experience. Those planning a career in engineering can attend SHU for the first two years, enjoying the benefits of small classes and receiving an associate's degree and thorough preparation for an engineering program at a larger school.

In addition to our wide range of bachelor's degrees, we are pleased to offer a master's degree in Mathematics Education, with emphasis on technology. Individualized instruction, conveniently scheduled classes and our traditional emphasis on technology in the classroom make this degree perfect for working teachers and for returning students who wish to bring their skills up-to-date.

Pi Mu Epsilon and the Math Club

There is an active section of the mathematics national honor society Pi Mu Epsilon and the Math Club. The organizations provide students an opportunity to meet more students who are interested in mathematics and to encounter more mathematical topics than appear in the general curriculum. The clubs also are very active in the community and school service with activities such as Family Math, visits to area high schools, and community service projects. The clubs also bring in speakers on various topics of interest to the students.

“The program at Siena is fairly diverse; we have majors that are pure mathematics. For those students who are interested in going on to graduate school, we offer a firm foundation so that students who are entering graduate school could enter without many deficiency courses. We also have majors who are interested in either Secondary or Elementary Education... and also an Applied Mathematics degree.”

Dr. Timothy Husband
Chair, SHU Department of Mathematics
WHAT MAKES US DIFFERENT?

We are on the forefront of teaching and learning with technology. In the Siena Heights Department of Mathematics, the faculty is dedicated to exposing our students to the leading edge of technology. Regular use of modern learning technology, from state-of-the-art hand-held calculators to Smart technology to Computer Algebra Systems, assists our students with the exploration and visualization of concepts in courses at all levels. Besides engaging our students with modern hardware and software, we are preparing our future teachers of mathematics to use these tools in their own classrooms.

Our graduates leave SHU with superior literacy in a wide variety of math-oriented equipment and software, including Maple Computer Algebra System, TI-NSpire handheld calculators and the Minitab statistics package.

Pre-Engineering

This Associate of Science degree major includes the completion of 41 semester hours within the major in subjects like chemistry, rhetoric, calculus, algebra and physics. Siena Heights University has articulation agreements with the University of Michigan and the University of Detroit Mercy.

CONTACT INFORMATION

Admissions Office
(800) 521-0009
admissions@sienaheights.edu

CAREER OPTIONS

Mathematics-related careers include, but are not limited to, the following:

- Actuaries
- Computer software engineers
- Computer programmers
- Computer systems analyst
- Computer scientists and database administrators
- Operations research analysts
- Statisticians
- Financial analysts and personal financial advisors
- Market and survey researchers
- Physicians and astronomers
- Teachers—postsecondary
- Teachers—preschool, kindergarten, elementary, middle, and secondary

A strong background in mathematics also facilitates employment as:

- Economists
- Engineers
- Financial analysts and personal financial advisors
- Market and survey researchers
- Physicians and astronomers
- Teachers—postsecondary
- Teachers—preschool, kindergarten, elementary, middle, and secondary

“We’re very tech-oriented (at Siena Heights), and I think that is really a strength. I think that’s a really good way to learn math. With technology, you can easily integrate and show how when one thing changes, how the others will change.”

—Tim Fether ’09, Winner 2007 National Prospective Secondary Teacher Course Work Scholarship from the National Council of Teachers of Mathematics
# BACHELOR OF SCIENCE IN MATHEMATICS

## A. Mathematics

- **Core Requirements** ........ 28 semester hours
  1. MAT 174 Data Analysis and Statistics  ................. 3
  2. MAT 181 Calculus with Analytic Geometry I ........... 4
  3. MAT 182 Calculus with Analytic Geometry II ........... 4
  4. MAT 244 Statistical Analysis and Design .............. 3
  5. MAT 260 Discrete Mathematics ......................... 3
  6. MAT 282 Differential Equations .......................... 4
  7. MAT 295 Sophomore Seminar I ......................... 1
  8. MAT 296 Sophomore Seminar II ......................... 1
  9. MAT 345 Linear Algebra .................................. 3
 10. MAT 396 Junior Seminar ................................. 1
 11. MAT 495 Senior Seminar I .............................. 1

## B. Applied Mathematics ........ 17 semester hours

1. MAT 292 Multivariable Calculus .......................... 4
2. MAT 356 Math Modeling .................................... 3
3. MAT 440 Probability and Statistics ....................... 3
4. MAT 460 Numerical Analysis ................................ 3
5. MAT 462 Introduction to Real Analysis .................... 3
6. MAT 496 Senior Seminar II ................................ 1

## C. Areas of Specialization

1. Computer Science Option 21 semester hours
   a. CIS 218 Introduction to Information Systems ........ 3
   b. CIS 340 JAVA Programming ............................... 3
   c. CIS 252 Introduction to C++ ............................ 3
   d. CIS 353 Systems Analysis ................................ 3
   e. CIS 363 Database Management Systems ................. 3
   f. CIS 460 Web Development Project ....................... 3
   g. CIS ___ Approved Elective ................................ 3

2. Engineering Science Option ........ 21 semester hours
   a. CHE 141 General Chemistry I ............................ 4
   b. CHE 142 General Chemistry II ........................... 4
   c. CIS 252 Introduction to C++ ............................ 3
   d. ENG 211 Rhetoric ........................................ 3
   e. ENG 212 Research ........................................ 3
   f. PHY 262 Physics II (Calculus Based) .................... 4

3. Actuarial Science Option 21 semester hours
   a. ACC 203 Principles of Accounting I ..................... 3
   b. ACC 240 Principles of Accounting II ................... 3
   c. BAM 218 Introduction to Information Systems .......... 3
   d. ECO 221 Microeconomics ................................ 3
   e. ECO 222 Macroeconomics ................................ 3
   f. FIN 340 Principles of Managerial Finance .............. 3
   g. MGT 302 Management Principles & Cases ............... 3

## D. Total Requirements

- for Major ................ 66 semester hours

## E. Total Requirements

- **Outside of Major** ............. 13 semester hours
  1. CIS ___ Approved Programming Language ................ 3
  2. TSC 101 Fundamentals of Speech Communication or BAM 201 Business Communications .......... 3
  3. PHI 210 Symbolic Logic .................................. 3
  4. PHY 241 General Physics I (Non-Calculus Based) or PHY 261 Physics I (Calculus Based) ...... 4

- **General Electives** ........... 8-13 semester hours

## F. Liberal Arts

- Core Requirements ................. 28-33 semester hours
  H. Total for Degree ................ 120 semester hours

# BACHELOR OF ARTS DEGREE IN MATHEMATICS

## A. Mathematics

- **Core Requirements** ........ 28 semester hours
  1. MAT 174 Data Analysis and Statistics ................. 3
  2. MAT 181 Calculus with Analytic Geometry I ........... 4
  3. MAT 182 Calculus with Analytic Geometry II ........... 4
  4. MAT 244 Statistical Analysis and Design .............. 3
  5. MAT 260 Discrete Mathematics ......................... 3
  6. MAT 282 Differential Equations .......................... 4
  7. MAT 295 Sophomore Seminar I ......................... 1
  8. MAT 296 Sophomore Seminar II ......................... 1
  9. MAT 345 Linear Algebra .................................. 3
 10. MAT 396 Junior Seminar ................................. 1
 11. MAT 495 Senior Seminar I .............................. 1

## B. Areas of Specialization .......... 30 semester hours

1. Mathematics Education:
   - Elementary and Secondary .................. 12 semester hours
     a. MAT 352 Geometry ............................... 3
     b. MAT 356 Math Modeling ....................... 3
     c. MAT 442 Introduction to Abstract Algebra .... 3
     d. MAT 460 Numerical Analysis .................. 3
   - Elementary Education ................... 4 semester hours
     i. MAT 150 Math for Elementary Teachers I ........ 2
     ii. MAT 151 Math for Elementary Teachers II .......... 2
   - Secondary Education .................... 6 semester hours
     i. MAT 292 Multivariable Calculus .................. 4
     ii. MAT 372 Secondary Math Methods .............. 2

2. Pure Mathematics .................. 17 semester hours
   a. MAT 292 Multivariable Calculus ..................... 4
   b. MAT 442 Introduction to Abstract Algebra .......... 3
   c. MAT 462 Introduction to Real Analysis .............. 3
   d. MAT 485 Special Topics: Algebra II or Analysis II .................................................. 3
   e. MAT 496 Senior Seminar II ......................... 1
   f. Math Electives (select one course from the following)
      - MAT 352 Geometry ................................ 3
      - MAT 356 Math Modeling ....................... 3
      - MAT 440 Probability and Statistics .......... 3
      - MAT 460 Numerical Analysis .................. 3

## C. Total for Major .................. 45 semester hours

## D. Total Requirements

- **Outside of Major** ............. 13 semester hours
  1. CIS ___ Approved Programming Language ................ 3
  2. TSC 101 Fundamentals of Speech Communication or BAM 201 Business Communications .......... 3
  3. PHI 210 Symbolic Logic ................................ 3
  4. PHY 241 General Physics I (Non-Calculus Based) or PHY 261 Physics I (Calculus Based) ...... 4

## E. General Electives ............. 28-32 semester hours

## F. Liberal Arts

- Core Requirements ...................... 31-33 semester hours

## G. Total for Degree ................ 120 semester hours