

$$\lim_{x \rightarrow 0} \frac{\log_b(1+x)}{x} = \log_b e$$

Cabrini College

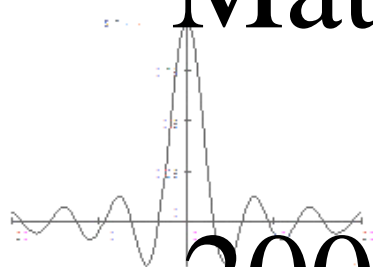
$$e^{i\theta} = \cos \theta + i \sin \theta$$

$$\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$$

Department of

Mathematics

$$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = \frac{\partial u}{\partial t}$$



2006 – 2007

Handbook

$$\int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi}$$

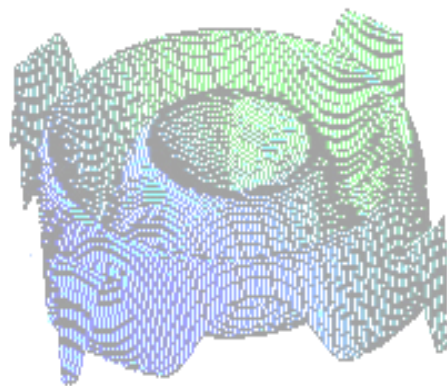


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Introduction

On behalf of all the faculty of the Mathematics Department at Cabrini College, welcome! We are very glad and honored that you have chosen Cabrini as the college at which you will pursue your degree in mathematics. Mathematics has been called the “Queen and Servant of the Sciences.” From antiquity to the present day, men and women have been working to uncover her power and beauty. From unlocking the mysteries of the atom to the mysteries of the universe, from forecasting the weather to forecasting the stock market, mathematics has played a vital role in helping humanity understand its surroundings. The faculty of the Mathematics Department at Cabrini will do all we can to challenge and support you as you prepare to join the ranks of mathematicians.

Career Opportunities

A degree in mathematics opens many opportunities for you. Some of our graduates chose to complete the concentration in secondary education with the goal of becoming secondary math teachers. However, this is by no means the only door open to a graduate with a mathematics degree. Other careers for which a mathematics major would be well prepared include accounting and finance, actuarial science and insurance, law, industry, economic forecasting, engineering, research, medicine and statistics. The program at Cabrini will also give you a solid preparation for graduate school if you decide to pursue mathematics further.

Good sources of detailed information about careers that will be open to you with a degree in mathematics and interviews with math graduates include the book *101 Careers in Mathematics* that is available in the Career Services office and the website <http://www.maa.org/students/undergrad/career.html> that is sponsored by the Mathematical Association of America.

About the Mathematics Department

There are four fulltime faculty members in the Mathematics Department and several adjunct instructors. All the courses for the major and minor are taught by the fulltime faculty, with the exception of MAT 489, Mathematics Curriculum and Methods, which is taught by an experienced high school math teacher. The department also provides courses for the general student body to fulfill the mathematics core of the curriculum. These courses are taught by both fulltime faculty and adjunct instructors.

The department offers a Bachelor of Science degree in mathematics as well as a minor in mathematics. A student majoring in math may opt to pursue a concentration in secondary education if he or she wishes to teach mathematics at the secondary level. This option requires that the student take several education and psychology courses, which take up all of the free electives in the curriculum and would make it difficult for a student to take a minor or double major in another area. If a student did not pursue the concentration in secondary education, he or she would have an ample number of free electives available to minor or double major in another area. Some recent graduates have minored or double majored in Spanish, history, philosophy, accounting and finance.

The department also offers a post baccalaureate secondary certification program in mathematics. Graduate students who enroll in this program take many of the same mathematics courses as undergraduate math majors, though there are some classes for the undergraduate major that are not required for the graduate students. Upon successful completion of the program, a person would not be awarded a degree in mathematics but would be certified to teach mathematics at the secondary level.

In the courses for the major, the class sizes can range from about 5 to 25. Typically the largest class is Calculus I, since mathematically strong students who are not math majors can take this to fulfill the mathematics core curriculum requirement. Also, some other majors, such as chemistry and computer information science, require their students to take Calculus and some other upper level courses. Upper level mathematics courses typically have from 5 to 15 students in them.

Mathematics Department Faculty

Professor Carol H. Serotta, Associate Professor

Professor Serotta started at Cabrini in 1977. She has a Bachelor of Arts in mathematics, a Masters degree in education and a Masters degree in mathematics from the University of Pennsylvania. Her office is room 232 in Grace Hall and she can be reached at (610) 902-8346 or via e-mail at cserotta@cabrini.edu.

Dr. John F. Brown, Associate Professor and Chair

Dr. Brown began teaching at Cabrini in 1999. He earned his Bachelor of Science and Master of Science degrees in mathematics from Rensselaer Polytechnic Institute and his Doctorate in mathematics from Boston University. His office is room 223 in Grace Hall. He can be reached at (610) 902-8468 or via e-mail at jbrown@cabrini.edu.

Dr. Kathleen A. Acker, Assistant Professor

Dr. Acker joined the Cabrini faculty in 2002. She earned her Bachelor of Science in mathematics from the University of Scranton, a Master of Education degree from Virginia Commonwealth University, and her Doctorate in mathematics education from American University. Her office is room 222 in Grace Hall. Her phone number is (610) 902-8344, and her e-mail address is ka723@cabrini.edu.

Dr. Raymond E. Robb, Assistant Professor

Dr. Robb began at Cabrini in 2004. He has a Bachelor of Science degree in mathematics and a Bachelor of Arts degree in economics from Case Western Reserve University and a Doctorate in mathematics from the University of Michigan. His office is room 218 in Grace Hall. He can be contacted at (610) 902-8398 or at rer722@cabrini.edu.

Declaring the Major or Minor

To enroll officially as a mathematics major or minor, a student must complete a Declaration of Major/Minor form that is available at the Registrar's Office. The student should fill out the top portion and then take the form to the Department Chair. The Chair will complete the second portion of the form and assign the student an advisor. The Chair or student then must take the form to the Registrar's Office, where the major or minor will be entered into the student's record.

Advising

When the student submits the Declaration of Major/Minor form to the Department Chair, the Chair will assign the student an advisor from among the fulltime mathematics faculty. If the student has declared a minor, the advisor will assist the student in picking the mathematics courses that are needed to complete the minor. The student should consult with the minor advisor each semester until the requirements for the minor are completed. All other issues, such as selecting courses to fulfill the requirements for the major, the core, and elective credits, adding or dropping classes, and assistance with any other matters should be handled by the student in consultation with the advisor from his or her major.

For students who declare a major in mathematics, the advisor will be the primary source of academic guidance. The student should regularly consult with the major advisor to ensure that all requirements for the major as well as core and total credit requirements for graduation are on track to be met. The advisor will monitor the student's progress and provide guidance on curricular or extracurricular issues that arise, including but not limited to academic performance and career and/or graduate school opportunities. It is important that the student and advisor feel comfortable with each other and have a good rapport.

If a student is pursuing the mathematics major with a concentration in secondary education, he or she should also consult regularly with Dr. Thomas Stretton of the Education Division to make sure all requirements for secondary certification, including the required coursework, state testing, and field experiences are being met.

Requirements for the Bachelor of Science Degree in Mathematics

The curriculum at Cabrini consists of three parts – the core, the major courses, and free electives. A student must successfully complete the core, the major coursework, and have enough credits from the free electives to have at least 123 credits in order to graduate.

Core Requirements

The core requirements consist of four parts – the Seminars, the Competencies, Religious Studies and the Distribution Requirements.

Seminars

- COL 101 College Success Seminar (taken in the first semester) (1 credit)
- SEM 100 Self Understanding (typically taken in the second semester of the first year) (3 credits)
- SEM 300 The Common Good (taken in the junior year) (3 credits)

Competencies

- Mathematics – Calculus I, which is required for the math major and minor, fulfills this requirement (4 credits)
- Foreign Language – Two semesters for students who begin at the Introductory I or II level, or one semester for students placed at the Intermediate I level or higher (3 or 6 credits)
- English – Typically ENG 101, English Composition, taken in the first semester (3 credits). This is waived for students who are admitted to the Cabrini Honors Program.
- Information Literacy and Technological Competency – Fulfilled by taking IST 125, Information Management and Technology (4 credits)

Religious Studies

Fulfilled by taking one course from the Religion Department (3 credits)

Distribution

These courses do not come from any particular department, but rather are thematic in nature. A list of courses that may be used to fulfill each of the distribution requirements can be found in the college catalog.

- Natural Science (S) (7 – 8 credits) – Two courses in a science, at least one of which must have a laboratory component. Students majoring in mathematics are required to take Physics I with a laboratory as the laboratory course and are encouraged to take Physics II with a laboratory as the other science course.
- Heritage (H) (6 credits)
- Cultural Diversity (D) (3 credits)
- Values and Commitments (V) (3 credits)
- The Individual and Society (I) (3 credits)
- Imagination, Creativity and Aesthetic Appreciation (A) (3 credits)
- Contemporary Issues (C) (3 credits)

Mathematics Courses Required for the Major

The Mathematics Department offers a Bachelor of Science degree in mathematics. A student may choose to get a concentration in secondary education if he or she wishes to become certified to teach mathematics at the secondary level. Such a student will receive a Bachelors degree in mathematics and must complete all requirements for that degree as well as those for the secondary education concentration.

Courses for Mathematics Majors NOT Seeking Secondary Certification

Students majoring in mathematics but not seeking secondary certification must successfully complete the following courses:

- MAT 130 Calculus I (4 credits) (this fulfills the core mathematics requirement)
- MAT 131 Calculus II (4 credits)
- MAT 201 Introduction to Linear Algebra (3 credits)
- MAT 212 Probability and Statistics (4 credits)
- MAT 221 Introduction to Mathematical Proofs (3 credits)
- MAT 230 Calculus III (4 credits)
- MAT 231 Differential Equations (4 credits)
- MAT 301 Abstract Algebra (3 credits)
- MAT 310 Discrete Mathematics (3 credits)
- IST 195 Introduction to Programming (3 credits)
- PHY 101 Physics I with a laboratory (4 credits) (this fulfills one of the core science requirements)
- Three elective courses of at least 3 credits each at the 200 level or higher. At least two of these must be mathematics courses. The third may be a mathematics course, Internet Programming Languages (IST 200), or Data Structures and Algorithms (IST 285). If a student is not seeking secondary certification, he or she may not take Mathematics Curriculum and Methods (MAT 489) as one of the electives.

Possible Four Year Schedule

A possible schedule a student **not seeking secondary certification** could follow to fulfill the mathematics requirements would be:

First Year

<u>Fall</u>	<u>Spring</u>
Calculus I (4) Language I (3) English 101 (3) IST 125 (4) College Success (1)	Calculus II (4) Language II (3) ¹ Seminar 100 (3) Heritage Core I (3) Religion (3)
15 credits	16 credits

Second Year

<u>Fall</u>	<u>Spring</u>
Calculus III (4) Linear Algebra (3) IST 195 (3) Physics I (4) Heritage Core II (3)	Ordinary Differential Equations (4) Introduction to Proofs (3) Cultural Diversity Core (3) Science Core II (3 or 4) ² Free Elective (3)
17 credits	16 – 17 credits

Third Year

<u>Fall</u>	<u>Spring</u>
Probability and Statistics (4) Abstract Algebra (3) Seminar 300 (3) Values and Commitments Core (3) Free Elective (3)	Discrete Mathematics (3) Mathematics Elective (3) Individual and Society Core (3) Free Elective (3) Free Elective (3)
16 credits	15 credits

Fourth Year

<u>Fall</u>	<u>Spring</u>
Mathematics Elective (3) Aesthetics Core (3) Free Elective (3) Free Elective (3) Free Elective (3)	Mathematics Elective (3) Contemporary Issues Core (3) Free Elective (3) Free Elective (3) Free Elective (3)
15 credits	15 credits

which would result in 125 – 126 credits.

¹ If a second language course is not required, another core course or a free elective could be substituted.

² Physics II with the lab is recommended.

Courses for Mathematics Majors Seeking Secondary Certification

All students majoring in mathematics who are seeking secondary certification in mathematics must successfully complete the following courses:

- MAT 130 Calculus I (4 credits) (this fulfills the core mathematics requirement)
- MAT 131 Calculus II (4 credits)
- MAT 201 Introduction to Linear Algebra (3 credits)
- MAT 212 Probability and Statistics (4 credits)
- MAT 221 Introduction to Mathematical Proofs (3 credits)
- MAT 230 Calculus III (4 credits)
- MAT 231 Differential Equations (4 credits)
- MAT 301 Abstract Algebra (3 credits)
- MAT 310 Discrete Mathematics (3 credits)
- MAT 402 History of Mathematics (3 credits)
- MAT 407 Geometry (3 credits)
- MAT 489 Mathematics Curriculum and Methods (3 credits)
- IST 195 Introduction to Programming (3 credits)
- PHY 101 Physics I with a laboratory (4 credits) (this fulfills one of the core Science requirements)

In addition, they must complete the courses required for secondary education certification, which include

- EDU 304 Foundations of Education (3 credits)
- PSY 320³ Developmental Psychology (3 credits)
- PSY 330 Educational Psychology (3 credits)
- SEC 202 Sophomore Field Experience in Secondary Education (full year, .5 credits per semester)

³ Introduction to Psychology (PSY 101) is a prerequisite for this course. PSY 101 will also fulfill the Individual and Society Core requirement.

- SEC 302 Junior Field Experience in Secondary Education (full year, 1 credit per semester)
- SEC 303 Reading and Communication in Content Areas (3 credits)
- SEC 389 Seminar in Secondary Education (4 credits)
- SEC 402 Senior Field Experience in Secondary Education (2 credits)
- SEC 490 Student Teaching and Practicum (12 credits)

To gain Pennsylvania secondary certification, a student must be admitted to the Education Division as well as be enrolled in the mathematics program. Admission to the Education Division requires that a student pass the General Praxis exam in basic mathematics, reading and writing (usually taken in the first year) and maintain an overall grade point average of 3.00.

In addition, a student must pass the state administered Praxis II exam in mathematics. This is usually taken in junior or senior year. A passing grade is a prerequisite for being placed in a student teaching assignment. For additional information on these and other requirements, see Dr. Thomas Stretton of the Education Division.

Possible Four Year Schedule

A possible schedule a student **seeking secondary certification** could follow to fulfill the mathematics requirements would be:

First Year

<u>Fall</u>	<u>Spring</u>
Calculus I (4) Language I (3) English 101 (3) IST 125 (4) College Success (1)	Calculus II (4) Language II (3) ⁴ Seminar 100 (3) Introduction to Psychology (3) ⁵ Religion Core (3)
15 credits	16 credits

Second Year

<u>Fall</u>	<u>Spring</u>
Calculus III (4) Linear Algebra (3) Developmental Psychology I (3) IST 195 (3) Physics I (4) Sophomore Field Experience (.5)	Ordinary Differential Equations (4) Introduction to Proofs (3) Discrete Mathematics (3) Foundations of Education (3) Science Core II (3 or 4) ⁶ Sophomore Field Experience (.5)
17.5 credits	17.5 – 18.5 credits

Third Year

<u>Fall</u>	<u>Spring</u>
Probability and Statistics (4) Abstract Algebra (3) Seminar 300 (3) Educational Psychology (3) Seminar in Secondary Education (4) Junior Field Experience (1)	History of Mathematics (3) Geometry (3) Reading and Writing in Content Area (3) Heritage Core I (3) Cultural Diversity Core (3) Junior Field Experience (1)
18 credits	16 credits

Fourth Year

<u>Fall</u>	<u>Spring</u>
Math Curriculum and Methods (3) Heritage Core II (3) Values and Commitments Core (3) Aesthetics Core (3) Contemporary Issues Core (3) Senior Field Experience (2)	Student Teaching (12)
17 credits	12 credits

which would result in 129 – 130 total credits.

⁴ If a second language course is not required, another core course or a free elective could be substituted.

⁵ This would fulfill the Individual and Society Core requirement and is a prerequisite for Developmental Psychology

⁶ Physics II with the lab is recommended.

Requirements for the Minor in Mathematics

The requirements for the minor in mathematics are

- MAT 130 Calculus I (4 credits)
- MAT 131 Calculus II (4 credits)
- Four mathematics courses of at least 3 credits each at the 200 level or higher, excluding MAT 489 (Mathematics Curriculum and Methods)

Placement/AP Credit

A student who has achieved a score of 3 or higher on the AP Calculus AB test or on the AB subscore of the Calculus BC test will be placed in Calculus II and will earn 4 credits for Calculus I. A student who has taken the AP Calculus BC test and achieved a score of 3 or higher will be placed in Calculus III and will earn 8 credits for Calculus I and II.

A student who has taken the equivalent of Calculus I in high school and whose grade in that course indicates sufficient mastery of the material but who has not taken an AP test may be allowed to take Calculus II as his or her first mathematics course at Cabrini. However, no credits will be given for Calculus I.

If a student starts in Calculus II, the credit requirement for Calculus I will be waived.

Transfer Credits

Once a student has declared a mathematics major at Cabrini, he or she should take all mathematics courses at Cabrini. Under special circumstances, the student may take courses for the major off campus with the permission of the Department Chair. A grade of C or higher must be attained for the course credits to transfer to Cabrini from another institution. The grades for the courses do not transfer.

Grade Requirements

A student must maintain an overall GPA of 2.00 in all courses required for the major or minor. If the GPA falls below this, the student is placed on probation by the department and has one semester to increase the GPA to the minimum standard. If the student does not achieve the 2.00 GPA after the probationary semester, he or she will be dismissed from the major or minor unless the Department Chair grants an extension of an additional semester. No grade lower than a C- in a mathematics course will count toward fulfilling the requirements for the major or minor.

Course Descriptions

MAT 130 Calculus I

This course includes limits, continuity, differentiation, applications of the derivative and antiderivatives. *Offered fall and spring, 4 credits.*

MAT 131 Calculus II

This course includes indeterminate forms, integration, applications of integrals, techniques of integration, improper integrals and polar coordinates. *Prerequisite: MAT 130. Offered fall and spring, 4 credits.*

MAT 201 Introduction to Linear Algebra

This course includes the algebra of matrices, solutions of systems of linear equations, vectors, vector spaces, linear transformations, determinants, and eigenvalues and eigenvectors. *Offered fall, 3 credits.*

MAT 212 Probability and Statistics

This course presents both descriptive and inferential statistics. Topics include data collection and classification, measures of central tendency and variability, probability concepts, discrete and continuous probability distributions, inferences about means, variances and proportions, confidence intervals, p-values, analysis of variance, regression, correlation, and nonparametric techniques. Emphasis is placed on computer applications in statistics. A computer program is used to demonstrate various statistical techniques. *Prerequisite: MAT 130 or permission of the Chair of the Mathematics Department. Offered fall, 4 credits.*

MAT 221 Introduction to Mathematical Proofs

This course includes an introduction to logic and describes various techniques of mathematical proofs, including direct proofs, proofs by contrapositive, proofs by contradiction and proofs by induction. Examples will be drawn from many areas of mathematics. *Prerequisite: MAT 131. Offered spring, 3 credits.*

MAT 230 Calculus III

This course includes the study of vectors, functions of several variables, partial differentiation, multiple integrals, and infinite sequences and series. *Prerequisite: MAT 131. Offered fall, 4 credits.*

MAT 231 Differential Equations

This course covers topics including the theory and methods of solutions of first order differential equations, linear differential equations and systems of linear differential equations. Physical applications of differential equations are studied. *Prerequisite: MAT 131. Offered spring, 4 credits.*

MAT 301 Abstract Algebra

This course covers topics including rings, groups, and fields. *Prerequisite: MAT 221. Offered fall, 3 credits.*

MAT 305 Real Variables

This course covers topics including limits, continuity, convergence and uniform convergence, differentiation and integration. *Prerequisite: MAT 221. Offered upon sufficient enrollment, 3 credits.*

MAT 310 Discrete Mathematics

This course includes topics chosen from logic, number theory, combinatorics, probability, relations including congruence relations, functions, graphs and code theory, and algebraic structures. *Offered spring, 3 credits.*

H-MAT 320 Honors Mathematics: Game Theory

This course presents elementary topics from the mathematical study of games with two or more players. Topics include expected value, the existence of optimal strategies, dominance and repeated games. *Offered spring alternate years, 3 credits*

MAT 389 Topics in Mathematics

This series of one credit courses is designed to explore in depth a single topic in mathematics. Topics may include but are not limited to the metric system, calculators and calculation, math games, Montessori mathematics, problem solving in mathematics, math anxiety, math testing, and mathematics and gender. *This course may be repeated for credit if the topics are different. Offered upon sufficient enrollment, 1 credit per topic.*

MAT 399 Seminar

The seminar course involves the study of selected topics not offered in any other listed course. The topics may be selected by the students and a faculty member who is willing to teach the course. *Offered upon sufficient enrollment, 3 credits.*

MAT 401 Numerical Analysis

This course covers topics including polynomial approximation, interpolation, numerical differential formulas, Gaussian quadrature, Newton-Cotes quadrature formulas, error analysis, Euler-Maclaurin sum formula, functional approximation, and solutions of nonlinear equations. *Prerequisite: MAT 230. Offered upon sufficient enrollment, 3 credits.*

MAT 402 History of Mathematics

This course examines the evolution of mathematics from ancient civilizations through modern times. Topics include but are not limited to the history of geometry, calculus, probability, conics and analytic geometry, logic, number theory, arithmetic and algebra, as well as the mathematicians who developed these concepts. *Prerequisite: MAT 131. Offered spring, 3 credits. This course is required for students seeking Secondary Education certification in Mathematics.*

MAT 406 Number Theory

This course covers topics including the properties of divisibility, prime numbers, congruences, Gaussian integers and Diophantine equations. *Offered upon sufficient enrollment, 3 credits.*

MAT 407 Geometry

This course covers topics including Euclidean geometry, the parallel postulate, hyperbolic geometry and transformational geometry. *Offered spring, 3 credits. This course is required for students seeking Secondary Education certification in Mathematics.*

MAT 430 Complex Variables

This course covers the arithmetic and algebraic properties of complex numbers, regions in the complex plane, functions of a complex function, mappings, analytic functions and their properties, and the derivatives and integrals of complex functions. *Prerequisites: MAT 221 and MAT 230. Offered upon sufficient enrollment, 3 credits.*

MAT 431 Partial Differential Equations

This course presents the derivation of the heat and wave equations, boundary value problems, the method of separation of variables, eigenvalues and eigenfunctions, the construction and properties of Fourier series, and the method of eigenfunction expansion to solve nonhomogeneous partial differential equations. *Prerequisites: MAT 230 and MAT 231. Offered upon sufficient enrollment, 3 credits.*

MAT 487 Departmental Practicum

Students assist faculty members in teaching a first year level mathematics course. *Prerequisite: Senior status secondary education major and recommendation of department faculty. Offered as required, variable credit, 3 credits maximum.*

MAT 489 Mathematics Curriculum and Methods

This course examines secondary school mathematics programs stressing organization and preparation of material for instruction. *Offered fall, 3 credits. This course is required for students seeking Secondary Education certification in Mathematics. It may only be taken by students seeking secondary certification.*

MAT 499 Independent Study

Topics are chosen by an individual student or small group of students in conjunction with a faculty member. *Prerequisite: approval of Department Chair and Dean of Academic Affairs. There is a fee for this course. Offered as needed, credit to be arranged.*

Technological Resources

Students majoring or minoring in Mathematics should own a graphing calculator such as the TI-83 or one comparable for use in Calculus I and II classes. In upper level Math classes, students may be required to use a more advanced calculator at the discretion of the instructor.

The Mathematics Department has available several technological resources for use by faculty and students. These include

- *Scientific Workplace*, a mathematical word processor/computer algebra/graphing software package. This software is installed on the computers in the library and some classrooms. It will accommodate up to seven simultaneous users.
- *Mathematica*, a mathematical computer algebra/graphing software package. This software is installed on the computers in the library and some classrooms. It will accommodate up to seven simultaneous users.
- *Geometer's Sketchpad*, which is used in the Geometry course to allow users to examine the relationship between shapes, angles, and other geometric constructions. This software is installed on the computers in the library. It will accommodate up to ten simultaneous users.
- *SPSS*, a comprehensive statistics computer package, which is used in the Probability and Statistics course.
- *Smart Boards*, which are available in many of the classrooms, may be used by the Mathematics instructors to present material in courses. Students taking MAT 489 may be instructed in their use.

Library Resources

The Holy Spirit Library has over 500 mathematics books on its shelves and subscribes to several mathematics journals, including *Mathematics Magazine*, *Mathematics Teacher*, *Micromath*, *The College Math Journal*, *Math Horizons*, *Mathematics Teaching*, *Teaching Children Mathematics*, and *School Science and Mathematics*. Full text access to almost 100 other journals is available in electronic format. The list of book and journals can be accessed at the Library's website, <http://www.cabrini.edu/Library/>. Books may also be borrowed from the libraries of several local colleges and through interlibrary loan.

Department Website

The Mathematics Department maintains a website at <http://www.cabrini.edu/mathematics/>. There, you can get information about the department faculty, courses, students and activities, as well as links to other sites that provide information on careers in mathematics.

Bulletin Board

A bulletin board on the wall outside Grace Hall 223 is regularly updated with information about graduate schools, job postings and other opportunities for mathematics majors and minors.

Extracurricular Opportunities

The Mathematics Department offers several academic and social opportunities for students outside of the classroom.

Undergraduate Research

If a student wishes, he or she may collaborate with a faculty member on a research project. It is a wonderful opportunity for a student to delve deeply into an area that he or she may have been exposed to in a class or have an interest in. Several forums are available at which the student may present the work. These could range from a presentation to other members of the Mathematics Department to a presentation at a local conference. Some recent graduates have explored topics such as the life of Sonya Kovaleski, the indeterminate form 0^0 , and how to find the value of π by inscribing triangles in a unit circle.

Mathematics/Science Colloquium

Since 2001, the Mathematics Department has sponsored a regular Mathematics/Science Colloquium at which students or faculty members present topics in which they have an interest. These talks occur twice in the fall and three times in the spring on Monday afternoons. The presentations are, for the most part, at a level that can be understood by an undergraduate mathematics or science major. Faculty and students from Cabrini as well as nearby colleges are invited to attend. Some past talks include “Math and Stamps,” “Math in the Old Testament,” “Math and Art,” “The Mathematics of Bar Codes,” “Paradoxes in Probability,” “Teaching with Cross Sums,” and “Slices of Pi.”

Math Club

Anyone interested in mathematics is invited to join the Math Club. The club meets approximately every two weeks to plan activities to promote mathematics at the college and provide service to the local community. Activities that the club has sponsored or been involved in include showing popular movies or shows with mathematical connections, tutoring at a local grade school, participating in walks for the ALS Society, and assisting with a Career Fair for high school students.

Sigma Zeta

Cabrini has a chapter of Sigma Zeta, the national honor society that recognizes outstanding student achievement in mathematics, science or computer information science. To be admitted to the chapter, a student must be a major or minor in one of those areas; have completed at least 15 credits in mathematics (at the MAT 130 level or higher), computer information science (above the IST 125 level), or science; and have a minimum GPA of 3.00 in those courses and as well as an overall GPA of at least 3.00. The induction ceremony occurs in the spring semester.

Cooperative Education/Internships

A student may apply for a cooperative education assignment or internship through the Office of Cooperative Education and Career Services. These experiences may carry credit and/or be paid. A student must have at least 45 college credits, including at least 15 credits from Cabrini, as well as approval of the Department Chair and the Director of Cooperative Education and Career Services, to be eligible. For further information on requirements and opportunities for mathematics majors, contact Nancy Hutchison or Jennine Donnelly in the Office of Cooperative Education and Career Services on the first floor of Grace Hall.

Honors in the Major

Students who meet certain requirements may graduate with honors in the major. To be eligible, a student must

- have a minimum GPA of 3.0 in all coursework
- have a minimum GPA of 3.5 in mathematics courses taken at Cabrini for the major
- be an active member in Sigma Zeta
- complete a research project under the supervision of a fulltime member of the faculty of the Mathematics Department and make a public presentation of the work at a local or national conference
- submit an application for honors with the Chair of the Department