Transfer Guide Leading to a Bachelor’s Degree in Mathematics

All degree requirements are subject to the provisions and notices in the NIU Undergraduate Catalog. Information is valid through August 2016.

Courses Needed Prior to Transfer (ideally for student transferring with general education requirements completed):

- MATH 229  Calculus I  (4)
- MATH 230  Calculus II  (4)
- MATH 232  Calculus III (4)
- MATH 240  Linear Algebra (4)

Courses Highly Recommended Prior to Transfer:

- CSCI 230  COMPUTER PROGRAMMING IN FORTRAN  (4)
- or  CSCI 240  COMPUTER PROGRAMMING IN C++ (4)
- MATH 336  DIFFERENTIAL EQUATIONS (3) (for GM, AM, and CM emphases)

Courses to be completed at NIU:

- MATH 360  MODEL BUILDING IN APPLIED MATHEMATICS (3)
- STAT 350  INTRODUCTION TO PROBABILITY AND STATISTICS (3)
- MATH 430  ADVANCED CALCULUS I (3)
- Other upper level major courses are dependent on individual emphasis. Students are referred to NIU Undergraduate Catalog for details.

Please note that:
1. A Linear Algebra course offered at a community college with 3 credit hours may not be transferred as MATH 240 at NIU;
2. STAT 350 is a calculus based statistics course, any statistics course without Calculus II as prerequisite will not be transferred as STAT 350 at NIU.

Attention should also be paid to the articulation status of computer science courses (CSCI 230/240 at NIU). Students should consult the Articulation Tables, or the Illinois Articulation Initiative, available at community college counseling offices, to determine which specific courses at their community college fulfill NIU requirements.

About the Department

The Department of Mathematical Sciences at Northern Illinois University provides undergraduate students with programs leading to the Bachelor of Science degree in mathematics. These programs prepare students with diverse career goals and develop unique strengths and talents that are valuable in an increasingly technical world.

In a world in which mathematics is the "invisible culture" a mathematics degree prepares students to be innovative and imaginative in complex situations. A mathematics degree demonstrates many obvious career skills: attention to detail, comfort, with numbers and computation, and a familiarity with standard mathematical models. Less obvious are the skills that develop during the study of higher mathematics. The study of mathematics develops rigorous, logical thinking; appreciation and familiarity with complex structures and algorithms; and ability to learn technical, detailed, or abstract material. This ability to learn is valuable. Most technical material has a structured, logical basis, and the study of mathematics enables a student to recognize and synthesize such material.

There are nearly 300 mathematics majors at NIU, and they reflect the diversity of the northern Illinois region. Approximately 50 percent of the mathematics majors are women, and there are many women on the faculty. Students will find an inviting and accommodating learning environment within the department, and we have had great success accommodating students with differing abilities.

The department offers a well-structured, yet versatile program of studies, and a student may pursue the degree in any of six emphases. The emphases all share a unique mixture of theory and application. During the first two years of the program, all students will investigate calculus and its applications, linear algebra, basic statistics, and the fundamentals of mathematical modeling. Additionally, all mathematics students will learn a scientific computing language and will become familiar with computation devices.

More specialized studies are pursued in the last two years of the program, within one the six emphases:

1. The general mathematics emphasis (GM) offers the broadest and most theoretical program of study. It is often an appropriate choice for students who wish to pursue graduate degrees or attend professional school.
2. The applied mathematics emphasis (AM) offers a course of study that focuses on the application of mathematics to
real world problems. This is an appropriate choice for students interested in problems arising from industry or engineering, and prepares them for many technical fields.

3. In the computational mathematics emphasis (CM), students investigate the nature of computation, and the methods used to compute mathematical quantities accurately and efficiently. Such skills are increasingly valuable in a world that uses computers heavily, and career prospects in this emphasis are enhanced by a facility with computers.

4. The probability and statistics emphasis (PS) investigates the use and theory of probabilistic and statistical methods. Students within this emphasis use statistical computer packages common in industry and business. This emphasis develops skills that are of value to industry, finance and insurance and high tech fields.

5. The mathematics education emphasis (ME) prepares math teachers for the secondary schools. Students in this emphasis earn both a mathematics degree and Illinois State Certification to teach in secondary schools.

6. Students with the actuarial sciences (AS) emphasis would typically enter the actuarial profession upon graduation. The rigorous curriculum carefully combines foundational training with all the learning objectives of the first three examinations of the Society of Actuaries and the Casualty Actuarial Society.

Faculty:
Mathematics classes at Northern Illinois University are taught by a diverse faculty with a wide variety of life experiences and interests. Our professors hold doctoral degrees in mathematics and are fully appreciative of the dual teaching/research role of a university. Northern Illinois University is home to recognized mathematical researchers and some of the best mathematics teachers in the state. The department values its excellent reputation for quality teaching and is proud of its many award-winning teachers. Quality teaching is important at Northern Illinois University and is a common bond among an exceptionally collegiate faculty. Professors within the department are accessible and schedule regular times to meet with students. All classes required by mathematics majors are taught in small sections by professors. Also, the department offers the course MATH 494 to encourage students to pursue internships and to interact with faculty on research projects.

The Mathematical Education Program
The Bachelor of Science degree with the emphasis in mathematical education is a strong teaching credential. Northern Illinois University has a long history of preparing top quality teachers, and the Department of Mathematical Sciences is committed to the development of the best mathematics teachers in the state. The teacher licensure program prepares teachers to teach the secondary school mathematics (9-12 grades), including advanced placement courses. The department has professors whose area of specialty and research is mathematics education. These faculty complete the training of mathematics education majors by teaching them a wide variety of methods of mathematical instruction.

Students in the mathematics education emphasis work closely with advisers within the department. The advising system for mathematics education students is a particular strength of the department, and is a feature about which our students are universally enthusiastic. Mathematics education students at Northern Illinois University student-teach in some of the most desirable school districts, and our graduates teach in many of the schools in suburban Chicago, the collar counties, and throughout northern Illinois.

Student Organizations:
Math Club is a student organization of NIU which meets weekly for a variety of events of interest to students who enjoy mathematics - games and puzzles, movies, lectures, contests, and outings. Meetings are open to all NIU students.

Career Information:
It is important to realize that a mathematics degree offers great flexibility for the job market. Information on employment practices and placement of graduates may be received from the university’s Career Planning and Placement Center and from the Mathematical Association of America’s web page at www.maa.org.

The Department of Mathematical Sciences welcomes transfer students from Illinois community colleges. These students will find it easy to continue their studies at NIU if they plan well.

For More Information
Department of Mathematical Sciences
Northern Illinois University
DeKalb, Illinois 60115-2857
(815)753-0566
(815)753-1112 fax
E-mail: ugradprog@niu.edu  Web site: www.math.niu.edu/