



Department of Mathematical Sciences
PREPARING TO TEACH SECONDARY
SCHOOL MATHEMATICS, GRADES 6-12

The most common method to qualify to be a secondary school mathematics teacher is to follow the program for a major in mathematical sciences with an emphasis in mathematics education. Mathematics majors with other emphases and some computer science majors may also be certified by adding additional courses in mathematics (usually MATH 353, 410, 412, 416, 420, and 430), 12 hours in education (EPS 406, ETR 440, usually EPFE 400, and TLSE 457), and 4-5 hours in clinical experiences (ILAS 201, ILAS 301, and MATH 401) and 12 hours of student teaching (MATH 413). The required and elective mathematics courses in each of these emphases are listed in the appropriate undergraduate catalog. Recent state and university requirements may not appear in catalogs, so continued contact with your advisor is highly recommended. Postgraduate students may be certified whether or not they pursue a second bachelor's degree. Students-at-large and graduate students may also be certified (see Appendix E).

Prospective secondary teachers should first confer on an individual basis with Mathematical Sciences advisors no later than the sophomore year and on a semester basis thereafter. Student teaching is discussed in a meeting with a Departmental representative three semesters prior to the semester of student teaching. This is a mandatory meeting for all students planning to student teach. Each student should make a careful plan of courses to insure that all requirements for her/his program can be met. For some students, more than normal course loads may be necessary in one or more semesters, or additional semesters of study may be needed. Students are also encouraged to add courses which will provide for a second teaching area.

Meeting the Certification Requirements

- 1) Mathematics Major The major in Mathematical Science (B.S.) with an emphasis in mathematics education is a 75 semester hour program.*
- 2) Second Teaching Area Endorsement A second teaching area is recommended. See advisor for endorsement requirements or check www.math.niu.edu/mathed/cert.
- 3) PSYC 102 (Introduction to Psychology) This 3 semester hour course, a general education elective in the social sciences area, should be completed before junior standing. It is a prerequisite for EPS 406.
- 4) U. S. History and U. S. Government One 3 semester hour course in each area should be completed in the first two years. The courses will simultaneously satisfy general education requirements. (Possible courses: HIST 260 or 261 for history and POLS 100 or 150 for government.)
- 5) Social Issues Experience Documentation of at least one of the following: completion of a first aid course (preferably with CPR), experience with drug abuse education, or an education experience with other social issues in schools. (May be satisfied by course work or an approved experience.)
- 6) Multicultural Course Three semester hour course: either IDSP 211 or EPFE 201or TLRN 501X or LTIC 501 (for graduate students & SAL's). Each of the undergraduate courses will satisfy a general education requirement for the B. S. degree.

*See Appendix D for general education requirements for initial teacher certification.

- 7) Basic Skills Test of the Illinois Certification Exam You must have passed the Basic Skills Test in order to be formally admitted to the Teacher Certification Program. **If you have not passed this test, you need to complete this requirement as soon as possible.** Information and registration materials can be obtained in Adams 128 (Testing Services) or by going to www.teachercertification.niu.edu under Certification Testing. The math subject area test and the **Assessment of Professional Teaching Test** must be passed before student teaching.
- 8) EPS 406 (Issues in Human Development and Learning in the Middle School and High School Years)** This 3 semester hour course should be completed during the junior year so that no doubling up of clinical experiences is necessary (transfer students will usually take this during the spring semester of their junior year). Prerequisites include Junior standing (60 semester hours), PSYC 102 and an overall GPA of 2.50. CRQ: ILAS 201. ILAS 301(2 semester hours) is usually taken concurrently with EPS 406.
- 9) Clinical Experience Students must complete 100 clock-hours of clinical experiences before student teaching. The clinical experience involves observation within both junior and senior high school mathematics classrooms, and possible classroom teaching experience. Ordinarily a student preparing to teach in mathematics will take ILAS 201(1 semester hour; 20 clock-hours) as a sophomore or first semester junior; ILAS 301 (2 semester hours; 50 clock-hours) concurrently with EPS 406 as a junior; MATH 401 (1-2 semester hours; 40 clock-hours) after EPS 406 and concurrently with MATH 412. [Note: MATH 411(0 semester hours; 15 clock-hours) needs to be taken only if the last pre-student teaching clinical experience is not done at the student teaching school. If a student needs to take MATH 411, the student should register for it the semester before student teaching.] Applicants with teaching experience at the 6-12 level, as verified by the employer, may not need to complete all of the pre-student teaching clinical experiences, at the discretion of the department. Permits for ILAS 201, ILAS 301, and MATH 401 may be obtained from the Coordinator of Teacher Certification in Mathematics. In order to take ILAS 201, ILAS 301, MATH 401 or MATH 413 a record of a negative TB test must be given to the Coordinator of Teacher Certification in Mathematics. Also, in order to register for ILAS 201, students must have a Criminal Background Check with “no record.”
- 10) Admission to the Teacher Certification Program Application for admission is normally done through a conference with a designated departmental advisor, two semesters prior to the semester of student teaching. Admission to the program is a prerequisite to the student teaching semester. Admission requires approval by the Department of Mathematical Sciences. For Department approval a student is expected to meet the criteria listed in Appendix A.
- 11) Additional Program Requirements Three other program requirements that go beyond the university's requirements for graduation/certification must also be met:
 - a) Background in exceptional students: TLSE 457(3 hours).
 - b) A 3 semester hour Humanities course focused on literature (usually in the English Department) Possible courses include ENGL 110, 115, 116, 310 or 315. See www.math.niu.edu/mathed/cert for other courses.
 - c) Nine semester hours in the Sciences: Course work in at least two science fields with a minimum of two classroom courses in one science field. Course work must include at least one science lab course.

**GRADUATE STUDENTS: See Appendix E.

12) Student Teaching:

A. Application Application must be submitted to and tentatively approved by the designated representative(s) of the Department of Mathematical Sciences two semesters prior to the semester of student teaching.

B. Permission The Department of Mathematical Sciences grants final permission to student teach in mathematics upon satisfaction of the requirements listed in Appendix B.

C. Mathematics Subject Area Test The Mathematics Subject Area Test of the Illinois Certification Testing System must be passed before the beginning of student teaching.

D. Scheduling Senior or graduate standing is required. Student teaching (MATH 413) is offered in both the fall and spring semesters. See Appendix C for additional information.

E. Choices Generally, the choice of school is usually restricted to those in the quadrilateral bounded on the north-south by I-90 and US 30/US 34; east-west by I-294 and Illinois Route 2.

13) Illinois Certification Testing System Tests The State of Illinois administers an examination prior to certification. Students seeking certification in mathematics must take the Basic Skills Test, the Mathematics Subject Area Test and **the Assessment of Professional Teaching Test**. Testing schedules and the Registration Bulletin are available through the Office of Testing Services, Adams 128 and at www.teachercertification.niu.edu under Certification Testing. **As of July 1, 2004 candidates for endorsements must pass the content area test in the endorsement area to receive the endorsement**

THE RESPONSIBILITY FOR PLANNING AND MEETING
THESE REQUIREMENTS IS THE STUDENT'S

Checklist of non-mathematics requirements for certification (also, see Appendix D)**

- _____ PSYC 102 Introduction to Psychology (3 hours)
- _____ U. S. History (3 hours)
- _____ U. S. Government (3 hours)
- _____ English course or literature course [taught in English] to fulfill the Humanities requirement (3 hours)
- _____ Science (9 hours; course work in 2 fields & at least 2 courses in one field & one lab course)
- _____ Social Issues Experience (usually a first aid course with CPR)
- _____ Multicultural Course (IDSP 211 or EPFE 201 or TLRN 501X or LTIC 501) (3 hours)
- _____ ILAS 201 Clinical Experience (1 semester hour; 20 clock-hours)
- _____ Basic Skills Test of the Illinois Certification Exam
- _____ EPS 406 Human Development and Learning - Secondary (3 hours)
- _____ ILAS 301 Clinical Experience (2 semester hours; 50 clock-hours)
- _____ ETR 440 Educational Measurement (3 hours)
- _____ **ADMISSION TO THE MATHEMATICS TEACHER CERTIFICATION PROGRAM**
- _____ EPFE 400 Foundations of Education (3 hours)
- _____ TLSE 457 Mainstreaming - Exceptional Students (3 hours)
- _____ Assessment of Professional Teaching Test of the Illinois Certification Exam
- _____ Mathematics Subject Area Test of the Illinois Certification Exam

Checklist of mathematics, statistics, & computer science courses

- _____ MATH 229 Calculus I (4)
- _____ MATH 230 Calculus II (4)
- _____ MATH 232 Calculus III (4)
- _____ MATH 240 Linear Algebra and Applications (4)
- _____ CSCI 230/240 (230=Fortran; 240="C++") (4)
- _____ STAT 350 Introduction to Probability and Statistics (3)
- _____ MATH 353 Geometry (3)
- _____ MATH 360 Model Building in Applied Mathematics (3)
- _____ MATH 401 Clinical Experience (1-2 semester hours; 40 clock-hours)
- _____ MATH 410 Methods of Instruction in the Mathematics Curriculum for the Middle School (3)
- _____ MATH 412 Methods of Instruction in the Mathematics Curriculum for Secondary School (3)
- _____ MATH 413 Student Teaching (12)
- _____ MATH 420 Algebra I (3)
- _____ MATH 430 Advanced Calculus I (3)
- _____ One Additional Course From:
- _____ MATH 380 Elementary Combinatorics (3)
- _____ MATH 416 Topics in Mathematics for Teachers (3)
- _____ MATH 434 Numerical Linear Algebra (3)
- _____ MATH 435 Numerical Analysis (3)
- _____ MATH 440 Elements of Complex Analysis (3)
- _____ MATH 444 Linear Programming and Network Flows (3)
- _____ MATH 450 Introduction to Topology (3)
- _____ MATH 480 Number Theory (3)
- _____ One Additional Course From:
- _____ MATH 421 Algebra II (3)
- _____ MATH 423 Linear and Multilinear Algebra (3)
- _____ MATH 431 Advanced Calculus II (3)
- _____ MATH 456 Linear Geometry (3)
- _____ STAT 470 Introduction to Probability Theory (3)
- _____ MATH 480 Number Theory (3)

**GRADUATE STUDENTS: See Appendix E.

SAMPLE PROGRAMS

Many other combinations of courses are possible.
(Based on 2006-2007 catalog, partial listing)

Four year program (Spring student teaching)

	<u>Fall Semester</u>	<u>Spring Semester</u>
Freshman year	MATH 229 (4)	MATH 230 (4)
Sophomore year	MATH 232 (4) CSCI 230/240 (4)	MATH 240 (4) MATH 360 (3) ILAS 201 (1)
Junior Year	MATH 420 (3) EPS 406 (3) STAT 350 (3) ILAS 301 (2)	MATH 430 (3) TLSE 457 (3) MATH 353 (3) EPFE 400 (3) MATH 410 (3)
Senior Year	MATH 412 (3) MATH Elective (3) MATH 416 (MATH Elective) (3)* MATH 401 (1-2) ETR 440 (3)	MATH 413 (12)

Four and one-half year program (Fall student teaching)

Junior year	MATH 240 (4) MATH 360 (3) ILAS 201 (1) CSCI 230/240 (4)	STAT 350 (3) MATH 420 (3) EPS 406 (3) ILAS 301 (2)
Senior year (1)	MATH 416 (MATH Elective)(3)* MATH 430 (3) EPFE 400 (3) TLSE 457 (3) MATH 410 (3)	MATH 412 (3) MATH 353 (3) MATH Elective (3) MATH 401 (1-2) ETR 440(3)
Senior year (2)	MATH 413 (12)	

*MATH 416 is only offered during the Fall Semester.

In each semester except the semester of student teaching, other courses will probably need to be taken. A maximum of two math content courses may be taken in the semester MATH 412 is taken, which is the semester prior to student teaching.

- I. Normally, the Department of Mathematical Sciences approval will be granted to mathematics majors and/or certification candidates who, during the semester of application:
- A. Attend a mandatory Teacher Certification Advisement Session with a designated representative of the Department of Mathematical Sciences. The session is normally held two semesters prior to the semester of student teaching. At this time students should meet the following requirements:
 - 1. Have a minimum GPA of 2.25 in Mathematical Sciences courses which are available for credit toward the major and/or certification.
 - 2. Have a minimum GPA of 2.25 in Mathematical Sciences courses numbered above 231 which are available for credit toward the major and/or certification.
 - 3. Have a minimum overall NIU GPA of 2.50 (undergraduates or postgraduates) or a minimum overall NIU GPA of 3.00 (students-at-large or graduate students).
 - B. Have completed at NIU MATH 232 or 240 and at least one MATH or STAT course numbered 350 or above, or have completed at NIU two MATH or STAT courses numbered 350 or above.
 - C. Have completed, or be enrolled in, courses including 70 clock-hours of pre-student teaching clinical experiences.
 - D. Passage of the Basic Skills Test of Illinois Certification Exam.
- II. Normally, approval will be delayed for an applicant who does not satisfy IA, IB, IC or ID; delayed status will be changed to approved status when the removal of deficiencies is reported by the applicant to the Department. If an applicant's delayed status continues beyond the semester (including summer if the applicant is enrolled) succeeding the one during which a Teacher Certification Advisement Session was attended, the applicant must again attend an Advisement Session before approval is granted.
- III. Approval may be granted, delayed or denied solely on the basis of recommendations from members of the Mathematical Sciences Faculty; final action in this case will be taken by a Faculty Committee appointed by the Department Chair.
- IV. A. For transfer students, courses taken at other institutions are included in the Mathematics GPA computations.
- B. If any course in which the grade of F was received is retaken, the last grade received is used in computing the GPA; if not retaken, the F is included in computing the GPA.
 - C. For exceptional cases involving transfer students, IB or IC may need to be given special consideration.

To be granted final permission from the Department to student teach in mathematics, it is expected that the mathematical sciences major and/or certification candidate will, at the time permission is granted:

1. Have satisfactorily completed all other courses required for certification prior to student teaching.
2. Have satisfactorily completed 100 clock-hours of pre-student teaching clinical experiences.
3. A. Have a minimum GPA of 2.25 in Mathematical Sciences courses which are available for credit toward the major and/or certification.

B. Have a minimum GPA of 2.25 in Mathematical Sciences courses numbered above 231 which are available for credit toward the major and/or certification.

4. Have a minimum overall NIU GPA of 2.50 (undergraduates and postgraduates) or a minimum NIU GPA of 3.00 (students-at-large or graduate students).

5. A. For transfer students, courses taken at other institutions are included in the Mathematics GPA computations.

B. If a course in which the grade of F was received is retaken, the last grade received is used in computing the GPA; if not retaken, the F is included in computing the GPA.

6. Have passed the Mathematics Subject Area Test of the Illinois Certification Exam Successful completion of the Assessment of Professional Teaching Test prior to Student Teaching is highly recommended.

APPENDIX C
DEPARTMENT OF MATHEMATICAL SCIENCES POLICY
Math Clinical Experience and Student Teaching

MATH 401 (Note: Completion of MATH 401 requires placement confirmation in the student teaching school.)

1. Permission to register for MATH 401 is contingent upon:
 - A. Successful completion of or enrollment in 70 clock-hours of pre-student teaching clinical experiences.
 - B. The meeting of NIU and math GPA requirements as stated in Appendix A.
2. Successful completion of the MATH 401 clinical component is required before student teaching begins.
3. If a student needs to postpone his/her student teaching prior to its beginning, then the student withdraws from MATH 401, if he/she has not already completed it.
4. If a student engages in unprofessional conduct or is working unsatisfactorily with public school students, he/she will not be allowed to continue in MATH 401 and will automatically receive an unsatisfactory grade. In the event that a student is not allowed to complete MATH 401, written notification will be sent to the student and to the school(s) in which the student is working.

A written appeal of this decision may be made by the student to the chair of the Teacher Education Committee. The

appeal document should include a statement giving reasons why the termination of the clinical experience was inappropriate. The appeal will be processed in accordance with the appeals procedure for certification candidates in the Department of Mathematical Sciences. A copy of this procedure may be obtained in the departmental office.

5. Evaluation of the student's performance will be made through conferences between the student and the supervisor and will be conveyed when possible or desirable through written communication. A written final evaluation will be shown to the student and then placed in the student's departmental file.
6. Applicants with teaching experience at the 6-12 level, as verified by the employer, may not need to complete all of the pre-student teaching clinical experiences, at the discretion of the department.

Student Teaching

1. Admission to student teaching is governed by the criteria in Appendix B and the successful completion of MATH 401.
2. If admission to student teaching is denied after placement has occurred, written notification is sent to the school in which the student teacher has been placed.
3. If a student engages in unprofessional conduct or is working unsatisfactorily with the public school students, he/she will not be allowed to continue his/her student teaching experience. Such a student may petition the department to re-enroll in student teaching in a subsequent semester.

4. Procedure for withdrawal from the student teaching experience:
 - A. In the event that a student is withdrawn from the student teaching experience, written notification will be sent to the student and to the school in which the student is working.
 - B. A written appeal of the withdrawal may be made by the student to the chair of the Teacher Education Committee. The appeal document should include a statement giving reasons why the withdrawal was inappropriate. The appeal will be processed in accordance with the appeals procedure for certification candidates in the Department of Mathematical Sciences. A copy of this procedure may be obtained in the departmental office.
5. Evaluation of the student's performance will be made through conferences between the student, the cooperating teacher and the university supervisor and will be conveyed to the Coordinator of Student Teaching through written communication. A written final evaluation will be shown to the student and then placed in the student's departmental file and in a credential file at Career Services.
6. Applicants presenting the required credit in student teaching and evidence of teaching experience, as verified by the employer, may not need to complete another student teaching experience, at the discretion of the department.

APPENDIX D
DEPARTMENT OF MATHEMATICAL SCIENCES POLICY
Additional Requirements for the Emphasis in Mathematics Education or Teacher Certification

All students seeking initial teacher certification in mathematics for grades 6 - 12 must complete the following general education requirements. No course for certification should be taken as pass/fail.

1. Core Competency (9 hours)

- (a) Oral Communication (3 hours)
- (b) Written Communication (6 hours) [or equivalent of ENGL 105]

2. Humanities (12 hours)

- (a) U. S. History (3 hours)
- (b) English course or literature course [taught in English] (3 hours)
- (c) Other approved course work (6 hours)

3. Science (9 hours)

Course work in at least two science fields with a minimum of two courses in one science field.
Course work must include at least one science lab course.

4. Social Science (6 hours)

- (a) U. S. Government (3 hours)
- (b) Other approved course work (3 hours) [usually PSYC 102]

5. Social Issues Experience Documentation of at least one of the following: completion of a first aid course (preferably with CPR), experience with drug abuse education, or an education experience with other social issues in schools. (May be satisfied by course work or an approved experience.)

APPENDIX E
DEPARTMENT OF MATHEMATICAL SCIENCES POLICY

Because of the general Middle School Endorsement requirements issued by the Illinois State Board of Education it is recommended, at this time, that both students-at-large and graduate students take either the undergraduate professional education courses or consult with the Coordinator of Teacher Certification in Mathematics for possible equivalent graduate level courses.