**B.S. EDUCATION: MATHEMATICS**

This Bachelor of Science in Education degree enables you to teach Middle School/Junior High or High School students. Course requirements for this program are valid at IUB as reflected in the School of Education Bulletin. A four year college plan requires completion of 15 credits each semester. A 2.5 GPA overall is required for retention and graduation. A total of 120 credits are required for graduation.

May 2016

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### Mathematical Modeling (MM) (Select one) 3-4 credits

- MATH-M/S/V 118 *Finite Mathematics* 3
- MATH-D 116 *Intro to Finite Mathematics I AND* 2
- MATH-D 117 *Intro to Finite Mathematics II (P: D116)* 2
- MATH-J 113 *Intro to Calculus with Applications* 3
- MATH-M 119 *Brief Survey of Calculus I* 3
- MATH-M/S 211 *Calculus I* 4

### Arts & Humanities (A&H) 6 credits

Complete at least 2 courses for a total of at least 6 credits.

- ____________________________

### Social & Historical Studies (S&H) 6 credits

Complete at least 2 courses for a total of at least 6 credits.

- ____________________________

### Natural & Mathematical Sciences (N&M) 5+ credits

(Complete ONE of the following options.)

**Option I:** Complete at least 2 courses for a total of at least 5 credits. At least 1 of these courses must be a Natural Science (*N&M*) course.

- ____________________________

**Option II:** Complete a 5 credit science course.

- ____________________________

(The class taken to fulfill the Mathematical Modeling requirement cannot be counted towards the 5+ credits needed to fulfill the N&M requirement.)

### World Languages (WL)/World Cultures (WC) 6 credits

(Complete ONE of the following options.)

**Option I:** Language Study (WL); Complete the study of an approved single language through the second semester of the second-year level of college-level coursework.

- ____________________________

**Option II:** World Culture (WC); Complete at least 2 courses for a total of at least 6 credits.

- ____________________________

**Option III:** International Experience (IE); Complete an approved study abroad program or internship of at least 6 credits & at least 6 weeks abroad in duration.

- ____________________________
II. PROFESSIONAL EDUCATION  
48 credits/2.5 GPA
(A grade of C or higher is required in each course listed below.)

Prerequisite courses for admission to the TEP  12 credits

EDUC-M 300  Teaching in a Pluralistic Society  3
   (P: Soph. status) (D)
EDUC-P 312  Learning Theory into Practice (P: Soph. status)  3
EDUC-P 313  Adolescents in a Learning Community  3
   (P: Sophomore status)
EDUC-W 200  Using Computers in Education (IF)  3

Required Non-Authorized Course  6 credits

EDUC-A 308  Legal & Ethical Issues for Teachers  3
   (P: Soph. status)
EDUC-H 205  Intro to Educational Thought (P: English comp)  3
   (S&H) (MW) OR
EDUC-H 340  Education & American Culture  3
   (P: English comp & Soph. status) (IW)

Teacher Education Program (TEP)  30 credits
Admission to the TEP is required. These courses must be taken before student teaching.

EDUC-K 306  Teaching Students with Special Needs: Secondary Classrooms  3

Courses must be taken in prescribed blocks. Successful completion (C or higher) of all courses in each block is a prerequisite for the next block and student teaching.

Block I and Block II must be completed in sequence, without interruption, from one semester to the next. Students may add an additional semester(s) between the completion of Block II and Student Teaching (Block III).

Block I (Spring only)  8 credits

EDUC-M 321  Secondary School Mathematics Curriculum & Assessment  3
EDUC-M 303  Field Experience I  2
EDUC-M 469  Content Area Literacy  3

Block II (Fall only)  6 credits

EDUC-M 422  Teaching Mathematics in the Secondary School  3
EDUC-M 403  Field Experience II  2
EDUC-S 303  Classroom Management  1

Block III (Student Teaching)  13 credits
Students may not enroll in other classes while completing student teaching. (Exception: EDUC-M 202 Job Search Strategies for Educators)

EDUC-M 420  Student Teaching Seminar  1
EDUC-M 480  Student Teaching in the Secondary School (EEE)  12

III. MATHEMATICS CONTENT  
42 credits/2.0 GPA
(A grade of C minus or higher is required in each course.)
(Check with the department regarding when courses will be offered.)

Analysis  12 credits

MATH-M/S 211 Calculus I (MM)  4
MATH-M/S 212 Calculus II (P: M/S 211) (N&M)  4
MATH-M/S 311 Calculus III (P: M/S 212)  4

Algebra  9 credits

MATH-M 301 Linear Algebra & Applications (P: M/S 212) OR  3
MATH-M/S 303 Linear Algebra for Undergraduates (P: M/S 212)  3
MATH-M 391 Intro to Mathematical Reasoning (P: M/S 212, or M/S 211 and CSCS-C 241, M303 or M301) (Spring Only)  3
MATH-M/S 403 Intro to Modern Algebra (P: M 301 or M/S 303) (Fall only) OR  3
MATH-T 403 Modern Algebra for Secondary Teachers (P: M 301 or M/S 303 & M 391) (Fall only)  3

Probability & Statistics  3 credits

MATH-M 365 Intro to Probability & Statistics (P: M/S 212)  3

Geometry  3 credits

MATH-T 336 Topics in Euclidean Geometry (P: M/S 212)  3
   (Fall only)

Applied Mathematics  3 credits

MATH-M 447 Math Models & Applications I (P: M 301 or M/S 303 & M/S 311) (C: M 360 or M365) (Fall only)  3

Computer Programming  3 credits

MATH-M 371 Elementary Computational Methods (P: M/S 212) (Spring only)  3

Math in Secondary Curriculum  3 credits

Complete the following:

EDUC-M 302 Algebra Throughout the Sec. Curriculum (P: M 301 or M/S 303) (C: T 403) (Fall only)  1
EDUC-M 302 Calculus Throughout the Sec. Curriculum (C: M 312) (Fall only)  1
EDUC-M 302 Probability & Statistics Throughout the Sec. Curriculum (C: M 365) (Spring only)  1

Electives  to total 42 credits

Program must include at least one of the following:

MATH-M 321 Intuitive Topology (Spring only) (P: M/S 212)  3
MATH-M/S 343 Introductions to Differential Equations with Applications I (P: M/S 212)  3
MATH-M 380 History of Mathematics (P: M/S 212) (Fall only) OR  3
   HPSC-X 380 History & Philosophy of Mathematics (P: M/S 212) (Spring only)  3
MATH-M 405 Number Theory (P: M/S 212)  3
MATH-M/S 413 Introduction to Analysis I (P: M 301 or M/S 303 & M/S 311) (Fall only)  3

Select any other mathematics course at the 300 level or above, but the following are recommended:

MATH-M 330 Exploring Mathematical Ideas (P: M 211)  3
MATH-M 415 Elementary Complex Variables with Applications (P: M/S 311) (Spring only)  3
MATH-M 448 Mathematical Models and Applications II (P: M 301 or M/S 303 & M/S 311 & M360 or M 365) (Spring only)  3
MATH-M 453 Cryptography (P: M 301 or M/S 303)  3

IV. ELECTIVES (To total 120 credits)