

# MATHEMATICS - SECONDARY EDUCATION (STARTING MTH 110)

<sup>7</sup>BACHELOR OF ARTS OR BACHELOR OF SCIENCE WITH A SECOND MAJOR IN EDUCATION & TEACHABLE MINOR REQUIRED

THIS IS A **GENERAL** CURRICULUM GUIDE AND IS NOT APPLICABLE TO EVERY STUDENT. IT IS IMPORTANT TO MEET WITH YOUR ADVISOR.

## A 2.7 cumulative GPA in the Mathematics major is required for admission to the College of Education

| Year One                                                                                                                                                                                                                                                                                                          |                            |                                                                                                                                                                                                                                                                                                                                |                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <sup>1</sup> MTH 110 Algebra<br>Prerequisite: MTH 097 or proficiency through math placement<br>Gen Ed or <sup>6</sup> WRT 098 (self-placement)<br>Gen Ed<br>Minor<br>EDF 100 Introduction to Education ( <b>optional - see below</b> )                                                                            | 4<br>3/4<br>3<br>3<br>2    | MTH 124 Precalculus: Functions and Models<br>Prerequisite: MTH 110 or proficiency through math placement<br><b>SEE NOTE BELOW REGARDING OPTIONS FOR THIS COURSE</b><br>PSY 101 Introductory Psychology<br>Minor<br><sup>6</sup> WRT 150 Strategies in Writing                                                                  | 5<br><br><br>3<br>3<br>4   |
| <i>Total</i>                                                                                                                                                                                                                                                                                                      | 15-16                      | <i>Total</i>                                                                                                                                                                                                                                                                                                                   | 15*                        |
| Year Two                                                                                                                                                                                                                                                                                                          |                            |                                                                                                                                                                                                                                                                                                                                |                            |
| <sup>1</sup> MTH 201 Calculus I<br>Prerequisites: MTH 122 and 123, or MTH 124 or proficiency through math placement<br>PSY 301 Child Development<br>Prerequisite: PSY 101<br>EDF 315 Diverse Perspectives for Education<br>Gen Ed<br>Minor                                                                        | 4<br>3<br>3<br>3<br>3      | MTH 202 Calculus II<br>Prerequisite: MTH 201<br><sup>2</sup> MTH 210 <b>SWS</b> Communicating in Mathematics<br>Prerequisites: WRT 150 and MTH 201<br>EDI 337 Introduction to Learning and Assessment<br>Gen Ed<br>Minor                                                                                                       | 3<br>4<br>3<br>3<br>3      |
| <i>Total</i>                                                                                                                                                                                                                                                                                                      | 16*                        | <i>Total</i>                                                                                                                                                                                                                                                                                                                   | 16*                        |
| Year Three                                                                                                                                                                                                                                                                                                        |                            |                                                                                                                                                                                                                                                                                                                                |                            |
| MTH 203 Calculus III<br>Prerequisite: MTH 202<br>MTH 227 Linear Algebra I<br>Prerequisite: MTH 202<br><sup>3</sup> MTH Cognate Course<br>Gen Ed<br>Minor                                                                                                                                                          | 4<br>3<br>3<br>3<br>3      | MTH 229 Mathematical Activities for Secondary Teachers<br>Prerequisites: MTH 201 or equivalent and sophomore standing<br>MTH 315 Discrete Mathematics (formerly MTH 345)<br>Prerequisite: MTH 210<br>MTH 331 Euclidean Geometry (formerly MTH 341)<br>Prerequisites: MTH 210 and either MTH 227 or MTH 322<br>Gen Ed<br>Gen Ed | 3<br>3<br>3<br>3<br>3<br>3 |
| <i>Total</i>                                                                                                                                                                                                                                                                                                      | 16*                        | <i>Total</i>                                                                                                                                                                                                                                                                                                                   | 15                         |
| Year Four                                                                                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                                                |                            |
| MTH 350 Modern Algebra I (formerly MTH 310)<br>Prerequisites: MTH 210, and either MTH 225 or MTH 227<br>MTH 329 Teaching Middle Grades Math<br>Prerequisites: C or better in MTH 202, MTH 210, and one of the following MTH 229, 322, 323, or 324. Junior standing<br><sup>4</sup> MTH Elective<br>Issue<br>Minor | 3<br>3<br>3<br>3<br>3<br>3 | <sup>8</sup> MTH 495 The Nature of Modern Mathematics (Capstone)<br>Prerequisites: MTH 210, MTH 227, MTH 350, and at least three other 300-400 level mathematics courses<br>STA 312 Probability and Statistics<br>Prerequisite: MTH 201<br><sup>5</sup> EDS 379 Universal Design for Learning: Secondary<br>Issue<br>Minor     | 3<br>3<br>3<br>3<br>3<br>3 |
| <i>Total</i>                                                                                                                                                                                                                                                                                                      | 15                         | <i>Total</i>                                                                                                                                                                                                                                                                                                                   | 15                         |
| Teacher Preparation Professional Program                                                                                                                                                                                                                                                                          |                            |                                                                                                                                                                                                                                                                                                                                |                            |
| <b>Teacher Assisting</b><br>EDI 331 Methods and Strategies of Secondary Teaching<br>EDF 310 Organizing and Managing Classroom Environments<br><sup>2</sup> EDR 321 <b>SWS</b> Content Area Literacy<br>EDT 370 Technology in Education<br>Must be taken with or after EDI 331 but before EDI 431                  | 5<br>3<br>3<br>3           | <b>Student Teaching</b><br>EDI 431 Student Teaching: Secondary<br>EDI 432 Student Teaching: Secondary Content<br>EDF 485 The Context of Educational Issues<br>Must be taken with or after EDI 431                                                                                                                              | 8<br>2<br>3                |
| <i>Total</i>                                                                                                                                                                                                                                                                                                      | 14                         | <i>Total</i>                                                                                                                                                                                                                                                                                                                   | 13                         |

\* The block tuition rate is 12-15 credits. You will pay additional tuition for any credits over 15.

**MTH 124 is designed for calculus-bound students as a replacement for MTH 122 & 123. While students can still fulfill the MTH 201 prerequisite by taking MTH 122 & 123, MTH 124 is strongly recommended for students who plan to major in mathematics.**

**EDF 100 is an exploratory elective for students uncertain about pursuing teacher certification. It can be taken in either the fall or winter semester.**

**<sup>1</sup>Students must fulfill MTH 110, MTH 122, and MTH 123 or MTH 124 or waive the requirement through math placement. These courses do not count towards the completion of the Mathematics major<sup>2</sup>Students must complete a total of two courses with an SWS attribute.**

**<sup>3</sup>Mathematics-Secondary students must complete one Math Cognate Course. Options are listed below.**

**See reverse side for additional footnotes.**

**It is imperative to meet with your faculty advisor and an advisor in the CLAS Academic Advising Center regularly.**

**The CLAS Academic Advising Center is located in C-1-140 MAK, 616-331-8585.**

**Your academic advisor in the CLAS Academic Advising Center is Nick Woodward ([woodwani@gvsu.edu](mailto:woodwani@gvsu.edu))**

**Online at: <http://www.gvsu.edu/clasadvising>**

<sup>4</sup> Mathematics-Secondary students must complete one elective course in Math. Options are listed below.

<sup>5</sup> EDS 379 may be taken prior to the Teacher Assisting semester but **must** be completed prior to Student Teaching. Please consult with your College of Education Advisor to determine an appropriate time to take this course.

<sup>6</sup> Students who self-place into WRT 098 should take this courser in the fall semester and then take WRT 150 in the winter semester of the first year. Students who self-place into WRT 150 should take this course in the winter semester of the first year. A grade of C or higher is required to fulfill the WRT 150 requirement.

<sup>7</sup>Mathematics students can pursue a Bachelor of Arts or Bachelor of Science degree. Students who wish to obtain a BA must fulfill 3<sup>rd</sup> semester proficiency in a foreign language (201 level). The BS requirements are incorporated into the major requirements and include MTH 201, MTH 202, and STA 312.

<sup>8</sup>Students may also complete MTH 496 – Senior Thesis - as the capstone requirement. Consult with your mathematics faculty advisor to discuss these options.

### Declaring the Mathematics and Education Major with Teachable Minor

1. Log into myBanner from the GVSU homepage
2. Once logged in select “Student”, “Student Records”, and then, “Change Major”
3. Click on the “Change Major 1/Program” box
4. Click on the down arrow in the box next to “New Major 1/Program,” from here scroll down and choose “Mathematics Teaching-BA Secondary Education” **OR** “Mathematics Teaching-BS Secondary Education” depending on your degree
5. Click “Submit.” The system will automatically declare your 2<sup>nd</sup> major in “Education” and give you the option to declare a minor. Choose an appropriate minor from the list and then click “Change to New Program”

### Teachable Majors and Teachable Minors for Secondary Education

| Teachable Majors    |                           | Teachable Minors             |                                 |
|---------------------|---------------------------|------------------------------|---------------------------------|
| Biology             | Mathematics               | Applied Linguistics - ESL    | German-Teaching                 |
| Chemistry           | Music (K-12)              | Biology-Teaching             | History-Teaching                |
| Earth/Space Science | Physical Education (K-12) | Chemistry-Teaching           | Mathematics-Secondary Education |
| English             | Physics                   | Computer Science-Teaching    | Physical Education-Teaching     |
| French              | Social Studies            | Earth/Space Science-Teaching | Physics-Teaching                |
| German              | Spanish                   | Economics-Teaching           | Political Science-Teaching      |
| History             | Visual Arts (K-12)        | English-Teaching             | Psychology-Teaching             |
| Latin               |                           | French-Teaching              | School Health Education         |
|                     |                           | Geography-Teaching           | Spanish-Secondary Teaching      |

### General Education Overlap

| General Education Categories fulfilled by the Mathematics Major for Secondary Education: |                         |
|------------------------------------------------------------------------------------------|-------------------------|
| Social and Behavioral Sciences: PSY 101                                                  | U.S. Diversity: EDF 315 |
| Mathematical Sciences: MTH 201                                                           |                         |

### Second Major in Education

#### Education Major Prerequisites (9 credits)

**A 2.7 cumulative GPA in the Education Major Prerequisites is required with no grade lower than a C**

|                                                       |                                                                                                                        |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| — EDF 315 Diverse Perspectives on Education (3)       | — PSY 301 Child Development (3)                                                                                        |
| — EDI 337 Introduction to Learning and Assessment (3) | Prerequisite: PSY 101                                                                                                  |
|                                                       | — EDS 379 Universal Design for Learning: Secondary (3)                                                                 |
|                                                       | (EDS 379 may be taken prior to the Teacher Assisting semester but <b>must</b> be completed prior to Student Teaching.) |

| Teacher Assisting (14 credits)                               | Student Teaching (13 credits)                     |
|--------------------------------------------------------------|---------------------------------------------------|
| — EDI 331 Teacher Assisting-Secondary (5)                    | — EDI 431 Student Teaching, Secondary (8)         |
| — EDF 310 Organizing and Managing Classroom Environments (3) | — EDI 432 Student Teaching, Secondary Content (2) |
| — EDR 321Content Area Literacy (3)                           | — EDF 485 The Context of Educational Issues (3)   |
| — EDT 370 Technology in Education (3)                        | (Must be taken with or after EDI 431)             |
| (Must be taken with or after EDI 331 but before EDI 431)     |                                                   |

#### Mathematics Cognate Courses (Choose one of the following)

|                                            |                                         |                                        |
|--------------------------------------------|-----------------------------------------|----------------------------------------|
| BIO 355 Human Genetics                     | CMB 452 Computational Biology           | PHI 203 Intermediate Logic             |
| BIO 375 Genetics                           | EGR/CIS 261 Structured Programming in C | PHY 230 Principles of Physics I        |
| CHM 351 Introduction to Physical Chemistry | ECO 342 Strategic Games                 | PSY 300 Research Methods in Psychology |
| CIS 160 Programming with Visual Basic      | ECO 400 Econometrics and Forecasting    | STA 314 Statistical Quality Methods    |
| CIS 161 Computational Science              | ECO 412 Applied Mathematical Economics  | STA 345 Statistics in Sports           |
| CIS 162 Computer Science I                 | GEO 470 Geophysics                      | STA 412 Mathematical Statistics I      |
| CMB 351 Bioinformatics                     | HSC 201 The Scientific Revolution       |                                        |

#### Math Elective Courses (Choose one of the following – must be at the 300 level or above)

|                                               |                                               |                                                                 |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------|
| MTH 300 Applied Analysis I                    | MTH 401 Mathematics for the Physical Sciences | MTH 465 Automata and Theory of Computation                      |
| MTH 304 Analysis of Differential Equations    | MTH 402 Complex Variables                     | MTH 480 Special Topics                                          |
| MTH 327 Linear Algebra II                     | MTH 405 Numerical Analysis                    | MTH 490 Internship                                              |
| MTH 360 Operations Research                   | MTH 408 Advanced Calculus I                   | MTH 495 Nature of Modern Math (if MTH 496 is taken as capstone) |
| MTH 380 Special Topics                        | MTH 409 Advanced Calculus II                  | MTH 496 Senior Thesis (if MTH 495 is taken as capstone)         |
| MTH 386 Study Abroad in Mathematics Education | MTH 410 Modern Algebra II                     |                                                                 |
| MTH 387 Study Abroad in Mathematics           | MTH 431 Non-Euclidean Geometry                |                                                                 |
| MTH 399 Independent Readings                  | MTH 441 Topology                              |                                                                 |

Courses not applicable as Math electives are: MTH 302, 312, 322, 323, 324, 325.