

# DEPARTMENT OF MATHEMATICS

Dr. Donald Carnahan, Chair  
 Corley Building, Room 232  
 (479) 968-0659  
 Don.Carnahan@atu.edu

**Professors:**

Carnahan, Hamm,  
 Keisler, Watson

**Associate Professors:**

Amirkhanian, S. Jordan, Shores

**Assistant Professors:**

Enoch, Finan, Limperis,  
 Pearson, Xie

**Instructors:**

Carman, Felkins, Horton,  
 S.M. Jordan, Ketkar,  
 Sherrill, Taylor

The Department of Mathematics offers a four-year program in mathematics that leads to the bachelor of science degree and curriculum that leads to a minor in mathematics. The curriculum is designed to meet the needs of three groups of students: (1) those who plan to seek employment in business, industry, or government, (2) those who plan to attend graduate school to continue their study of mathematics or a related field, and (3) those who plan to be secondary school teachers.

Students majoring in mathematics are encouraged to use their elective hours to complete a second major, or at least a concentration of 18 hours or more, in the field of their choice. For example, students interested in computer science are advised to complete the following courses: COMS 1403, 2003, 2103, 2203, 2213, and two additional courses selected from 3213, 3503, 3803, and 4203. Students interested in business electives are advised to complete BUAD 2003, 2033, ACCT 2003, 2013, and ECON 2003 and 2013. For other areas of interest, students should consult their advisor to arrange a plan of study.

Students who plan to attend graduate school in mathematics or a related field are advised to complete additional upper-level mathematics courses beyond the minimal degree requirements.

The curriculum in mathematics for teacher licensure is found in the School of Education section of this catalog.

## Curriculum in Mathematics

### Degree Completion Plan Beginning in Fall Semester

| Freshman                       |           |                                |           | Sophomore                  |           |                              |           |
|--------------------------------|-----------|--------------------------------|-----------|----------------------------|-----------|------------------------------|-----------|
| Fall                           | Spring    | Fall                           | Spring    | Fall                       | Spring    | Fall                         | Spring    |
| MATH 2914                      | 4         | MATH 2924                      | 4         | MATH 2934                  | 4         | MATH 3243                    | 3         |
| ENGL 1013 <sup>1</sup>         | 3         | ENGL 1023 <sup>1</sup>         | 3         | MATH 3003                  | 3         | COMS 2104                    | 4         |
| BIOL 1014 <sup>1</sup>         | 4         | MATH 2703                      | 3         | PHYS 2114                  | 4         | PHYS 2124                    | 4         |
| Social Sciences <sup>1</sup>   | 3         | Social Sciences <sup>1</sup>   | 3         | Elective <sup>3</sup>      | 3         | Social Sciences <sup>1</sup> | 3         |
| Physical Activity <sup>1</sup> | 1         | Elective <sup>3</sup>          | 3         | Fine Arts <sup>1</sup>     | 3         |                              |           |
|                                |           | Physical Activity <sup>1</sup> | 1         |                            |           |                              |           |
| <b>Total Hours</b>             | <b>15</b> | <b>Total Hours</b>             | <b>17</b> | <b>Total Hours</b>         | <b>17</b> | <b>Total Hours</b>           | <b>14</b> |
| Junior                         |           |                                |           | Senior                     |           |                              |           |
| Fall                           | Spring    | Fall                           | Spring    | Fall                       | Spring    | Fall                         | Spring    |
| MATH 4003                      | 3         | MATH 4123                      | 3         | MATH 4033                  | 3         | MATH Elective <sup>2</sup>   | 3         |
| MATH 3153                      | 3         | MATH 3203                      | 3         | MATH Elective <sup>2</sup> | 3         | Elective <sup>3</sup>        | 12        |
| Humanities <sup>1</sup>        | 3         | Social Sciences <sup>1</sup>   | 3         | Elective <sup>3</sup>      | 10        |                              |           |
| Elective <sup>3</sup>          | 6         | Elective <sup>3</sup>          | 6         |                            |           |                              |           |
| <b>Total Hours</b>             | <b>15</b> | <b>Total Hours</b>             | <b>15</b> | <b>Total Hours</b>         | <b>16</b> | <b>Total Hours</b>           | <b>15</b> |

### Degree Completion Plan Beginning in Spring Semester

| Freshman                       |           |                              |           | Sophomore                      |           |                         |           |
|--------------------------------|-----------|------------------------------|-----------|--------------------------------|-----------|-------------------------|-----------|
| Spring                         | Fall      | Spring                       | Fall      | Spring                         | Fall      | Spring                  | Fall      |
| MATH 2914                      | 4         | MATH 2924                    | 4         | MATH 2934                      | 4         | MATH 3243               | 3         |
| ENGL 1013 <sup>1</sup>         | 3         | ENGL 1023 <sup>1</sup>       | 3         | MATH 2703                      | 3         | MATH 3003               | 3         |
| Social Sciences                | 3         | BIOL 1014 <sup>1</sup>       | 4         | Social Sciences <sup>1</sup>   | 3         | PHYS 2114               | 4         |
| Fine Arts <sup>1</sup>         | 3         | Social Sciences <sup>1</sup> | 3         | Physical Activity <sup>1</sup> | 1         | Humanities <sup>1</sup> | 3         |
| Physical Activity <sup>1</sup> | 1         | Elective <sup>3</sup>        | 3         | Elective <sup>3</sup>          | 2         | Elective <sup>3</sup>   | 3         |
|                                |           |                              |           | COMS 2104                      | 4         |                         |           |
| <b>Total Hours</b>             | <b>14</b> | <b>Total Hours</b>           | <b>17</b> | <b>Total Hours</b>             | <b>17</b> | <b>Total Hours</b>      | <b>16</b> |

## Curriculum in Mathematics

| Junior                     |           | Senior                       |           |                            |           |                            |           |
|----------------------------|-----------|------------------------------|-----------|----------------------------|-----------|----------------------------|-----------|
| Spring                     | Fall      | Spring                       | Spring    | Fall                       |           |                            |           |
| MATH 4123                  | 3         | MATH 3153                    | 3         | MATH 3203                  | 3         | MATH 4033                  | 3         |
| MATH Elective <sup>2</sup> | 3         | MATH 4003                    | 3         | MATH Elective <sup>2</sup> | 3         | Elective <sup>3</sup>      | 9         |
| PHYS 2124                  | 4         | Social Sciences <sup>1</sup> | 3         | Elective <sup>3</sup>      | 6         | MATH Elective <sup>2</sup> | 3         |
| Elective <sup>3</sup>      | 5         | Elective <sup>3</sup>        | 6         |                            |           |                            |           |
| <b>Total Hours</b>         | <b>15</b> | <b>Total Hours</b>           | <b>15</b> | <b>Total Hours</b>         | <b>15</b> | <b>Total Hours</b>         | <b>15</b> |

<sup>1</sup>See appropriate alternatives or substitutions in "General Education Requirements" on page 81.

<sup>2</sup>3000 - 4000 level math elective. MATH 3033, 4703, and 4772 may not be used to satisfy this requirement. MATH 4993 may not be used without prior approval of the department chair.

<sup>3</sup>At least 40 of the total hours required for graduation must be 3000-4000 level courses.

For several majors, a minor in mathematics is a natural and popular acquisition. The minor in mathematics requires 20 hours of courses:

MATH 2703 Discrete Mathematics

MATH 2914 Calculus I

MATH 2924 Calculus II

and 9 hours selected from the following:

MATH 2934 Calculus III

MATH 3003 Foundations of Number Systems

MATH 3123 College Geometry

MATH 3203 Introduction to Analysis

MATH 3243 Differential Equations I

MATH 4003 Linear Algebra I

MATH 4033 Abstract Algebra I

MATH 4103 Linear Algebra II

MATH 4113 History of Mathematics

MATH 4123 Mathematical Modeling

MATH 4133 Abstract Algebra II

MATH 4153 Applied Statistics II

MATH 4173 Advanced Biostatistics

MATH 4243 Differential Equations II

MATH 4253 Advanced Calculus I

MATH 4263 Mathematical Statistics

MATH 4273 Complex Variables

MATH 4283 Advanced Calculus I

MATH 4293 Introductory Topology

## Minor Mathematics