



## 2017-2018 PROGRAM REQUIREMENTS Minor: Mathematics

### **About This Minor. . .**

A minor in mathematics is a natural enhancement to many majors outside mathematics where an understanding of mathematics is needed (e.g. physics, engineering, computer science, chemistry, biology, geology). A minor in mathematics enables non-mathematics majors to complete a focused course of study in mathematics on a smaller scale.

### **Advising Process and DegreeWorks**

This document is intended for informational purposes to help determine what courses and associated requirements are needed to earn a minor. Meeting with an academic advisor is essential in planning courses and developing a suggested course sequencing. It is ultimately the student's responsibility to understand and fulfil the requirements for her/his intended minor.

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a minor. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic department head for the minor. Discrepancies in requirements should be reported to the Registrar's Office.

### **Graduation Process**

A minor cannot be awarded by itself. It must be combined with a baccalaureate degree outside the major field of study. Students should follow the graduation process outlined for the baccalaureate degree and list their majors and minors on the "Intent to Graduate" form.

If a student's petition for graduation is denied, it will be her/his responsibility to consult the Registrar's Office regarding next steps.

### **INSTITUTIONAL MINOR REQUIREMENTS**

The following institutional requirements apply to all CMU minors. Specific programs may have different requirements that must be met in addition to institutional requirements.

- A minor consists of 15-24 semester hours. There may be prerequisites required for the minor which will increase the total number of credit hours for a student who has not already taken those prerequisites.
- Courses taken to satisfy Essential Learning, major requirements, or electives **can** be counted toward the minor if applicable.
- At least 33 percent of the credit hours required for the minor must be in courses numbered 300 or above.
- At least 25 percent of the classes must be taken at CMU.
- 2.00 cumulative GPA or higher for the courses used for the minor.
- A minor is not a degree by itself and must be earned at the same time as a baccalaureate degree.
- A minor must be outside the major field of study.
- A student may earn up to five minors with any baccalaureate degree at CMU.
- The Catalog Year determines which program sheet and degree requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements sheet you should follow.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for a complete list of graduation requirements.

### **PROGRAM-SPECIFIC MINOR REQUIREMENTS**

- 18-24 semester hours for the Minor in Mathematics.

### **REQUIRED COURSES FOR THE MATHEMATICS MINOR** (18-24 semester hours)

- One of the following:
  - MATH 152 - Calculus II (5)
  - MATH 136 - Engineering Calculus II (4)

Complete two courses from Group A or two courses from Group B:

Group A:

- MATH 225 - Computational Linear Algebra (2)
- MATH 240 - Introduction to Advanced Mathematics (4)
- MATH 253 - Calculus III (4)
- MATH 260 - Differential Equations (3)

Group B:

- MATH 236 - Differential Equations and Linear Algebra (4)
- MATH 240 - Introduction to Advanced Mathematics (4)
- MATH 253 - Calculus III (4)

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Complete three courses from Group C:

- MATH 310 - Number Theory (3)
- MATH 325 - Linear Algebra (3)
- MATH 352 - Advanced Calculus (3)
- MATH 360 - Methods of Applied Math (3)
- MATH 361 - Numerical Analysis (4)
- MATH 362 - Fourier Analysis (3)
- MATH 365 - Mathematical Modeling (3)
- MATH 366 - Methods of Applied Math II (3)
- MATH 369 - Discrete Structures I (3)
- MATH 370 - Discrete Structures II (3)
- MATH 386 - Geometries (4)
- MATH 420 - Introduction to Topology (3)
- MATH 430 - Mathematical Logic (3)
- MATH 450 - Complex Variables (3)
- MATH 452 - Introduction to Real Analysis I (3)

MATH 453 - Introduction to Real Analysis II (3)  
MATH 460 - Advanced Linear Algebra (3)  
MATH 466 - Methods of Applied Math III (3)  
MATH 490 - Abstract Algebra I (3)  
MATH 491 - Abstract Algebra II (3)  
MATH 396 - Topics (3) or MATH 496 - Topics (3)

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