B.A. in MATHEMATICS

(32 credits required for graduation with a minimum cumulative GPA of 2.00)

NOTE: This guide is not meant to replace the degree audit; it is subject to change and represents actions approved by Faculty to date. Students are encouraged to run their degree audit at the end of each term of enrollment. Please refer often to the *2020-2021 Online Catalog & Student Handbook http://catalog.berea.edu/en/current/catalog),* which will be updated with the most current information.

GENERAL EDUCATION PROGRAM

No single transfer course can meet more than one General Education requirement.

Core Courses

(Developmental math courses may be waived on basis of test scores.)
MAT 010 Pre-Algebra
MAT 011 Elementary Algebra
MAT 012 Elementary Algebra II

GSTR 110 Writing Seminar I: Critical Thinking in the Liberal Arts *(Transfer students may waive if College Composition was taken as a degree-seeking student at another college and earned a grade of B or higher.)*
GSTR 210 Writing Seminar II: Identity and Diversity in the U.S.
GSTR 310 Understandings of Christianity
GSTR 410 Seminar-Contemporary Global Issues

Scientific Knowledge and Inquiry

GSTR 332 Scientific Origins **OR**
Two (2) approved science courses, from two different disciplines, one of which must be an approved lab course. The following courses have been approved to meet this requirement: ANR 110, BIO 100, 101, 110, CHM 113, 131, PHY 111, 127, 221

Wellness & Fitness

WELL 101 Principles of Wellness I
WELL 102 Principles of Wellness II
Two (2) ¼-credit HHP activity courses *(HHP 200 will satisfy both the SWIM requirement and one of the activity course requirements)*

Practical Reasoning (PR &PRQ)

Two (2) courses, at least one firmly grounded in math or statistics (PRQ); the other can be an approved practical reasoning (PR) course or another PRQ course.

Perspectives (Six areas required)

One (1) course in **each** of the six areas is required. Individual courses may be approved to satisfy more than one perspective, but no single course may satisfy more than two perspective areas.
1) Arts
2) Social Science
3) Western History
4) Religion
5) African American/Appalachian/Women
6) International (choose one option):
   A) Two (2) courses in the same non-English language, one of which may be waived through testing; **OR**
   B) Two (2) world culture courses, one of which must be grounded in a non-western culture

Active Learning Experience

An approved experience, taken for credit or non-credit (e.g. internships, undergraduate research experiences).

MAJOR COURSES

A minimum GPA of 2.0 in the major is required for graduation. A minimum of 8.25 MAT courses at or above 210 level, plus one required CSC course.

Core Courses

MAT 135 Calculus I (or waiver)
MAT 214 Linear Algebra
MAT 225 Calculus II (or waiver)
MAT 315 Fundamental Concepts of Mathematics
MAT 330 Calculus III

(If MAT 135 is waived, an additional course above MAT 135 is required.)

Capstone Course

MAT 426 Math Lit: Rdg & Communicaion
  OR
Approved research experience

Distribution Courses *(3 courses required)*

(At least one MAT course must be chosen from each of the following four groups; courses may satisfy more than one category. In addition, at least two course credits must be taken from MAT 415, 432, 433, 434, 435, 436, and 438.)

Theoretical
MAT 321 Foundations of Geometry
MAT 432 Abstract Algebra
MAT 434 Real Analysis
MAT 436 Topology

Applied
MAT 311 Probability
MAT 312 Operations Research
MAT/CSC 433 Numerical Analysis
MAT 438 Statistics

Analysis
MAT/CSC 433 Numerical Analysis
MAT 434 Real Analysis
MAT 435 Complex Analysis
MAT 337 Differential Equations
MAT 438 Statistics

Nonanalysis
MAT 311 Probability
MAT 312 Operations Research
MAT 321 Foundations of Geometry
MAT 432 Abstract Algebra
MAT 436 Topology

Required Collateral Courses *(One credit; counts outside major)*

CSC 111 Storytelling - Comp Animation
CSC/BUS 114 Business Applications and Programming
CSC 126 Intro. to Robotics
CSC 226 Software Design & Implementation
CSC 236 Data Structures

Electives

20 credits outside the major

In particular, students will:

Develop an overarching view of mathematics;

Familiarize themselves with National, State, and professional standards for teaching mathematics;

Be knowledgeable of research in mathematics teaching and learning and their implications for the classroom instruction;

Be knowledgeable of methods, materials and resources available for teaching mathematics;

Be able to evaluate, revise, and develop mathematics lessons that meet the professional standards in mathematics education;

Prepare themselves for the National certification exams;

Seriously engage the concepts, processes, and structure of the required mathematics coursework with an expectation of their own responsibility to be knowledgeable and competent to explain, exemplify and engage their future students in mathematics discourse; and

Develop a positive, joyous, and dedicated disposition towards teaching and learning both for themselves and their future students.