

MATHEMATICS

Bachelor of Science (BS)

This degree map is based on the current Academic Catalog and is subject to change. Students should meet with their academic advisor each semester and use Degree Works to monitor their individual progress toward degree completion. The time it takes to earn a degree will vary based on several factors including summer/winter enrollment, dual enrollment and number of courses successfully completed each semester. We recommend taking a minimum of 15 credits each fall and spring semester.

Sample 4-Year Plan

First Year

Fall Courses	Credits	Spring Courses	Credits
MATH 160 Calculus 1 (GE Q)	4	MATH 170 Calculus 2	4
CMSC 120 Object Oriented Programming with JAVA or CMSC 115 Python Programming (GE T)	3	MATH 250 Discrete Mathematics (GE R)	3
WRIT 103 Composition (GE W)	3	General Education (Oral Communication)	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
Semester Total	16	Semester Total	16

Second Year

Fall Courses	Credits	Spring Courses	Credits
MATH 270 Calculus 3	4	MATH 340 Linear Algebra	3
STAT 241 Probability and Statistics	3	MATH/STAT/DATS Elective	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
Semester Total	16	Semester Total	15

Third Year

Fall Courses	Credits	Spring Courses	Credits
MATH 480 Abstract Algebra 1	3	MATH 482 Real Analysis 1	3
MATH/STAT/DATS Elective	3	MATH/STAT/DATS Elective	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
Semester Total	15	Semester Total	15

Fourth Year

Fall Courses	Credits	Spring Courses	Credits
MATH/STAT/DATS Elective	3	MATH/STAT/DATS Elective	3
MATH/STAT/DATS Elective	3	MATH/STAT/DATS Elective	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
General Education/Free Elective Course	3	General Education/Free Elective Course	3
Semester Total	15	Semester Total	15

Winter/Summer College - Optional

While not required, Winter and Summer sessions are offered each year and may help you stay on track or get ahead. You may take up to seven (7) credits during Winter College and up to 14 credits during Summer College.

Curriculum Checklist

Required Courses (30 credits)

- ___ MATH 160 Calculus 1 (4) *
- ___ MATH 170 Calculus 2 (4) *
- ___ MATH 250 Discrete Mathematics (3) *
- ___ MATH 270 Calculus 3 (4) *
- ___ MATH 340 Linear Algebra (3) *
- ___ MATH 480 Abstract Algebra 1 (3) *
- ___ MATH 482 Real Analysis 1 (3) *
- ___ CMSC 115 Python Programming (3) or
___ CMSC 120 Object Oriented Programming with JAVA (3)
- ___ STAT 241 Probability and Statistics (3) *

Elective Courses (21 Credits)

Category A (at most 18 credits)

Choose up to 6 courses from the following

- ___ MATH 260 College Geometry (3) *
- ___ MATH 350 Introduction to Combinatorics and Graph Theory (3) *
- ___ MATH 355 Coding Theory and Cryptology (3) *
- ___ MATH 360 Modern Geometry (3) *
- ___ MATH 370 Differential Equations (3) *
- ___ MATH 380 Number Theory (3) *
- ___ MATH 440 Theory of Computation (3) *
- ___ MATH 484 Partial Differential Equations (3) *
- ___ MATH 486 Complex Variables (3) *
- ___ MATH 488 Introduction to Topology (3) *
- ___ MATH 490 Abstract Algebra 2 (3) *
- ___ MATH 492 Real Analysis 2 (3) *
- ___ MATH 498 Independent Study (3) *
- ___ MATH 499 Honors Independent Study (3) *

Category B (at most 9 Credits)

Choose up to 3 courses from the following

- ___ MATH 220 History of Mathematics (3) *
- ___ MATH 401 Financial Mathematics for Actuarial Science (3) *
- ___ MATH 402 Probability Theory for Actuarial Science (3) *
- ___ MATH 410 Math Modeling (3) *
- ___ MATH 498 Independent Study (3) *
- ___ MATH 499 Honors Independent Study (3) *
- ___ STAT 240 Statistical Methods (3) *
- ___ STAT 340 Statistical Software (3) *
- ___ STAT 342 Design and Analysis of Experiments (3) *
- ___ STAT 343 Regression Analysis (3) *
- ___ STAT 446 Biostatistics (3) *
- ___ DATS 410 Machine Learning (3) *
- ___ DATS 420 Advanced Data Science (3) *

Programming (at most 3 Credits)

Choose up to 1 course from the following

- ___ CMSC 130 Graphical User Interfaces in JAVA (3)
- ___ CMSC 215 Advanced Python (3) *
- ___ DATS 110 Introduction to Data Science (3)
- ___ DATS 310 Databases for Big Data (3) *

Students must take 7 program electives (21 credits)

- No more than 2 of these courses may be below 300-level.
- At most 6 electives (18 credits) may come from category A.
- At most 3 electives (9 credits) may come from category B.
- A second course in programming may be counted as one of the electives in Category B.
- For Independent Study courses, the department will determine whether it is in Category A or Category B

*Denotes advanced coursework

Students must take a minimum of 42 credits of advanced coursework. Advanced coursework can be met in major courses, minor courses, free elective courses, and general education courses. Courses that meet this requirement are designated in Banner.

General Education Requirements (45 credits)

Note: Some requirements may be fulfilled by coursework in your major program including directed Gen Ed courses noted below

- Foundations (15 credits)
 - MATH 160 Calculus 1 (Q) *
- Interconnections (9 credits)
 - Nothing Directed
- Citizenship & Responsibility (6 credits from at least two goals)
 - MATH 250 Discrete Mathematics (R) *
- Natural World & Technologies (9 credits)
 - CMSC 115 Python Programming or
CMSC 120 Object Oriented Programming with JAVA (T)
- Creativity & Expression (6 credits)
 - Nothing Directed

Degree Requirements

All students must obtain a minimum of 120 credits, (a minimum of 42 credits must be advanced coursework), complete all General Education requirements, and all requirements for the selected major. Meet with your advisor and consult Degree Works to monitor your progress and for all graduation requirements.

A minimum GPA of 2.0 in the major and overall are required.

Campus Locations

- | | |
|-------------------|---|
| Bloomsburg | <input type="checkbox"/> Online; <input checked="" type="checkbox"/> In-person; <input checked="" type="checkbox"/> Blended |
| Lock Haven | <input type="checkbox"/> Online; <input type="checkbox"/> In-person; <input type="checkbox"/> Blended |
| Mansfield | <input type="checkbox"/> Online; <input type="checkbox"/> In-person; <input type="checkbox"/> Blended |