APPLIED MATHEMATICS, B.S.

- General Education Course

- Milestone course: a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.

Major

The Core Curriculum is designed to foster critical thinking skills and introduce students to basic domains of thinking that transcend disciplines. The Core applies to all majors. Information on specific classes in the Core can be found at https://www.marshall.edu/gened/.

Code	Title	Credit Hours
Core Curriculum		
Core 1: Critical Thinking		
FYS 100	First Yr Sem Critical Thinking	3
MTH 229	Calculus/Analytic Geom I (CT)	5
Critical Thinking Course		3
Core 2		
ENG 101	Beginning Composition	3
ENG 201	Advanced Composition	3
CMM 103	Fund Speech-Communication	3
MTH 229	Calculus/Analytic Geom I (CT)	5
Core II Natural/Physical Science		4
Core II Humanities		3
Core II Social Science		3
Core II Fine Arts		3
Additional University Requirements		
Writing Intensive		3
Writing Intensive		3
Multicultural or International		3
MTH 490	Internship in Mathematics (Capstone)	2
or MTH 491	Senior Seminar	
College-Specific		
COS Physical/Natural Science		4
COS Physical/Natural Science		3
Major-Specific		
MTH 229	Calculus/Analytic Geom I (CT)	5
MTH 230	Calculus/Analytic Geom II	4
CS 110	Computer Science I	3
MTH 231	Calculus/Analytic Geom III	4
MTH 300	Intro to Higher Math	4
MTH 331	Linear Algebra	4
MTH 490	Internship in Mathematics (C)	2
or MTH 491	Senior Seminar	
MTH Sequence I & II		
Select two of the following elective sequences:		12
Differential Equations:		
MTH 335		
MTH 415	Partial Differential Equations	
or MTH 416	Advanced Differential Equation	
Numerical Methods:		
MTH 443	Numerical Analysis	
MTH 411	Mathematical Modeling	
or MTH 442	Numerical Linear Algebra	
Probability and Statistics:		
STA 445	Probability & Statistics I	
STA 446	Probability & Statistics II	
Mathematics Education Majors may count the following as a sequence toward the Applied Mathematics Major:		
MTH 450	Modern Algebra I	
MTH 335	Ordinary Diff Equations	
or MTH 427	Advanced Calculus I	
Math Elective or Minor or 2nd Major		3
Math Elective or Minor or 2nd Major		3
Math Elective or 2nd Major		3
Math Elective or 2nd Major		3
Math Electives		
MTH 335	Ordinary Diff Equations	
MTH 360	Intro to Complex Variables	
MTH 361	Vector Calculus	
MTH 405	History of Mathematics	
MTH 411	Mathematical Modeling	
MTH 415	Partial Differential Equations	
MTH 416	Advanced Differential Equation	
MTH 427	Advanced Calculus I	
MTH 428	Advanced Calculus II	
MTH 430	Topology I	
MTH 431	Topology II	
MTH 440	Graph Th and Combinatorics	
MTH 442	Numerical Linear Algebra	
MTH 443	Numerical Analysis	
MTH 448	Modern Geometries	
MTH 449	Projective Geometry	
MTH 450	Modern Algebra I	
MTH 452	Modern Algebra II	
MTH 455	Number Theory	
STA 412	Regression Analysis	
STA 413	Experimental Designs	
STA 420	Nonparametric Statistics	
STA 422	Time Series Forecasting	
STA 425	Sampling Designs & Estimation	
STA 445	Probability & Statistics I	
STA 446	Probability & Statistics II	
STA 464	Statistical Computing	
STA 466	Stochastic Processes	
STA 470	Applied Survival Analysis	
300/400 Elective		3
300/400 Elective		3
Free Elective		3

Free Elective	3
Free Elective	3
Free Elective	3
Free Elective	3
Free Elective	3
Free Elective	1

Major Information

- Applied Mathematics majors are not required to satisfy the College of Science requirement of a minor in another discipline. However, Applied Mathematics majors often elect to complete a second (or more) major(s) and/or one (or more) minor(s).
- Math electives may not duplicate those used for the sequence requirements. The number of elective courses required depends on whether a student is pursuing an outside minor or a 2nd major. The following are the three options:
  - No Outside Major or Minor: A student may graduate with a major in Applied Mathematics, without a second major or a minor, by completing an additional 4 elective mathematics courses from the list of electives. The major requires 50 credit hours.
  - Outside Minors: A student graduating with a single major in Applied Mathematics, and at least one minor outside the department, must complete at least 2 additional elective mathematics courses. Effectively, the major requires 44 credit hours.
  - Outside Double Majors: A student graduating with multiple majors, including Applied Mathematics, need not take any additional elective math courses. Effectively, the major requires 38 credit hours. A student pursuing multiple majors, including at least two of the majors in the department, should consult with the undergraduate coordinator or chair of the department for details.
- Since the major is quite flexible, students are expected to consult with the undergraduate coordinator in the department. Before graduation, the undergraduate coordinator must approve the selection of sequences and electives.
- Please check with advisor about course offerings. Not all classes will be offered every semester.
- Forty (40) hours must be earned in courses numbered 300-499.