

# MATHEMATICS - DATA SCIENCE (BACHELOR OF SCIENCE)

The Mathematics major consists of prescriptive common courses, prescriptive concentration courses, and elective courses. The Data Science concentration emphasizes coursework designed to give the student sound fundamental skills in statistical and computing concepts relating to the quantitative analysis of data (39 hours).

The Mathematics major requires completion of the following common courses with a "C" or better:

Course	Title	Credits
MS 125	Calculus I	4
MS 126	Calculus II	4
MS 227	Calculus III	4
MS 300	Introduction to Advanced Mathematics (WI)	3
MS 344	Differential Equations	3
MS 352	Linear Algebra	3
MS 415	Advanced Calculus I (WI)	3
MS 441	Abstract Algebra I (WI)	3

The Data Science concentration requires completion of the following concentration courses with a "C" or better:

Course	Title	Credits
MS 302	Applied Probability and Statistics	3
MS 444	Applied Statistical Methods	3

This concentration also requires two elective courses selected from the departmental list of approved mathematics electives;

- At least one MS course numbered 300 or higher<sup>1</sup>
- At least one MS course numbered 400 or higher

<sup>1</sup> Excludes MS 322 Selected Survey of Secondary School Mathematics (3), MS 331 Peer Educator (1), and MS 332 Peer Educator (2).

In addition to the common, concentration, and elective courses, this concentration requires the following support courses:

Course	Title	Credits
PHS 221	Physics for Scientists and Engineers I w/Lab	4
CS 230	Fundamentals of Computing <sup>2</sup>	3
CS 306	Introduction to Data Science <sup>2</sup>	3
CS 445	Predictive Analysis <sup>2</sup>	3
CS 480	Special Topics in Data Science <sup>2</sup>	3

<sup>2</sup> Grade of C or better is required for these Computer Science (CS) courses.

A minor is not required for students majoring in Mathematics.

*In addition to courses noted below, candidates for graduation must successfully complete all JSU Academic Regulations. More information about general education requirements can be found in the Summary*

of Degrees/Requirements (<https://catalog.jsu.edu/undergraduate/summary-degrees-requirements/>) section of the catalog.

Freshman			Hours
<b>Fall</b>			
EH Composition sequence			3
MS 125	Calculus I		4
History			3
CS 230	Fundamentals of Computing <sup>2</sup>		3
SSC 101	First Year Experience		0
<b>Hours</b>			<b>13</b>
<b>Spring</b>			
EH Composition sequence			3
Fine Arts			3
History/Social/Behavioral Science <sup>1</sup>			3
Social/Behavioral Science			3
MS 126	Calculus II		4
<b>Hours</b>			<b>16</b>
<b>Sophomore</b>			
<b>Fall</b>			
EH 141	Speech		3
Literature			3
PHS 221	Physics for Scientists and Engineers I w/Lab		4
MS 227	Calculus III		4
<b>Hours</b>			<b>14</b>
<b>Spring</b>			
Humanities & Fine Arts <sup>1</sup>			3
Natural Science			4
Social/Behavioral Science			3
MS 300	Introduction to Advanced Mathematics (WI)		3
MS 352	Linear Algebra		3
<b>Hours</b>			<b>16</b>
<b>Junior</b>			
<b>Fall</b>			
CS 306	Introduction to Data Science <sup>2</sup>		3
MS 344	Differential Equations		3
General Electives			10
<b>Hours</b>			<b>16</b>
<b>Spring</b>			
MS 441	Abstract Algebra I (WI)		3
MS 444	Applied Statistical Methods		3
MS 300+ Elective			3
General Electives			6
<b>Hours</b>			<b>15</b>
<b>Senior</b>			
<b>Fall</b>			
CS 445	Predictive Analysis <sup>2</sup>		3
MS 302	Applied Probability and Statistics		3
MS 415	Advanced Calculus I (WI)		3
General Electives			6
<b>Hours</b>			<b>15</b>
<b>Spring</b>			
CS 480	Special Topics in Data Science <sup>2</sup>		3
MS 400+ Elective			3
General Electives			9
<b>Hours</b>			<b>15</b>
<b>Total Hours</b>			<b>120</b>

<sup>1</sup> Either a history sequence or a literature sequence is required.

<sup>2</sup> Grade of C or better is required for these Computer Science (CS) courses.