



Michigan Technological University
College of Computing

BS Data Science

Academic Year
2023-2024



Cybersecurity Focus Area (Cybersecurity Minor)

Year 1

Year 2

Year 3

Year 4

Fall

Spring

Fall

Spring

Fall

Spring

Fall

Spring

SAMPLE

MA1031/1032 (C) or
or MA 1160(C) or MA
1161(C)

DATA 1201
Data Science
Programming I
2

MA 1031(or MA 1032 or
MA 1120

CS 1121
Introduction
to
Programming I
3

MA 1120 or Placement
based on test scores

MA 1160
Calculus
3

(must be enrolled as
Freshman)

UN 1015
Composition
3

Co-Curricular
0.5 Credits

DATA 1201 and (CS 1121
or CS 1131 or CS 1111)

DATA 1202
Data Science
Programming
II
3

CS 1121

CS 1122
Introduction
to
Programming
II
3

MA 1160 or MA 1161 or MA
1135 or MA 1121

MA 2320
Elementary
Linear Algebra
3

MA 1160 or MA 1161 or MA
1135 or MA 1121

MA 2710
Intro to
Statistical
Analysis
3

(must be enrolled as Freshman)

UN 1025
Global Issues
3

Co-Curricular
0.5 Credits

DATA 1202 & (CS 1122
or CS 1131)
& (MA 2320 or MA 2330
or MA 2321)

DATA 2201
Foundations of
Data Science
3

(CS 1121 or CS 1131) & (MA 1135
or MA 1160 or MA 1161 or MA 1121
or MA 2160)

CS 2311
Discrete
Structures
3

CS 1122 or CS 1131

CS 2321
Data
Structures
3

MA 1160 or MA 1161 or MA
1121 or MA 1135

MA 3720
Probability
3

Co-Curricular
0.5 Credits

DATA Elective
Communication,
Context, and
Ethics
Viz/UX
3

(CS 2311 or MA 3210)
and CS 2321

CS 3425
Databases
3

CS 1122 or CS 1131

CS 1142
Programming at
the Hardware
Software
Interface
3

MA 2320 or
MA 2321 or MA 2330

MA 3203
Introduction
to
Cryptography
3

Co-Curricular
0.5 Credits

DATA 3801
Foundations of
Machine
Learning
3

DATA
Communication,
Context, and
Ethics
3

SAT 1200 or CS 1111(C) or CS 1121
or CS 1131 or CS 1142 or MIS 2100

SAT 2711
Linux
Fundamentals
3

**Social and
Ethical
Reasoning
CORE
3**

Co-Curricular
0.5 Credits

DATA 3401
Data
Engineering
3

DATA
Elective
3

(CS 2311 or
MA 3210) and CS 2321

CS 4321
Introduction
to Algorithms
3

SAT 1200 or CS 1111
or CS 1121 or CS 1131
or CS 1142 or MIS 2100

SAT 3812
Cybersecurity
I
3

Co-Curricular
0.5 Credits

DATA
Elective
3

Cybersecurity
Elective
3

Math
Elective
3

**Social and
Behavioral
Science
HASS
3**

Free Elective
3

DATA 4891
Data Science
Capstone
3

DATA Elective
Machine
Learning or
Artificial
Intelligence
3

SAT 3812

SAT 4812
Cybersecurity
II
3

SAT 3812

**General
Education
HASS
3**

Free Elective
3

Total Academic Credits: 120
Total co-curricular: 3 credits

This is an example of one path
toward your degree, but there
are other options. Please
check the link below to see
more information and options.
If you have any questions
regarding this program please
email the academic advisor for
the program at
swyeth@mtu.edu



https://bit.ly/MTU_DataScience





BS DATA SCIENCE 2023-2024

CORE REQUIREMENTS	55-57 Credits		
• CS 1121 (3) and CS1122 (3) or CS 1131 (5) • CS 23211 (3) or MA 3210 (3) • CS 2321 (3) • CS 3425 (3) or SAT 3210 (3) • CS 4321 (3) • MA 1160 (4) • MA 2320 (2) or MA 2330 (3) • MA 2710 (3) • MA 3720 (3) • MA 3740 (3) or MA 4710 (3) or MA 4790 (3) • DATA 1201 (2) • DATA 1202 (3) • DATA 2201 (3) • DATA 3801 (3) • DATA 3401 (3) • DATA 4891 • HU 2645 (3) or MIS 3500 (3) or DATA 2600 • CS 3000 (3) or SAT 1700 (3) or D 3000 (3)			
Free Electives: 5 to 7 credits Any coursework is allowable, including -co-curricular and coursework below the 1000 level.			
Cybersecurity <table> <tr> <td> • CS 1111 (3) or CS 1142 (3) or MIS 2100 (3) • CS 4471 (3) • EE 4723 (3) • MA 3203 (3) • SAT 4812 (3) </td><td> • Select 0-2 course(s) if needed • CS 3712 (3) • CS 4471 (3) • CS 4710 (3) • MIS 4200 (3) • SAT 2711 (3) • SAT 3310 (3) </td></tr> </table>		• CS 1111 (3) or CS 1142 (3) or MIS 2100 (3) • CS 4471 (3) • EE 4723 (3) • MA 3203 (3) • SAT 4812 (3)	• Select 0-2 course(s) if needed • CS 3712 (3) • CS 4471 (3) • CS 4710 (3) • MIS 4200 (3) • SAT 2711 (3) • SAT 3310 (3)
• CS 1111 (3) or CS 1142 (3) or MIS 2100 (3) • CS 4471 (3) • EE 4723 (3) • MA 3203 (3) • SAT 4812 (3)	• Select 0-2 course(s) if needed • CS 3712 (3) • CS 4471 (3) • CS 4710 (3) • MIS 4200 (3) • SAT 2711 (3) • SAT 3310 (3)		
See course catalog for prerequisites			
Connect with your advisor @ www.mtu.edu/computing/undergraduate/advising			

DATA SCIENCE ELECTIVES	12 credits
Up to 6 credits in Data Science Electives can be 2000-3000 level Select one course from a list of Machine Learning/AI related topics: • CS 4811 (3) • CS 4821 (3) or CS 5831 (3) • CS 5811 (3) • CS 5821 (3) • CS 5841 (3) • EET 4501 (3) Select three remaining courses from below or any course above not already used: CS 3141, CS 4001, CS 4471, CS 4760, MA 2600, MA 3740, MA 4330, MA 4710, MA 4720, MA 4760, MA 4770, MA 4780/5780, MA 4790/5790, SAT 2711, SAT 3310, SAT 3812, SAT 4144, SAT 4283, SAT 5165, MIS 4000, MIS 4400	
7 Credits Minimum Complete two science courses in two different disciplines (BL, CH, KIP, FW, GE, PH, SS). At least one must include or be taken with the accompanying laboratory.	LAB SCIENCE REQUIREMENTS
Core Courses: 12 credits Year One _UN 1015 (3) _UN 1025 or upper level modern language(3) Year Two _ Critical and Creative Thinking _ Social Responsibility and Ethical Reasoning (3) HASS: 12 credits, 6 of the 12 must be at the 3000-4000 level _Communication/Composition (minimum 3 credits) _ Humanities and Fine Arts (minimum 3 credits) _ Social and Behavioral Sciences (minimum 3 credits) _ Any course from the General Education Core, HASS, or restricted HASS (0-3 credits) +Co-curricular Activities: 3 credits	
GENERAL EDUCATION REQUIREMENTS	