

Data Science with MS in Data Science 4+1

Recommended Five-Year Plan (Fall 2022)

The recommended five-year plan is designed to provide a blueprint for students to complete their degrees within four years. Students must meet with their Major Advisor to develop a more individualized plan to complete their degree. This plan assumes that no developmental courses are required. If developmental courses are needed, students may have additional requirements to fulfill which are not listed in the plan and may extend degree completion.

NOTE: This recommended Five-Year Plan is applicable to students admitted into the major during the 2022-2023 academic year.

First Year					
Fall Semester	HRS	✓	Spring Semester	HRS	✓
Gen Ed: Quantitative Reasoning - MATH 121-Calculus I	4		CMPS 130-Scientific Programming with Python	4	
Gen Ed: INTD 101-First Year Seminar	4		MATH 237-Discrete Structures or MATH 205-Mathematical Structures WI	4	
Gen Ed: CRWT 102-Critical Reading and Writing II	4		Gen Ed: AIID 201-Studies in the Arts & Humanities	4	
DATA 101-Introduction to Data Science	4		Gen Ed: SOSC 110-Social Science Inquiry	4	
			TAS Pathways Module 1: (PATH-TS1)	Degree Rqmt.	
Total:	16		Total:	16	

Second Year					
Fall Semester	HRS	✓	Spring Semester	HRS	✓
CMPS 240-Data Analytics in Python	4		DATA 301-Data Visualization	4	
MATH 262-Linear Algebra WI	4		Minor Requirement*	4	
Gen Ed: Historical Perspectives	4		Gen Ed: Scientific Reasoning	4	
Minor Requirement*	4		Gen Ed: Distribution: Culture and Creativity OR Systems, Sustainability & Society (Must be outside TAS)	4	
TAS Pathways Module 2: (PATH-TS2)	Degree Rqmt.		TAS Pathways Module 3: (PATH-TS3)	Degree Rqmt.	
Total:	16		Total:	16	

Third Year					
Fall Semester	HRS	✓	Spring Semester	HRS	✓
Gen Ed: Distribution Values and Ethics DATA 225-Ethics of Technology WI	4		MATH 370-Applied Statistics	4	
Gen Ed: Global Awareness	4		CMPS 364-Database Design	4	
Minor Requirement*	4		Minor Requirement*/Elective	4	
Minor Requirement*	4		DATA Elective**	4	
Elective (for missing 3 credits senior year)	2		Elective (for missing 3 credits senior year)	1	
Total:	18		Total:	17	

Fourth Year					
Fall Semester	HRS	✓	Spring Semester	HRS	✓
CMPS 320-Machine Learning	4		DATA 450-Data Science Capstone Project WI	4	
DATA 601-Intro to Data Science (MS)	3		DATA 620-Ethics for Data Science (MS)	3	
MATH 570-Applied Statistics (MS) OR CMPS 530-Python for Data Science (MS)	3		Elective	4	
Minor Requirement*	4		Elective	4	
Total:	14		Total:	15	

Fifth Year					
Fall Semester	HRS	✓	Spring Semester	HRS	✓
CMPS 530-Python for Data Science OR MATH 570-Applied Statistics	3		CMPS 664-Advanced Database and Big Data	3	
MATH 680-Advanced Mathematical Modeling	3		Data Science Elective at 600/700 level	3	
Data Science Elective at 600/700 level	3		DATA 750-Data Science Thesis	3	
Elective	3				
Total:	12		Total:	9	

Total Credits Required: 128 credits

GPA Required: 2.0

WI: Writing Intensive-3 required in the major

* As part of their degree requirements, Data Science majors are also required to complete a minor or double major to gain domain knowledge in a particular field, to better contextualize their data studies. Most minor programs require 5-6 courses. Any minor or second major can be selected: <https://www.ramapo.edu/majors-minors/a-z/>

** DATA elective courses may require pre-requisites outside the program requirements. For example, Math 305 Differential Equations, Math 245 Numerical Analysis, and Math 253 Probability each have Math 122 Calculus II as a pre-requisite. Additionally, Math 253 Probability also allows the option for Math 122 Calculus II to be taken as a co-requisite.

Total Graduate Credits Required: 30 credits

GPA Required: 2.0