Data Science with MS in Data Science 4+1

Recommended Graduation Plan (Fall 2025)

The recommended graduation plan is designed to provide a blueprint for students to complete their degrees on time. Students must meet with their Academic Advisor to develop a more individualized plan to complete their degree.

NOTE: This recommended Graduation Plan is applicable to students admitted into the major during the 2025-2026 academic year.

CRWT Placement
CRWT 101 to CRWT 102
CRWT 101S to CRWT 102S

Math Placement
MATH 021/022 to MATH 024 to MATH 110-121

NOTE: CRWT and MATH courses are determined by placement testing and should be taken following the sequence above.

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		General Education Requirement	4	
DATA 101-Introduction to Data Science	4		General Education Requirement	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		Free Elective (minor, certificate, or second major requirement)	4	
General Education Requirement	4		General Education Requirement	4	
Free Elective (minor, certificate, or second major requirement)	4		General Education Requirement	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	
General Education Requirement	4		CMPS 364-Database Design	4	
Free Elective (minor, certificate, or second major requirement)	4		Free Elective (minor, certificate, or second major requirement)	4	
Free Elective (minor, certificate, or second major requirement)	4		Data Science Elective**	4	
Free Elective (minor, certificate, or second major requirement)	2		Free Elective (minor, certificate, or second major requirement)	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	
CMPS 530-Python for Data Science (MS)	3		Free Elective (minor, certificate, or second major requirement)	4	
Free Elective (minor, certificate, or second major requirement)	4		Free Elective (minor, certificate, or second major requirement)	4	
Total:	14		**Total:**	15	

Fifth Year					
Fall Semester	**HRS**	**✓**	**Spring Semester**	**HRS**	**✓**
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	
Interdisciplinary Elective	3				
Total:	12		**Total:**	9	

Total Credits Required for undergraduate degree: 128 credits*****
GPA Required for BS in Data Science: 2.0
GPA Required for 4+1 Pathway: 3.0
WI: Writing Intensive-3 required in the major

General Education courses can be done in any order with the exception of INTD 101, CRWT and MATH. Those three general education courses will need to be done first. First Year Seminar is taken in the first semester. Failure to complete CRWT and MATH will result in a hold when the student hits 64 credits. The following general education courses can be done in any order. For more info on these courses, please visit the [General Education program requirements website in the College Catalog](#):

- Social Science Inquiry (SOSC 110) *[+W]*
- Scientific Reasoning
- Historical Perspectives *[+W]*
- Studies in the Arts & Humanities (*CRWT 102 is a prerequisite to this course*) *[+W]*
- Global Awareness *[+W]*
- Distribution Category (Social Systems & Society **OR** Culture & Creativity **OR** Values and Ethics) **(Must be outside of TAS)**
- Distribution Category

+W: Students transferring in with 48 or more credits are waived from these general education requirements.

* 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 Science elective courses to be chosen for the BS in Data Science may require prerequisites 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 prerequisite. Additionally, Math 253 Probability also allows the option for Math 122 Calculus II to be taken as a co-requisite. Please see instructor for ECON 310: Econometrics to discuss prerequisite course requirements.

***Three additional credits are required in the 3rd year because graduate courses are only 3 credits, instead of the usual 4 credits for undergraduate courses. Thus, a student must take an additional 3 credits to meet the 128-credit undergraduate graduation requirement.

Total Graduate Credits Required: 30 credits****
GPA Required: 2.0
Student must be in good academic standing:
https://www.ramapo.edu/provost/policy/graduate-academic-standing/

****The 9 credits of graduate coursework taken in the fourth-year will double count towards both the undergraduate degree requirement of 128 credits as well as the required 30 graduate credits.