

Computer Science with MS in Data Science 4+1

Recommended Graduation Plan (Fall 2024)

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 2024-2025 academic year. To enroll, visit <https://www.ramapo.edu/data-science/4plus1/>

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	✓
CMPS 147-Computer Science I	4		CMPS 148-Computer Science II	4	
Gen Ed: MATH 110-Precalculus	4		MATH 121-Calculus I	4	
Gen Ed: INTD 101-First Year Seminar	4		CMPS 220-Assembly Language Programming	4	
Gen Ed: CRWT 102 - Critical Reading and Writing II	4		General Education Requirement	4	
			Career Pathways: PATH TS1 – Career Pathways Module 1	Degree Rqmt.	
Total:	16		Total:	16	

Second Year					
Fall Semester	HRS	✓	Spring Semester	HRS	✓
CMPS 231-Data Structures	4		CMPS 311-Operating Systems WI	4	
MATH 237-Discrete Structures or MATH 205 Mathematical Structures WI	4		CMPS Elective	4	
General Education Requirement	4		General Education Requirement	4	
General Education Requirement	4		General Education Requirement	4	
Career Pathways: PATH TS2 – Career Pathways Module 2	Degree Rqmt.		Career Pathways: PATH TS3 – Career Pathways Module 3	Degree Rqmt.	
Total:	16		Total:	16	

Third Year					
Fall Semester	HRS	✓	Spring Semester	HRS	✓
CMPS 361-Software Design	4		CMPS Elective	4	
CMPS Elective	4		CMPS Elective	4	
MATH 262: Linear Algebra	4		MATH 370: Applied Statistics	4	
General Education Requirement	4		General Education Requirement	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 366-Organization of Programming Languages	4		CMPS Elective	4	
CMPS Elective	4		CMPS 450: Senior Project WI	4	
CMPS Elective: CMPS 530: Python Programming for Data Science OR Elective: Math 570: Applied Statistics (MS)	3		Elective OR CMPS Elective (based on choice in Fall)	4	
DATA 601: Introduction to Data Science (MS)	3		DATA 620: Ethics for Data Science (MS)	3	
Total:	14		Total:	15	
Fifth Year					
Fall Semester	HRS	✓	Spring Semester	HRS	✓
MATH 570: Applied Statistics OR CMPS 530: Python for Data Science	3		CMPS 664: Advanced Database and Big Data Systems	3	
MATH 680: Advanced Mathematical Modeling	3		Technical Elective	3	
Technical Elective AND/OR Interdisciplinary Elective AND/OR DATA 730 Fieldwork Experience*	3 + 3		DATA 750 Data Science Thesis	3	
Total:	12		Total:	9	

Total Credits Required: 128 credits

GPA Required: 2.0

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 (Systems, Sustainability, & 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.

Total Graduate Credits Required: 30 credits

Student must be in good academic standing: <https://www.ramapo.edu/provost/policy/graduate-academic-standing/>

*Students must complete **two** technical electives and **one** interdisciplinary elective. DATA 730 Fieldwork Experience may be used to replace **one** of the three total electives.