B.S. in Data Science – Foundations Track (Effective Fall 2022)

This track emphasizes the underlying computer science, engineering, mathematics and statistics methodology and theory, and is especially recommended as preparation for graduate study in data science or related fields.

Preparatory Subject Matter (39 units)

- ❒ MAT 21A-B-C Calculus (12)
- ❒ MAT 22A Linear Algebra (3)
- ❒ ECS 17 Data, Logic, and Computing (4)
- ❒ ECS 32A Introduction to Programming (4)
- ❒ ECS 32B Introduction to Data Structures (4)
- ❒ STA 35A Statistical Data Science I (4)
- ❒ STA 35B Statistical Data Science II (4)
- ❒ STA 35C Statistical Data Science III (4)

Depth Subject Matter (52 units)

Computer Science

- ❒ ECS 116 Databases for Non-Majors (4)
- ❒ ECS 117 Introduction to Algorithms for Data Science (4)
- ❒ ECS 119 Data Processing Pipelines for Data Science (4)

Probability & Statistics

- ❒ STA 108 Linear Regression (4)
- ❒ MAT 135A Probability **OR** STA 131A Introduction to Probability Theory (4)
- ❒ STA 141A Fundamentals of Statistical Data Science (4)

Mathematics

- ❒ MAT 167 Applied Linear Algebra **OR** ECS 130 Scientific Computation (4)
- ❒ MAT 168 Optimization (4)

Science & Technology Studies

- ❒ STS 101 Data & Society (4)

Machine Learning (4)

Choose one:

- ❒ ECS 111 Machine Learning for Non-Majors (4)
- ❒ MAT 170 Mathematics for Data Analytics & Decision Making (4)
- ❒ STA 142A Introduction to Statistical Learning (4)

Upper Division Electives (12)

Three elective courses in a related discipline. A list of pre-approved electives can be found at https://statistics.ucdavis.edu/undergrad/data-science/bs-foundations-track/electives.

- ❒ _____ (4)
- ❒ _____ (4)
- ❒ _____ (4)

Sample Plans

General Recommendations

- Feel free to hold off on taking ECS courses until your sophomore year if you would prefer to take only two major courses in your first year. Some students benefit from focusing solely on the MAT and STA classes in their first year.
- These sample plans have most major courses in the 1st and 2nd year, but you can easily take a lighter course load and spread out your courses more evenly into your 3rd and 4th year as needed.
- Your priority should be to complete all preparatory requirements by the end of your sophomore year. You may also begin taking upper division courses in your 2nd year, but it may not be necessary to complete all of your major requirements in four years. Do not take any upper division courses in your 1st year!
- Remember that balance is key and you have to make the best possible schedule for YOU! Meet with your major advisors on a regular basis to help you update your academic plan.

Data Science, Foundations Track

-Beginning with MAT 21A in Fall.

1st Year	**Fall**	**Winter**	**Spring**
	MAT 21A	MAT 21B	MAT 21C
	STA 35A	STA 35B	STA 35C
		ECS 17	ECS 32A
2nd Year	**Fall**	**Winter**	**Spring**
	MAT 22A	STA 108	STA 141A
	ECS 32B	ECS 116	ECS 117
	STS 101		
3rd Year	**Fall**	**Winter**	**Spring**
	ECS 119	ECS 130 or MAT 167	Elective
	MAT 135A or STA 131A		
4th Year	**Fall**	**Winter**	**Spring**
	Elective	ECS 111 or MAT 170 or STA 142A	Elective
		MAT 168	

Data Science, Foundations Track

-Beginning with MAT 12 in Fall.

1st Year	**Fall**	**Winter**	**Spring**
	MAT 12	MAT 21A	MAT 21B
		STA 35A	STA 35B
2nd Year	**Fall**	**Winter**	**Spring**
	MAT 21C	MAT 22A	STA 108

	STS 101	ECS 17	ECS 32B
	STA 35C	ECS 32A	
3rd Year	**Fall**	**Winter**	**Spring**
	ECS 119	MAT 135A or STA 131A	ECS 117
	STA 141A	ECS 116	ECS 130 or MAT 167
4th Year	**Fall**	**Winter**	**Spring**
	Elective	ECS 111 or MAT 170 or STA 142A	Elective
		MAT 168	Elective

Data Science, Foundations Track **-Beginning with MAT 21B in Fall.**			
1st Year	**Fall**	**Winter**	**Spring**
	MAT 21B	MAT 21C	MAT 22A
	STA 35A	STA 35B	STA 35C
		ECS 17*	ECS 32A*
2nd Year	**Fall**	**Winter**	**Spring**
	ECS 32B	STA 108	STA 141A
	STS 101	ECS 116	ECS 117
3rd Year	**Fall**	**Winter**	**Spring**
	ECS 119	ECS 130 or MAT 167	Elective
	MAT 135A or STA 131A		
4th Year	**Fall**	**Winter**	**Spring**
	Elective	ECS 111 or MAT 170 or STA 142A	Elective
		MAT 168	