

Applied Math DSE Minor Guidance 2022-2023

Note: The guidance here is based on the [2022 Applied Math degree requirements](#). Those who are following previous years' catalogs should use the [2021 and prior sheet](#) for guidance. You can find Data Science and Engineering (DSE) Minor curriculum details on the [DSE website](#).

Overview

The DSE Minor consists of **8 courses**. This includes the 4 core courses for Data Science and Engineering that requires 1 course taken in each area of:

- Programming Foundations
- Statistics Foundations
- Intermediate Programming and Algorithmic Thinking
- Applied Machine Learning

The minor also requires 2 studio courses and 2 DSE approved electives. All courses that count toward each requirement can be found [here](#).

Double Counting Rules

McCormick requires that each minor consists of **4 unique courses** that are **not** used towards any other major or minor requirements. "Major Requirements" are those designated as "Major Program (21 units)" in the catalog and designated with purple banners in your MAS degree audit. **Unrestricted electives do not count towards major requirements.** This means you can **count up to 4 courses towards both the DSE minor and your major requirements.**

Tips

- Take advantage of the flexibility in some of the minor requirements, *e.g, you can choose to use COMP_SCI 349 to count as a technical elective or use ES_APPM 479 as the mathematical modeling course towards your major requirements*
- Be mindful of prerequisites, both for the DSE Core Courses and DSE Electives. Declaration of the minor does not imply that any prerequisites will be waived for you.

The guides below represent some possible paths for Applied Math majors who are pursuing the DSE minor. Other paths are possible—talk to your advisor or email us at dse@northwestern.edu.

Using ES_APPM courses towards Minor

DSE Minor Requirements	Course Selection	How does this count for my degree?	Notes
Data Science Core: 4 Courses			
Programming Foundations	COMP_SCI 150	Major Requirement (Basic Technical)	
Statistics Foundation	IEMS 303	Major Requirement	
Intermediate Programming	COMP_SCI 217	Unrestricted Elective	Unique Course
Applied Machine Learning	IEMS 304/ COMP_SCI 349	Unrestricted Elective	Unique Course
Data Science Studio Courses: 2 Courses			
	DATA_ENG 200	Unrestricted Elective	Unique Course
	DATA_ENG 300	Unrestricted Elective	Unique Course
Elective: 2 Courses			
	ES_APPM 345	Major Requirement	
	ES_APPM 479	Major Requirement (Mathematical Modeling)	

Using Other courses toward Minor

DSE Minor Requirements	Course Selection	How does this count for my degree?	Notes
Data Science Core: 4 Courses			
Programming Foundations	COMP_SCI 150	Major Requirement (Basic Technical)	
Statistics Foundation	IEMS 201	Major Requirement	
Intermediate Programming	COMP_SCI 217	Unrestricted Elective	Unique Course
Applied Machine Learning	COMP_SCI 349/ ELEC_ENG 375	Major Requirement (Technical Elective)	
Data Science Studio Courses: 2 Courses			
	DATA_ENG 200	Unrestricted Elective	Unique Course
	DATA_ENG 300	Major Requirement (Basic Technical)	
Elective: 2 Courses			
	DSE Approved Elective	Unrestricted Elective	These unique courses can be Applied Math Courses, as long as they are not used towards the major
	DSE Approved Elective	Unrestricted Elective	