

## Industrial Engineering DSE Minor Guidance 2022-2023

**Note:** The guidance here is based on the [2022 IEMS 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

This 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, if you have credit for both COMP\_SCI 150 and COMP\_SCI 211, you can use COMP\_SCI 211 as an unrestricted to fulfill the programming foundations requirement and double count IEMS\_313 as an elective.*
- 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 IE majors who are pursuing the DSE minor. Other paths are possible—talk to your advisor or email us at [dse@northwestern.edu](mailto:dse@northwestern.edu).*

***If using COMP\_SCI 150 towards Minor***

DSE Minor Requirements	Course Selection	How does this count for my degree?	Notes
<b>Data Science Core: 4 Courses</b>			
Programming Foundations	COMP_SCI 150	Major Requirement	
Statistics Foundation	IEMS 303	Major Requirement	
Intermediate Programming	COMP_SCI 217	Major Requirement	
Applied Machine Learning	IEMS 304	Major Requirement	
<b>Data Science Studio Courses: 2 Courses</b>			
	DATA_ENG 200	Unrestricted Elective	Unique Course
	DATA_ENG 300	Unrestricted Elective	Unique Course
<b>Elective: 2 Courses</b>			
	DSE Approved Elective*	Unrestricted Elective	These can be IEMS Courses, as long as they are used towards the major
	DSE Approved Elective*	Unrestricted Elective	

*\*IEMS\_313 may not be used as an elective unless you take a non-major course to fulfill one of the core area requirements.*

***If using COMP\_SCI 211 towards Minor***

DSE Minor Requirements	Course Selection	How does this count for my degree?	Notes
<b>Data Science Core: 4 Courses</b>			
Programming Foundations	COMP_SCI 211	Unrestricted Elective	Unique Course
Statistics Foundation	IEMS 303	Major Requirement	
Intermediate Programming	COMP_SCI 217	Major Requirement	
Applied Machine Learning	IEMS 304	Major Requirement	
<b>Data Science Studio Courses: 2 Courses</b>			
	DATA_ENG 200	Unrestricted Elective	Unique Course
	DATA_ENG 300	Unrestricted Elective	Unique Course
<b>Elective: 2 Courses</b>			
	IEMS 313	Major Requirement	
	DSE Approved Elective	Unrestricted Elective	This can be an IEMS Course as long as it is not used as an IE major elective