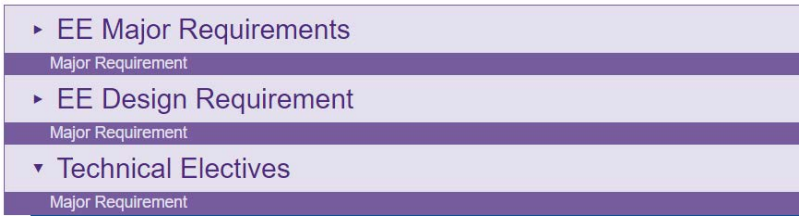
Northwestern | McCORMICK SCHOOL OF ENGINEERING
Data Science and Engineering

Guidance for Electrical & Computer Engineering Majors

- The guidance here is based on the 2020 EE degree requirements. Note that CompE degree requirements are similar. You can find Data Science & Engineering (DSE) Minor curriculum details on the DSE website.

- The DSE Minor requires 8 courses. McCormick requires that each minor consist of 5 courses that are **not** used towards any of your major requirements.
  - "Major Requirements" are those designated as "Major Program (16 units)" in the catalog. They are also designated with purple banners in your MAS degree audit:



  - You can count up to 3 courses towards both DSE minor and your major requirements.
  - Basic Engineering and Unrestricted Electives are not considered major requirements.
  - Talk to your advisor about how to choose DSE core courses and electives that can be used towards your CS breadth requirements or tech electives.

- Double counting rules also apply to minors and certificates.
  - This means your DSE minor must use 5 courses that do not apply to your major program, or to any other minors and certificates.
  - Take advantage of flexibility in some of the minor requirements.
    Example: if you have credit for both COMP_SCI 150 and COMP_SCI 211, you can use either of them to fulfill the machine learning requirement.

- Be mindful of prerequisites, both for DSE Core Courses and for 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 ECE majors who are pursuing the DSE minor. Other paths are possible—talk to your advisor or email us at dse@northwestern.edu.

Using COMP_SCI 349 or ELEC_ENG 375 as the Applied Machine Learning course:

DSE Minor Requirements	Course Selection	How does this count for my major?		Notes
		Not Major Requirement	Major Requirement	
Data Science Core: 4 courses				
Statistics Foundations	Any listed choice	Unrestricted Elective		
Programming Foundations	COMP_SCI 211 or 230	Basic engineering *Computer Programming*		Required for EE
Intermediate Programming	COMP_SCI 214 or 217	Unrestricted Elective		
Applied Machine Learning	COMP_SCI 349 or ELEC_ENG 375		Technical Elective	Double Count
Data Science Studio Courses: 2 courses				
	DATA_ENG 200	Unrestricted Elective		
	DATA_ENG 300	Unrestricted Elective	Technical Elective	Double Count
Electives: 2 courses				
	CIV 304, ESAM 345, or IEMS 313	Basic engineering *Prob, Stat, Quality Control*		
	DSE Approved Elective		Technical Elective	Double Count

Using IEMS 304 as the Applied Machine Learning course:

DSE Minor Requirements	Course Selection	How does this count for my major?		Notes
		Not Major Requirement	Major Requirement	
Data Science Core: 4 courses				
Statistics Foundations	Any listed choice	Unrestricted Elective		
Programming Foundations	COMP_SCI 211 or 230	Basic engineering *Computer Programming*		Required for EE
Intermediate Programming	COMP_SCI 214 or 217	Unrestricted Elective		
Applied Machine Learning	IEMS 304	Unrestricted Elective	Technical Elective	Double Count
Data Science Studio Courses: 2 courses				
	DATA_ENG 200	Unrestricted Elective		
	DATA_ENG 300	Unrestricted Elective	Technical Elective	Double Count
Electives: 2 courses				
	CIV 304, ESAM 345, or IEMS 313	Basic engineering *Prob, Stat, Quality Control*		
	DSE Approved Elective in CS/EE		Technical Elective	Double Count