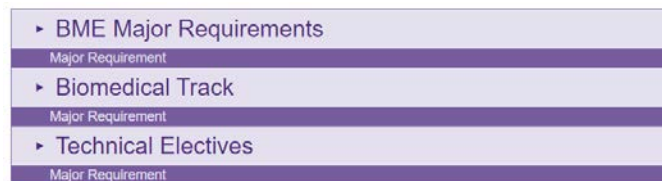# Guidance for Biomedical Engineering Majors

❖ The guidance here is based on the 2020 BME degree requirements. 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.

   o "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:

   o You can count up to 3 courses towards both DSE minor and your major requirements.
   o Talk to your advisor, or to Prof. Olds, about how to choose DSE electives that can be used towards your BME electives.
   o Basic Engineering and Unrestricted Electives are not considered major requirements.

❖ Double counting rules also apply to minors and certificates.
   o This means your DSE minor must use 5 courses that do not apply to your major program, or to any other minors and certificates.
   o 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 programming foundations 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 BME 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 150 as the Programming Foundations 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	BME 220 or IEMS 303	Basic engineering *Prob, Stat, Quality Control*		Required for BME
Programming Foundations	COMP_SCI 150	Unrestricted Elective		
Intermediate Programming	COMP_SCI 217	Unrestricted Elective		
Applied Machine Learning	IEMS 304		Technical Elective	Double Count
Data Science Studio Courses: 2 courses				
	DATA_ENG 200	Unrestricted Elective		
	DATA_ENG 300	Unrestricted Elective		
Electives: 2 courses				
	Two DSE Approved Electives		BME Electives	Double Count
				Double Count

Using COMP_SCI 211 as the Programming Foundations 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	BME 220 or IEMS 303	Basic engineering *Prob, Stat, Quality Control*		Required for BME
Programming Foundations	COMP_SCI 211		BME Elective (Category B)	Double Count
Intermediate Programming	COMP_SCI 214 or 217	Unrestricted Elective		
Applied Machine Learning	CS 349 or IEMS 304		Technical Elective	Double Count
Data Science Studio Courses: 2 courses				
	DATA_ENG 200	Unrestricted Elective		
	DATA_ENG 300	Unrestricted Elective		
Electives: 2 courses				
	Two DSE Approved Electives		BME Elective	Double Count
		Unrestricted Elective		