Northwestern
McCORMICK SCHOOL
OF ENGINEERING

MLDS Minor Advising for Biomedical Engineering Majors

Note: *The guidance here is based on the 2023-2024 Biomedical Engineering degree requirements. You can find Machine Learning and Data Science (MLDS) Minor curriculum details on the MLDS website.*

Overview

The MLDS minor consists of **8 courses**:

- ➔ 1 course in Programming Foundations
- ➔ 1 course in Statistics Foundations
- ➔ 4 specialization courses (Machine Learning, Data Science, or Hybrid)
- ➔ 2 electives in machine learning and data science.

The specific courses that satisfy these requirements can be found here.

Double Counting Rules

The McCormick School of Engineering 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 “Biomedical Engineering Program (21 courses),” which can be found on either MAS or the Biomedical Engineering Website.

BME dropdown for specific major requirements

Tips

- ➔ Be mindful of prerequisites for both the MLDS Specialization and Elective courses. Declaration of the minor does not imply that any prerequisites will be waived for you.

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The guides below represent some of the possible paths for Biomedical Engineering majors who are pursuing the MLDS minor. Other paths are possible – talk to your advisor or email dse@northwestern.edu.

Potential Machine Learning Specialization Tracks

Course Selection	How this counts towards your BME degree	Notes
Programming Foundations		
COMP_SCI 150	Major Requirement (Basic Engineering)	
Statistics Foundation		
BMD_ENG 220/ IEMS 303	Major Requirement (Basic Engineering)	
Machine Learning Specialization		
COMP_SCI 111	Unrestricted Elective	Unique Course
COMP_SCI 214**	Unrestricted Elective	Unique Course
COMP_SCI 348**	Unrestricted Elective	Unique Course
COMP_SCI 349**	Unrestricted Elective	Unique Course
MLDS Electives		
BMD_ENG 311**	Major Requirement (BME Elective, Category A)	
BMD_ENG 312**	Major Requirement (BME Elective, Category A)	

Potential option: Machine Learning specialization using BMD_ENG courses

*** These courses could all fulfill the Technical Elective requirement, and other possibilities are possible. See approved MLDS electives for more options.*

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Potential Data Science Specialization Tracks

Course Selection	How this counts towards your BME degree	Notes
Programming Foundations		
COMP_SCI 150	Major Requirement (Basic Engineering)	
Statistics Foundation		
BMD_ENG 220/ IEMS 303	Major Requirement (Basic Engineering)	
Data Science Specialization		
COMP_SCI 217**	Unrestricted Elective	Unique Course
IEMS 304	Major Requirement (Technical Elective at 300-level)	
DATA_ENG 200**	Unrestricted Elective	Unique Course
DATA_ENG 300**	Major Requirement (Technical Elective at 300-level)	
MLDS Electives		
MLDS Approved Elective	Unrestricted Elective	Unique Course
MLDS Approved Elective	Unrestricted Elective	Unique Course

Potential option: Data Science specialization using counting DATA_ENG 300 as a Technical Elective

*** These courses could all fulfill the Technical Elective requirement, and other possibilities are possible. [See approved MLDS electives for more options.]*

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Potential Hybrid Specialization Tracks

Course Selection	How this counts towards your BME degree	Notes
Programming Foundations		
COMP_SCI 150	Major Requirement (Basic Engineering)	
Statistics Foundation		
BMD_ENG 220/ IEMS 303	Major Requirement (Basic Engineering)	
Hybrid Specialization		
COMP_SCI 214**	Unrestricted Elective	Unique Course
COMP_SCI 349**	Unrestricted Elective	Unique Course
DATA_ENG 200**	Unrestricted Elective	Unique Course
DATA_ENG 300**	Major Requirement (Technical Elective at 300-level)	
MLDS Electives		
BMD_ENG 311**	Major Requirement (BME Elective, Category A)	
MLDS Approved Elective	Unrestricted Elective	Unique Course

Potential option: Hybrid specialization using DATA_ENG 300 as 300-level Technical Elective

*** These courses could all fulfill the Technical Elective requirement, and other possibilities are possible. See approved MLDS electives for more options.*