Northwestern
McCORMICK SCHOOL
OF ENGINEERING

MLDS Minor Advising for Chemical Engineering Majors

Note: *The guidance here is based on the 2023-2024 Chemical 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 "Major Program (21 units)," which can be found on either MAS or the Chemical Engineering website.

MAS 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 Chemical 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 ChE degree	Notes
Programming Foundations		
COMP_SCI 150	Major Requirement	
Statistics Foundation		
CHEM_ENG 312/ IEMS 303	Major Requirement	
Machine Learning Specialization		
COMP_SCI 111	Unrestricted Elective	Unique Course
COMP_SCI 214	Major Requirement (Technical Elective: Category B)*	
COMP_SCI 348	Major Requirement (Technical Elective: Category B)*	
COMP_SCI 349	Unrestricted Elective*	Unique Course
MLDS Electives		
MLDS Approved Elective	Unrestricted Elective	Unique Course
MLDS Approved Elective	Unrestricted Elective	Unique Course

Potential option: Using category A and B Technical Elective courses towards minor

** Note: COMP_SCI 214, COMP_SCI 348, and COMP_SCI 349 can all count towards the Technical Elective: Category B requirement. Students are only required to take 1 Technical Elective: Category B, but may opt to have a secondary Category B requirement fulfill the Technical Elective: Category D requirement.*

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Potential Data Science Specialization Tracks

Course Selection	How this counts towards your ChE degree	Notes
Programming Foundations		
COMP_SCI 150	Major Requirement	
Statistics Foundation		
CHEM_ENG 312/ IEMS 303	Major Requirement	
Data Science Specialization		
COMP_SCI 217	Unrestricted Elective	Unique Course
IEMS 304	Major Requirement (Technical Elective: Category B)	
DATA_ENG 200	Unrestricted Elective	Unique Course
DATA_ENG 300	Major Requirement (Technical Elective: Category D)	
MLDS Electives		
MLDS Approved Elective	Unrestricted Elective	Unique Course
MLDS Approved Elective	Unrestricted Elective	Unique Course

Potential option 1: Data Science specialization using Specialization courses towards Technical Electives

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Potential Hybrid Specialization Tracks

Course Selection	How this counts towards your ChE degree	Notes
Programming Foundations		
COMP_SCI 150	Major Requirement	
Statistics Foundation		
CHEM_ENG 312/ IEMS 303	Major Requirement	
Hybrid Specialization		
COMP_SCI 214	Major Requirement (Technical Elective: Category B)*	
COMP_SCI 348	Unrestricted Elective*	Unique Course
DATA_ENG 200	Unrestricted Elective	Unique Course
DATA_ENG 300	Major Requirement (Technical Elective: Category D)	
MLDS Electives		
MLDS Approved Elective	Unrestricted Elective	Unique Course
MLDS Approved Elective	Unrestricted Elective	Unique Course

Potential option: Hybrid specialization using COMP_SCI 214 and COMP_SCI 348 as Technical Electives

** Note: COMP_SCI 214 and COMP_SCI 348 can both count towards the Technical Elective: Category B requirement; DATA_ENG 300 can count toward the Technical Elective: Category D requirement. Students are only required to take 1 Technical Elective: Category B, but may opt to have a secondary Category B requirement fulfill the Technical Elective: Category D requirement.*