

MLDS Minor Advising for Manufacturing and Design Engineering (MaDE) Majors

Note: The guidance here is based on the [2023-2024 Manufacturing and Design 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 [Manufacturing and Design Engineering website](#).

▸ MaDE Major Requirements

Major Requirement

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.

The guides below represent some of the possible paths for Manufacturing and Design 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 MaDE degree	Notes
<i>Programming Foundations</i>		
COMP_SCI 150	Major Requirement (Core)	
<i>Statistics Foundation</i>		
IEMS 201	Major Requirement (Core)	
<i>Machine Learning Specialization</i>		
COMP_SCI 111	Unrestricted Elective	Unique Course
COMP_SCI 214	Unrestricted Elective	Unique Course
COMP_SCI 348	Major Requirement (Technical Elective: 300-Level)	
COMP_SCI 349	Unrestricted Elective	Unique Course
<i>MLDS Electives</i>		
IEMS 307	Major Requirement (Core)	
MLDS Approved Elective	Unrestricted Elective	Unique Course

Potential option: Machine Learning specialization using COMP_SCI 348 as a Technical Elective

* Note: COMP_SCI 214, COMP_SCI 348, and COMP_SCI 348 can all fulfill the Technical Elective requirement;



Potential Data Science Specialization Tracks

Course Selection	How this counts towards your MaDE degree	Notes
<i>Programming Foundations</i>		
COMP_SCI 150	Major Requirement (Core)	
<i>Statistics Foundation</i>		
IEMS 201	Major Requirement (Core)	
<i>Data Science Specialization</i>		
COMP_SCI 217	Unrestricted Elective	Unique Course
IEMS 304	Unrestricted Elective	Unique Course
DATA_ENG 200	Unrestricted Elective	Unique Course
DATA_ENG 300	Major Requirement (Technical Elective: 300-Level)	
<i>MLDS Electives</i>		
IEMS 307**	Major Requirement (Core)	
MLDS Approved Elective	Unrestricted Elective	Unique Course

Potential option 1: Data Science specialization using IEMS 307 as a double count

** This is an example course that could double count– many others also could. [See approved MLDS electives for more options.](#)



Course Selection	How this counts towards your MaDE degree	Notes
<i>Programming Foundations</i>		
COMP_SCI 150	Major Requirement (Core)	
<i>Statistics Foundation</i>		
IEMS 201	Major Requirement (Core)	
<i>Data Science Specialization</i>		
COMP_SCI 217	Unrestricted Elective	Unique Course
IEMS 304	Major Requirement (Technical Elective: 300-Level)	
DATA_ENG 200	Unrestricted Elective	Unique Course
DATA_ENG 300	Major Requirement (Technical Elective: 300-Level)	
<i>MLDS Electives</i>		
MLDS Approved Elective	Unrestricted Elective	Unique Course
MLDS Approved Elective	Unrestricted Elective	Unique Course

Potential option 2: Data Science specialization using with MLDS Electives as unique courses



Potential Hybrid Specialization Tracks

Course Selection	How this counts towards your MaDE degree	Notes
<i>Programming Foundations</i>		
COMP_SCI 150	Major Requirement (Core)	
<i>Statistics Foundation</i>		
IEMS 201	Major Requirement (Core)	
<i>Hybrid Specialization</i>		
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: 300-Level)	
<i>MLDS Electives</i>		
IEMS 307**	Major Requirement (Core)	
MLDS Approved Elective	Unrestricted Elective	Unique Course

Potential option: Hybrid specialization using IEMS 307 as a double count

** This is an example course that could double count– many others also could. [See approved MLDS electives for more options.](#)