MATERIALS SCIENCE AND ENGINEERING DEGREE

Students must also complete the Undergraduate Registration Requirement (https://catalogs.northwestern.edu/undergraduate/requirements-policies/undergraduate-registration-requirement) and the degree requirements of their home school.

Course Requirements (48 units)

Core Courses (32 units)

4 mathematics courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

4 engineering analysis and computer proficiency courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

4 units of basic science:

PHYSICS 135-2 & PHYSICS 136-2

PHYSICS 135-3 & PHYSICS 136-3

CHEM 131-0 & CHEM 141-0

CHEM 132-0 & CHEM 142-0

PHYSICS 140-2 & PHYSICS 140-3

or CHEM 151-0 & CHEM 152-0

or CHEM 161-0 & CHEM 162-0

or CHEM 171-0 & CHEM 181-0

or CHEM 172-0 & CHEM 182-0

37 design and communications courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

5 basic engineering courses:

CIV_ENV 216-0

MAT_SCI 301-0

MAT_SCI 314-0

MAT_SCI 315-0

1 additional course from the remaining 5 McCormick basic engineering categories: Computer architecture and numerical methods, Computer programming, Electrical science, Probability and statistics, Computer simulation and engineering, and Systems engineering and analysis (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

7 social sciences/humanities courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

5 unrestricted electives (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

Major Program (16 units)

1 required courses:

MAT_SCI 316-1 & MAT_SCI 316-2

MAT_SCI 331-0 & MAT_SCI 331-2

MAT_SCI 332-0 & MAT_SCI 332-2

MAT_SCI 351-1 & MAT_SCI 351-2

MAT_SCI 361-0 & MAT_SCI 361-2

MAT_SCI 390-0 & MAT_SCI 390-2

MAT_SCI 391-0 & MAT_SCI 391-2

MAT_SCI 392-0 & MAT_SCI 392-2

MAT_SCI 393-0 & MAT_SCI 393-2

MAT_SCI 394-0 & MAT_SCI 394-2

MAT_SCI 395-0 & MAT_SCI 395-2

MAT_SCI 396-0 & MAT_SCI 396-2

MAT_SCI 397-0 & MAT_SCI 397-2

MAT_SCI 398-0 & MAT_SCI 398-2

MAT_SCI 399-0 & MAT_SCI 399-2

Technical Electives

5 technical electives in engineering, natural sciences (usually chemistry or physics), and mathematics chosen to fulfill an area of concentration

- No more than 2 of the 5 units may be 200-level courses.
- At least 2 of the 5 must be 300-level materials science and engineering courses.
- Examples of programs for concentrations in biomaterials, design and manufacturing, electronic materials, metals and ceramics, nanomaterials, polymeric materials, surface science, and sustainable materials are described in a departmental manual for degree candidates.
- No more than 1 unit of MAT_SCI 394-0 Honors Project in Materials Science or MAT_SCI 399-0 Projects may be counted.

1 See general requirements (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext) for details.

2 PHYSICS 140-2 Fundamentals of Physics may substitute for PHYSICS 135-2 General Physics. PHYSICS 140-3 Fundamentals of Physics may substitute for PHYSICS 135-3 General Physics. Associated labs are PHYSICS 136-2 General Physics Laboratory and PHYSICS 136-3 General Physics Laboratory.