Materials Science and Engineering BS Degree Requirements
for students beginning in or after Fall 2019

Underpinning Mathematics/Science: (min 40 cr)

Mathematics (16 cr)
- Math 221 Calculus and Analytical Geometry
- Math 222 Calculus and Analytical Geometry
- Math 234 Calculus-Functions of Several Variables
- Math 319 Ordinary Differential Equations (DEQs)
  or Math 320 Linear Algebra and DEQs

Statistics (3 cr)
- Stat 324 Introductory Applied Statistics for Engineers

Physics (10 cr)
- Phys 201 or Phys 207 or Phys 247 General Physics I
  or EMA 201 and EMA 202
- Phys 202 or Phys 208 or Phys 248 General Physics II

Chemistry (min 8 cr)
- Chem 109 Advanced General Chemistry
  or Chem 103 & 104 General Chemistry
- Chem 343 Introductory Organic Chemistry
  or Chem 341, also Intro Organic Chemistry

Science Elective (min 3 cr) Select one of:
- Chem 311 Chemistry Across the Periodic Table
- Chem 327 Fundamentals of Analytical Science
- Chem 329 Fundamentals of Analytical Science
- Chem 345 Intermediate Organic Chemistry
- Phys 205 Modern Physics for Engineers
- Phys/ECE 235 Introduction to Solid State Electronics
- Phys 241 or 244 Intro to Modern Physics
- Biology 101 Animal Biology
- Biology 151 Introductory Biology
- Zoology 153 Introductory Biology

Engineering Foundation: (min 4 cr)

Intro to Engineering Elective:
Select from CoE Intro to Eng. Courses, MSE 260 preferred 2 cr.

Computer Science* (min 3 cr) Select one of:
- CS 310 Problem Solving Using Computers
  (recommended)
- CS 200, 300 or 400 Programming I, II or III*
- CS 220 or 320 Data Programming I or II

- Among CS options, 310 is most recommended. 300 may alternatively
  be of interest to students emphasizing computational materials science.
  200 or 400 may be substituted for 300 depending on prior CS
  experience.

MSE Disciplinary Core Courses: (43 cr)
- MSE 330 Thermodynamics of Materials
- MSE 331 Transport Phenomena in Materials
- MSE 332 Macroprocessing of Materials
- MSE 333 Microprocessing of Materials
- MSE 351 Mat Sci-Structure Property Relationships
- MSE 352 Materials Science-Transformation of Solids
- MSE 360 Materials Laboratory I
- MSE 361 Materials Laboratory II
- MSE 362 Materials Laboratory III
- MSE 421 Introduction to Polymer Materials
- MSE 441 Deformation of Solids
- MSE 451 Introduction to Ceramic Materials
- MSE 456 Electrical, Optical and Magnetic Properties
- MSE 460 Introduction to Computational Mat Sci
- MSE 470 Capstone Project I
- MSE 471 Capstone Project II

Emphasis Electives: (12 cr)
Select 6 credits of MSE courses numbered 400 or above, BME
400, ME 417, ME 418, and ME 419. These courses constitute the
MSE portion of the Emphasis Electives on the curriculum flow
chart. #

#Independent study MSE 699 does not count towards these credits

Select 6 additional credits of engineering, science, and
math/statistics coursework related to your chosen Emphasis area.
These can come from MSE courses numbered 400 or above and
other engineering, science, math, and statistics courses numbered
300 or above. These courses constitute the Tech Emphasis
Electives on the flow chart %

%At most, 3 of these credits may come from MSE 699, MSE 001
co-op, and independent study courses in other engineering
departments

All emphasis electives must be chosen in consultation with and
approved by your MSE faculty advisor before the advisor consent
on your DARS is satisfied.

Additional College and University Requirements: (22 cr)

Communications (6 cr)
- EPD 397 Technical Communication
- Comm A ENG 100, LSC 100, COM ARTS 100 or ESL 118

Liberal Studies Electives (16 cr).
Same as College of Engineering Liberal Studies Elective
requirements.

Credit Minimum for Graduation: 128 cr
The above subject requirements can be met with 121 credits of UW
courses. Students must complete 121 credits of course work to
earn the Bachelor of Science degree. The 7 elective credits may be
earned by choosing elective courses that carry more credits than
the requirement’s minimum credit load or by taking any additional
courses of the student’s choice.

Notes:
- Except for the liberal studies requirements, the same course credits may
  be applied to only degree elective requirement. MS&E follows the
  College of Engineering policies with regard to application of liberal
  studies credits across the liberal studies requirements.