APPLIED MATHEMATICS 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: ²

PHYSICS 135-2 General Physics
& PHYSICS 135-3 and General Physics

2 units chosen from McCormick-approved basic science courses

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

5 basic engineering courses:

ECE 230-0 Programming for Engineers
or ECE 211-0 Fundamentals of Computer Programming II

4 Courses from at least three of the following areas: Computer architecture and numerical methods, Electrical science, Fluids and solids, Materials science and engineering, Systems engineering and analysis, Thermodynamics (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)

7 engineering sciences and applied mathematics courses:

ES_APPM 311-1 Methods of Applied Mathematics
& ES_APPM 311-2 and Methods of Applied Mathematics
ES_APPM 312-0 Complex Variables
or MATH 325-0 Complex Analysis
ES_APPM 322-0 Applied Dynamical Systems
ES_APPM 346-0 Modeling and Computation in Science & Engineering
MATH 334-0 Linear Algebra: Second Course
ES_APPM 421-1 Models in Applied Mathematics

2 courses chosen from:

EECS 302-0 Probabilistic Systems
IEMS 202-0 Probability
IEMS 303-0 Statistics
IEMS 310-0 Operations Research
IEMS 313-0 Foundations of Optimization
MATH 310-1 Probability and Stochastic Processes
MATH 310-2 Probability and Stochastic Processes
MATH 310-3 Probability and Stochastic Processes

1 mathematical modeling course chosen from:

ES_APPM 399-0 Projects
ES_APPM 495-0 Selected Topics in Applied Mathematics (subject to department approval)

4 courses in engineering or the sciences at the 300 level or higher leading to an approved concentration in one of the following areas:

- Engineering
- Mathematical social sciences (e.g., economics)
- Mathematics (e.g., discrete mathematics or analysis)
- Numerics
- The sciences

2 technical electives at the 300 level or higher in engineering, science, or mathematics

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

2 Maximum of 3 basic science units may come from any one area