Undergraduate Mathematics Courses

University of Michigan
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This document gives a visual guide to the math courses available to undergraduate students. All of the information given here, as well as additional information (such as course content and typical student body) can be found in the Program Guide.

Some courses have potential routes to them other than those listed here. Students should make an appointment with a Math Advisor to discuss their own situation and determine a plan that is appropriate for them. Appointments can be made at https://lsa.umich.edu/math/undergraduates/advising.html.

105 Data, Functions and Graphs

145 Houghton Scholars Calc Wkshp I

115 Calculus I

275 Intro to Cryptology

185 Honors Calculus I

422 Risk Management & Insurance

427 Retirement Plans

147 Interest Theory

289 Problem Solving

310 Chance and Choice

146 Houghton Scholars Calc Wkshp II

116 Calculus II

Calculus II

276 Explorations in Calculus

186 Honors Calculus II

156 Applied Honors Calculus II

Linear Algebra

214 is for CoE CS and IOE majors.

417 is computational, for Engineering and Natural Sciences majors.

419 is similar to 417, with more theory.

217, which also introduces proof-writing, is for Math & Statistics majors.

417 Matrix Algebra

419 Linear Spaces & Matrix Theory

214 Applied Linear Algebra

217 Linear Algebra (proofs)

201 Intro to Math Writing

Multivariable Calculus

215 Multivariable & Vector Calculus

205 Calculus of Several Variables

285 Honors Multivar. & Vector Calculus

Introductory Differential Equations

286 Honors Differential Equations

216 Intro to Differential Equations

316 Differential Equations

Note that math majors should take Math 286 or 316.

Further Differential Equations

450 Math Methods for Engineers

454 Boundary Value Problems

Or 451

354 Fourier Analysis

404 Intermediate Differential Equations

486 Secondary Math

295 Honors Math I

296 Honors Math II

297 Intensive Intro to Analysis

395 Honors Analysis I

493 Honors Algebra I

396 Honors Analysis II

494 Honors Algebra II

475 Elementary Number Theory

476 Comp'l Lab in Number Theory

571 Numerical Linear Algebra

572 Numerical Methods with Differential Equations

371 Numerical Methods

471 Intro to Numerical Methods

472 Num. Meth. With Financial Applications

466 Mathematical Ecology

460 Applied Stochastic Processes

462 Mathematical Models

463 Math Modeling in Biology

568 Mathematical Neuroscience

424 Interest and Insurance

425 Probability

520 Life Contingencies

521 Life Contingencies II

523 Loss Models

524 Loss Models II

STAT 426

445 Entropy and Information

547 Mathematics of Data

EECS 183

217/296 recommended for 465.

314 Math of Blockchains & Cryptocurrency

465 Combinatorics

403 Intro to Discrete Math

403 is for Data Science students. Math majors should take 465 instead.

567 Coding Theory

528 Casualty Insurance

561 Linear Programming

562 Continuous Optimization Methods

312 Applied Modern Algebra

412 Intro to Modern Algebra

Alternative 416 prerequisite: Math 465 and EECS 280.

416 Theory of Algorithms

481 Intro to Math Logic

451 Intro to Analysis I: Single Var

351 Principles of Analysis

550 Complex Systems

423 Mathematics of Finance

565 Combinatorics & Graph Theory

566 Combinatorial Theory

431 Explorations in Euclidean Geometry

433 Differential Geometry

440 Lab of Geom. (LoG(M))

389 Explorations in Math

420 Advanced Linear Algebra

525 Probability Theory

490 Intro to Topology

551 Intro Measure Theory

452 Intro Analysis II: Multivar

555 Complex Analysis

526 Discrete State Stochastic Processes

593 Algebra I

575 Number Theory

590 Topology

556 Applied Functional Analysis

557 Applied Asymptotic Analysis

474 Intro to Stochastic Analysis in Finance

594 Algebra II

597 Real Analysis I

591 Differential Topology

558 Applied Nonlinear Dynamics

596 Complex Analysis I

592 Algebraic Topology

582 Set Theory

KEY

Area (approximate):

- Graduate Course
- Foundational Course
- Actuarial & Finance
- Analysis
- Combinatorics
- Geometry/ Topology
- Number Theory
- Cross-listed from other department
- Honors Course
- Courses with related content
- Algebra
- Applied
- Education
- Logic
- Other
- Other dept.

Term(s) offered:

- 🦉 Fall
- ❄ Winter
- ☀ Spring and/or Summer
- ⇄ Sporadic

Typical class format:

- Traditional lecture style
- 🦉 Inquiry-Based Learning (IBL)

Unmarked courses are taught with active learning, or a mixture of lecture and IBL.