

# Mathematics at Bryn Mawr

Both Bryn Mawr and Haverford students may complete a major or minor in Mathematics at Bryn Mawr.

The Mathematics curriculum is designed to expose students to a wide spectrum of ideas in modern mathematics, train students in the arts of logical reasoning and clear expression, and provide students with an appreciation of the beauty of mathematics and of its vast applicability.

Within the major, students may complete the requirements for secondary school certification. In addition, there are various programs that, for suitably advanced students, can be combined with the major. These include the combined A.B./M.A. Program at Bryn Mawr and a variety of engineering programs (3+2 A.B./B.S. Programs with the California Institute of Technology or Columbia University, and the 4+1 A.B./M.E. program with the University of Pennsylvania).

## Major in Mathematics

A *minimum* of 10 courses is required for the Mathematics Major at Bryn Mawr College, including the **6 core courses** listed below and **4 additional electives** at or above the 200-level. The course numbers HXXX refer to Haverford College equivalents. With the exception of Senior Conference, equivalent courses at Haverford or elsewhere may be substituted for Bryn Mawr courses with approval of the major advisor.

### 6 Core Requirements:

- MATH B201 Multivariable Calculus (MATH H121 or MATH H216)
- MATH B203 Linear Algebra (MATH H215)
- MATH B301 Real Analysis I (MATH H317) [*Writing Attentive*]
- MATH B303 Abstract Algebra I (MATH H333) [*Writing Attentive*]
- MATH B302 Real Analysis II (MATH H318) **or**  
MATH B304 Abstract Algebra II (MATH H334)
- MATH B398 or B399 Senior Conference

**[NEW!] With permission of the Mathematics Department, certain other 300-level or 500-level math courses may be substituted for MATH B302 or MATH B304. In particular, for the 2020-2021 academic year, these include MATH B325 Advanced Topics in Applied Mathematics, MATH B312 Topology, MATH B512 General Topology, MATH B525 Algebraic Topology.**

Every major at Bryn Mawr has a writing requirement. In Mathematics, both MATH B301 and MATH B303 qualify as “Writing Attentive”; two Writing Attentive courses will satisfy the writing requirement.

Mathematics majors are encouraged to complete their core requirements other than Senior Conference by the end of their junior year. Senior Conference must be taken during the senior year. Students considering the possibility of graduate study in mathematics or related fields are urged to go well beyond the minimum requirements of the major. In such cases, a suitable program of study should be designed with the advice of a major advisor.

**Electives:**

In addition to the 6 core courses, all majors are required to take 4 electives.

**Any mathematics course at or above the 200-level (including graduate courses) can be used as an elective towards the major.**

In addition, some Bryn Mawr and Haverford courses from departments other than mathematics that have a substantial mathematical content may also be counted as electives. Currently, courses that count as math electives include:

- CHEM B221: Physical Chemistry I;
- CHEM B321: Advanced Physical Chemistry,
- CMSC B231: Discrete Mathematics;
- CMSC B310: Computational Geometry;
- CMSC B340: Analysis of Algorithms;
- ECON B304/ECON H304: Econometrics;
- PHYS B306: Mathematical Methods in the Physical Sciences;
- PHYS B328: Galactic Dynamics and Mechanics.

A student may also, in consultation with a major advisor, petition the Department to accept additional courses as electives.

**Double Counting and Pre-College Transfers:**

- Incoming students can transfer up to 2 courses towards the major.
- At most 3 courses can be doubled counted for a second major.

**Honors in Mathematics**

A degree with honors in mathematics is awarded by the Department to students who complete the major in mathematics and also meet the following further requirements:

- at least two additional mathematics courses at the 300 level or above (which may include Supervised Work MATH B403 and Senior Research MATH B400);
- a grade point average of at least 3.6, calculated using the grades from 10 math courses: the six math core courses and the highest grades in four math electives (excluding 400-level);
- grades of 3.7 or 4.0 in all 400-level math courses;
- completion of a commendable project consisting of a written thesis and an oral presentation of the thesis.

An honors project normally requires two semesters of independent study with a faculty member. The formal decision on honors is determined by a vote of the math faculty.

We encourage any students interested in pursuing honors to approach a faculty member at the end of their junior year to determine the availability of a project of mutual interest.

## Minor in Mathematics

The math minor at Bryn Mawr requires **5 courses** in mathematics at Bryn Mawr or Haverford.

- Two must be at the 300-level or higher,
- The remaining three must be at least at the 200-level or higher; the Haverford course, MATH H121, Multivariable Calculus, counts here towards the math minor as if it were a 200-level course.

Some Bryn Mawr and Haverford courses from departments other than mathematics may also be counted towards the math minor; see the list at the top of page 2. These courses may only be counted as 200-level courses for the purposes of the math minor, regardless of their course numbers within their own departments. It may also be possible to count certain math courses taken at other colleges and universities towards the math minor; this requires special permission from the Mathematics Department.

**At most one course may double-count towards both a student's major and the math minor.**

## Faculty Advisors

- ★ Senior ('21) Advisor: Leslie Cheng
- ★ Juniors ('22) Advisor: Erica Graham,
  - ★ Study Abroad Advising: Leslie Cheng
- ★ Sophomore ('23) Advisor: Lisa Traynor
- ★ Freshman ('24) Advisor : Lisa Traynor
  
- ★ Math Minor Advisor: Peter Kasius
- ★ Non-Major Advisor: Amy Myers
  
- ★ A.B./M.A. Advisor: John Bergdall (Fall); Djordje Milićević (Spring)
- ★ 4+1 A.B./M.E. program with the University of Pennsylvania Advisor: Leslie Cheng
- ★ 3+2 A.B./B.S. Programs with the Caltech or Columbia University: Mark Matlin (Physics)