

BIO-MATHEMATICAL SCIENCES

Overview and Contact Information

Refinements to life science research technologies have led to an appreciation of the daunting complexities of biological phenomena. Sorting through potential mechanisms and patterns to develop testable hypotheses based on biological data requires collaboration with mathematicians, statisticians, and computer scientists.

While cutting edge life science research increasingly involves such collaborations, researchers are often stymied by the different languages of their disciplines. The goal of this program is to create educational structures that help Five College students become scientifically multilingual in fields of life and quantitative sciences by providing the means for each student to trace their own intentional pathway across the disciplines.

See Also

- Biological Sciences (<http://catalog.mtholyoke.edu/areas-study/biological-sciences/>)
- Mathematics (<http://catalog.mtholyoke.edu/areas-study/mathematics/>)

Contact Information

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<https://www.fivecolleges.edu/biomathematics> (<https://www.fivecolleges.edu/biomathematics/>)

Requirements for the Certificate

A minimum of six courses:

| Code | Title | Credits |
|----------------------|---|----------|
| | One gateway course: Frontiers in Bio-Mathematics | |
| | 4 courses in the life sciences (Biology, Neuroscience, Biochemistry) ¹ or 4 courses in the quantitative sciences (Mathematics, Statistics, Computer Science) ¹ | |
| | A capstone course in bio-mathematical or bio-statistical methods or an honors thesis in a bio-mathematical sciences topic | |
| | A research experience of one summer (or equivalent) with a team of life and mathematical science mentors | |
| Total Courses | | 6 |

¹ The four courses are expected to complement the student's major. For example, life sciences majors would take four courses on the mathematics/statistics/computer science side and, alternatively, quantitative science majors would take four courses on the life sciences side. Hybrid courses, e.g., computational biology, bioinformatics, biostatistics, would count toward either life sciences or quantitative sciences.

Additional Specifications

- A list of courses approved for the certificate is available on the certificate's website (<https://www.fivecolleges.edu/apastudies/courses/>).