APPLIED MATHEMATICS

Faculty: Bhattacharya, Chair; Clark, Rice, Rittenhouse, Robeva, Sutton, and Wiedemann.

The major in applied mathematics combines classical study of mathematics with modern computational methods and applications to other disciplines. Students pursuing the major will develop multiple modes of evidence including proof, simulation, computation, and visualization, and they will apply their skills to real-world problems in courses taught by mathematics faculty and in a chosen cross-disciplinary area.

- Applied Mathematics Major (https://rmc.courseleaf.com/programs/applied-mathematics/applied-mathematics-major/)

APMA 407 - Methods and Models in Applied Mathematics (3 Hours)
An exploration of mathematical methods through example applications. Students will read articles on the application of mathematics to specific problem areas and conduct investigations of their own. Possible problem areas include signal processing, data compression, identification of planetary orbits, resonance analysis, and optimal transport. Possible methods include Fourier series, the singular value decomposition, linear least squares, eigenvalues for continuous systems, and the calculus of variations. PHYS 250 may be used in place of MATH 213. Offered alternate years.
Prerequisite(s): MATH 203 and 213

APMA 442 - Numerical Analysis (3 Hours)
The design, coding, and analysis of algorithms for problems from continuous mathematics. Numerical methods for interpolation, integrals, systems of linear equations, zeros of functions, and differential equations. Offered alternate years.
Prerequisite(s): MATH 213 or PHYS 250