The ACMS program collaborates with many different areas across the academic spectrum using mathematical and statistical models and computer simulation to measure and examine data. Graduate students in the ACMS program work with others in a variety of fields, ranging from science and engineering to finance. They carry out detailed steps and integrate input to create a wide array of mathematical models and simulations, and develop innovative statistical methodologies for data analysis.

**Research Areas**

Faculty and students in ACMS work closely with their colleagues at Notre Dame, and researchers from other universities and research institutes on a wide range of projects, including:

- Applied Partial Differential Equations
- Computational Neuroscience
- Mathematical and Computational Biology
- Numerical Differential Equations
- Scientific Computing
- Big Data and Statistical Learning
- Network Analysis
- Bayesian Modeling and Methodology
- Biostatistics and Bioinformatics
- Methodological and Applied Statistics

**Ongoing Projects**

Within the research areas that ACMS faculty and graduate students collaborate across campus, groundbreaking work is being conducted. Some of the current projects taking place within ACMS include:

- Bayesian Asymptotics modeling and methodology, stochastic approximation of the Hamiltonian Monte Carlo method, statistical analysis of next generation sequencing data, data privacy protection methods.
- Theoretical and methodological foundations for big data analysis, statistical learning of big data, Gaussian graphical models, social network analysis, statistical application to climate and efficient algorithms for fitting very large data set, both in the context of Gaussian Processes and of Spatial Extremes.
- Modeling blood flow and clotting, bruising, cell differentiation, myxobacteria dynamics, tumor growth, neural circuits, disease transmission, diffusion in heterogeneous and dynamic environments.
- Developing numerical methods (especially high-order methods) to solve systems of differential equations and polynomials. Numerical solution and convergence of free boundary problems.
- Computational and Mathematical Methods to study how coherent function emerges from the interplay between structure and dynamics in the brain.
The Graduate School at the University of Notre Dame is home to more than 2,400 students in over 47 programs of study, from disciplines ranging from science and engineering to humanities and the social sciences.

Financial Support
University-wide, about 97 percent of all graduate students receive full-tuition scholarships that include all fees except a small student activity fee.

Fellowships and Scholarships
In addition to the tuition scholarships, 94 percent of all doctoral students receive multi-year fellowships or assistantships that provide stipends for living expenses. For the ACMS program, the base stipend level is $25,821 for nine months (for the 2022–23 academic year) though select fellowships provide higher levels of support up to $42,000.

Additional Support
ACMS students who receive the base stipend are also eligible for full-coverage of their medical insurance premiums. In addition, the Graduate School provides additional funding for students for professional development activities. Students may apply for these additional funds several times throughout the year to pay expenses related to traveling for conferences and workshops or to conduct research around the world.

The South Bend Area
One factor that makes the fellowship amounts even more attractive is the low cost of living in the South Bend area. Some graduate students are able to purchase homes and maintain a high standard of living while attending Notre Dame.

Ready to Apply?
The application deadline for the 2023–24 academic year is January 15, 2023. All materials for application should be submitted through the Graduate School’s application system, which can be found at gradconnect.nd.edu/apply