

Core Courses for the Ph.D. in Applied Mathematics for the Life and Social Sciences

AML 610 Topics in Applied Mathematics for the Life and Social Sciences

This is an introductory course in Applied Mathematics for the Life & Social Sciences and is combined with the first semester of a two semester course in Mathematical Biology. The goal of the course is to provide a solid introduction to the modeling of biological and social processes as well as to some of the mathematical approaches involved in their analysis and simulation.

AML 611 Research Design and Proposal Writing

This is a collaborative, practice-oriented course aimed at building capacities in research design and proposal writing – developing abilities to identify and formulate a great research idea and then translate it into a convincing, cogent, and clear plan for social science research. Each student will develop their own research ideas, discuss their development with the class regularly, and turn these into an effective proposal. This is a challenging class: you will be required to present on your work and deal with constructive criticism from the instructor and your peers each week, as well as collegially debate, consider, and help formulate others' research ideas.

AML 612 Applied Mathematics for the Life and Social Sciences Modeling Seminar

This seminar presents and applies mathematical modeling principles and techniques for representing the structure and operation of complex life and social systems and processes. It will help students identify potential problems in the life and social sciences and the corresponding mathematical and statistical methods that can be used for their study.

AML 613 Probability and Stochastic Modeling for the Life and Social Sciences

This course will alternate between creating and exploring a variety of types of stochastic models (with homework assignments) and reading, discussing, writing about current research papers which use these models. Stochastic and deterministic models will be compared and appropriate contexts explored. The interests of the class will influence the choice of topics.

The following upper-division undergraduate course is also available for credit (not required) to graduate students.

AML 406 Directed Reading and Research in Applied Mathematics for the Life and Social Sciences

This is a collaborative, practice-oriented course where students will produce individual or team initiated research project reports on pertinent topics in life and social sciences. Students will select topics, design, identify and formulate effective research ideas and then translate them into a clear and effective research plans.