

BMA Course Requirements

Student name:

Date entered program:

Degree sought: Ph.D.

Concentration:

Students must acquire a **core** of knowledge in three areas: Biological Sciences, Mathematical Sciences (including statistics), and Biomathematics. In addition, students must demonstrate professional competence in a **concentration** area, which is either a biological science, or an aspect of the mathematical methods useful in biomathematics. Courses taken to satisfy “core” requirements are usually counted as part of the “concentration”, with the approval of the student’s committee. Course requirements outside BMA can be met through an examination that demonstrates proficiency in the specific subject area, or by demonstrating that an equivalent course was completed at another University.

Core Requirements for Ph.D.

Biological Sciences. Three upper level biological science courses, representing at least two different perspectives (e.g., physiology and evolution) are required.

Biology courses taken, incl. full title, location and date:

	(extra)

Mathematical Sciences. ST 512R (or 511 and 512) is required. In addition, 3 courses chosen from the following: Statistical theory: ST 521, 522, 546, 778, 779, 793, 794. Time series: ST 730, 782, 783. Stochastic processes: ST 746, ECE 714. Numerical analysis: MA 427, 428, 580, 584, 587, 780, 783, 785, 788. Ordinary differential equations: MA 532, 600, 601. Partial differential equations: MA 534, 734. Control theory: MA 531, 731.

Mathematical Sciences courses taken, incl. full title, location and date:

ST 512R (or 511 and 512)	

Biomathematics. For integration of the biological and mathematical knowledge, Ph.D. students are required to take four biomathematics courses: BMA 771-772 (Biomathematics I & II), BMA 773 (Stochastic Modeling), and BMA 774 (PDE Modeling in Biology). Three semesters of BMA 801 must be taken for credit. All students should register for 6 hours of BMA 893.

Dates of Biomath Core courses taken

BMA 771	BMA 772
BMA 773	BMA 774
BMA 801	
BMA 893	

(Courses other than those listed may be substituted with the approval of the students' committee and the Biomathematics Program Director.)

Concentration Requirements for Ph.D.

A concentration in biological science consists of either a Ph.D. co-major in any biological sciences degree program at NCSU, or a coherent sequence of 5 courses approved by the student's committee, from one or two of the following four areas of biology: cellular and molecular biology; genetics and development; biophysical and biomedical sciences, and physiology; ecology and evolution.

A concentration in mathematical methods consists of either a Ph.D. co-major in Mathematics, Statistics, Operations Research, or Computer Studies, or a coherent sequence of 5 courses approved by the student's committee, chosen from Mathematics, Statistics, Operations Research, Computer Science, and Computer Studies. Students choosing this concentration are strongly encouraged to take a 2-semester sequence in the biological sciences (which could be 2 of the 3 required core courses in biological science).

For either concentration, the sequence must consist of a 2-semester sequence in one area, and 3 electives, including at least one course at the 700 level.

Courses that count for concentration, incl. full title, location and date:

	(extra)

Other courses:

Notes: