Sample Plan of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

Applied Mathematical and Computational Sciences, PhD

Course Title Hours
Any Semester
72 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. a

Hours 0

First Year
Fall
MATH:5200 Introduction to Analysis I b 3
MATH:5600 Nonlinear Dynamics with Numerical Methods b 3
MATH:5800 Numerical Methods I b 3
MATH:5900 First-Year Graduate Seminar 1

Hours 10

Spring
AMCS:5900 Seminar: Applied Mathematical and Computational Sciences 1
MATH:5210 Introduction to Analysis II b 3
MATH:5700 Introduction to Partial Differential Equations b 3
MATH:5810 Numerical Methods II b 3
AMCS Lectures on Programming 3

Hours 10

Summer
MATH:5950 Qualifying Exam Preparation Seminars 0
Exam: PhD Qualifying Exams c

Hours 0

Second Year
Fall
MATH:6600 Ordinary Differential Equations I d 3
MATH:6850 Advanced Numerical Methods I d 3
Outside Area Preparation course e, f 3

Hours 9

Spring
MATH:4820 Optimization Techniques 3
MATH:6610 Ordinary Differential Equations II d 3
MATH:6860 Advanced Numerical Methods II d 3

AMCS Lectures on Programming

Hours 9

Third Year
Fall
AMCS:7990 Reading and Research 2
MATH:5750 or MATH:5000 Mathematical Biology I d 3
or MATH:5400 or Abstract Algebra I d
Outside Area course (numbered 6000 or above) e, f 3

Hours 8

Spring
Exam: PhD Comprehensive Exam
AMCS:7990 Reading and Research 2
MATH:5010 or MATH:5410 Abstract Algebra II d 3
or MATH:5760 or Introduction to Smooth Manifolds
Outside Area course (numbered 6000 or above) e, f 3

Hours 8

Fourth Year
Fall
MATH:4700 Partial Differential Equations and Applications 3
AMCS:7990Reading and Research 3

Hours 6

Spring
MATH:4060 Discrete Mathematical Models 3
AMCS:7990 Reading and Research 3

Hours 6

Fifth Year
Fall
MATH:4840 Mathematics of Machine Learning 3
AMCS:7990 Reading and Research 2

Hours 5

Spring
GRAD:6003 Doctoral Final Registration 1
Exam: PhD Final Exam g

Hours 1

Total Hours 72

a Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.
b Students must pass (grade of B-minus or higher in each course) all three core course sequences (or be exempted) in the first two years of graduate study.
c Taken in August.
d Students must take and successfully pass two MATH courses numbered 5000-5999, and complete at least 12 s.h. of MATH courses numbered 6000-7799 with the exception of the seminars. Work with faculty advisor to determine appropriate graduate coursework and receive departmental approval.
e Students must take and pass PhD level courses in areas in which mathematics is applied: one preparation course in the first two years and then two advanced courses outside of mathematics at the 6000 level or above.
f Work with faculty advisor to determine appropriate graduate coursework and sequence.
Dissertation defense.