Department of Software Engineering
Building 70 # 1690
Phone: (585) 475-5461

Application Domain Description

UNDERGRADUATE

Name of domain: Computational Mathematics

Computational mathematics prepares students for a career that incorporates extensive software engineering and computer science skills to solve mathematically modeled physical problems.

Courses (Select two of the following)		
Course number	*Course title*	*Prerequisites*
MATH-219	Multivariable Calculus	MATH-172 or 182, or 182a, or equivalent
MATH-231	Differential Equations	MATH-173 or 182, or 182a, or equivalent
MATH-326	Boundary Value Problems	(MATH-231 and MATH-219) OR MATH-221
MATH-221	Multivariable and Vector Calculus	MATH-172 or 182, or 182a, or equivalent
MATH-241	Linear Algebra	MATH-190 or MATH-200 or MATH-219 or MATH-220 or MATH-221 or MATH-221H or equivalent course.
MATH-251	Probability and Statistics I	1016-232 or MATH-172 or MATH-182 or equivalent.
MATH-331	Dynamical Systems	MATH-231 and MATH-241 or equivalent courses.
MATH-431	Real Variables I	(MATH-190 or MATH-200) and (MATH-220 or MATH-221 or MATH-221H or 1016-410 or 1016-328) or equivalent.
MATH-381	Complex Variables	MATH-219 or MATH-221 or equivalent.
MATH-421	Mathematical Modeling	(MATH-220 or MATH-221 or 1016-410 or 1016-328) and MATH-241 and MATH-251 or equivalent.
MATH-311	Linear Optimization	(MATH-220 or MATH-221 or 1016-410 or 1016-328) and MATH-241 and MATH-251 or equivalent.
MATH-371	Number Theory	MATH-190 or MATH-200

In addition select *ONE* of the following

MATH-432	Real Variables II	MATH-431 or equivalent.
MATH-341	Advanced Linear Algebra	MATH-241 or equivalent.
MATH-351	Graph Theory	MATH-190 or MATH-200 or equivalent
MATH-441	Abstract Algebra I	MATH-190 or MATH-200) and MATH-241 or equivalent

Domain Prerequisites	
Course number	*Course title*
MATH-182	Project-Based Calculus II (SE required course)
MATH-190	Discrete Mathematics for Computing (SE required course)

Considerations

Note that in most cases you may earn a minor in mathematics by taking only 2 more math courses.

Before you start on an application domain you should work through the impacts on your schedule. There may be a need to coordinate your co-op blocks based on the semesters in which courses are typically offered as well as considering course pre-requisite chains required within the application domain. Be sure to check with the sponsoring department to obtain the latest information on course prerequisites, scheduling, and registration constraints. Before embarking on a minor you should meet with the department sponsoring the minor to review their current minor requirements, register for the minor, and review scheduling strategies.