KENT STATE UNIVERSITY

Roadmap: Applied Mathematics - Computational Mathematics – Bachelor of Science

[AS-BS-AMTH-CMTH]
College of Arts and Sciences
Department of Mathematical Sciences
Catalog Year: 2012–2013

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses and milestones designated as critical (in boldface and shaded areas) must be completed in the semester listed to ensure a timely graduation.

Course Subject and Title	Credit Hours	Upper Div.	Min. Grade	Major GPA	Important Notes
Semester One: [15 Credit Hours]					
MATH 12002 Analytic Geometry and Calculus I	**5**			■	**Fulfills Kent Core Mathematics and Critical Reasoning**
US 10097 Destination Kent State: First Year Experience	1				Not required of transfer students with 25 credits
Kent Core Requirement	3				See Kent Core Summary on page 2
Kent Core Requirement	3				
Kent Core Requirement	3				
Semester Two: [15 Credit Hours]					
MATH 12003 Analytic Geometry and Calculus II	**5**			■	
CS 13001 Computer Science I: Programming and Problem Solving	4			■	
Kent Core Requirement	3				See Kent Core Summary on page 2
Kent Core Requirement	3				
Semester Three: [15 Credit Hours]					
MATH 22005 Analytic Geometry and Calculus III	**4**			■	
CS 23001 Computer Science II: Data Structures and Abstraction	3			■	
PHY 23101 General University Physics I	5			■	Fulfills Kent Core Basic Sciences
Kent Core Requirement	3				See Kent Core Summary on page 2
Semester Four: [14 Credit Hours]					
MATH 21001 Linear Algebra with Applications	**3**			■	
MATH 23022 Discrete Structures for Computer Science	**3**			■	
PHY 23102 General University Physics II	5			■	Fulfills Kent Core Basic Sciences
Kent Core Requirement	3				See Kent Core Summary on page 2
Semester Five: [16-17 Credit Hours]					
MATH 32044 Introduction to Ordinary Differential Equations	**3**	■		■	
MATH 42031 Mathematical Models and Dynamical Systems *or* MATH 42201 Introduction to Numerical Computing I	**3**	■		■	**Both courses are required; take whichever course is offered within this semester**
Foreign Language (Elementary I)	4-5				Fulfills College General Requirement
Kent Core Requirement	3				See Kent Core Summary on page 2
Kent Core Requirement	3				
Semester Six: [16-17 Credit Hours]					
MATH 41021 Theory of Matrices	**3**	■		■	**Offered in spring only**
MATH 42091 Seminar: Modeling Projects *or* MATH 42202 Introduction to Numerical Computing II	**3**	■	**C**	■	**Both courses are required; take whichever course is offered within this semester; MATH 42091 fulfills writing-intensive course requirement**
Foreign Language (Elementary II)	4-5				Fulfills College General Requirement
General Elective (3 credits upper division)	6	■			
Semester Seven: [15 Credit Hours]					
MATH 40011 Introduction to Probability Theory and Applications	**3**	■		■	
MATH 42031 Mathematical Models and Dynamical Systems *or* MATH 42201 Introduction to Numerical Computing I	**3**	■		■	**Select course not taken earlier**
Allied Area Electives (upper division)	6	■		■	See note on page 2
General Elective (upper division)	3	■			

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Critical requirements are boldface in shaded areas

Course Subject and Title	Credit Hours	Upper Div.	Min. Grade	Major GPA	Important Notes
Semester Eight: [15 Credit Hours]					
MATH 40012 Introduction to Statistical Concepts	**3**	■		■	
MATH 42091 Seminar: Modeling Projects *or* MATH 42202 Introduction to Numerical Computing II	**3**	■		■	**Select course not taken earlier; MATH 42091 fulfills writing-intensive course requirement**
Allied Area Elective (upper division)	3	■		■	See note below
General Electives (lower or upper division)	6				Number of credits required depends on meeting minimum 121 credit hours and minimum 42 upper-division credit hours

Graduation Requirements Summary

Minimum Total Hours	Minimum Upper-Division Hours	Minimum Kent Core Hours	Global / Domestic Diversity Course	Writing-Intensive	Experiential Learning	Minimum Major GPA	Minimum Overall GPA
121	42	36	Kent Core or General Electives	MATH 42091	Visit www.kent.edu/catalog/elr	2.000	2.000

Kent Core Summary

Kent Core Categories	Important Notes	Remaining Credit Hours
Additional (6 credit hours) *Must be selected from two Kent Core categories*	May fulfill diversity requirement	6
Basic Sciences (6-7 credit hours) *Must include one laboratory*	Fulfilled in this major with PHY 23102 and PHY 23102	0
Composition (6-8 credit hours) *ENG 11011, 11002, 21011; HONR 10197, 10297*	Enrollment based on placement test	6-8
Humanities and Fine Arts (9 credit hours) *Minimum one course from humanities in Arts and Sciences category and minimum one course from fine arts category*	May fulfill diversity requirement	9
Mathematics and Critical Reasoning (3-5 credit hours)	Fulfilled in this major with MATH 12002	0
Social Sciences (6 credit hours) *Must be selected from two curricular areas*	May fulfill diversity requirement	6

Note: **Allied area electives (9 credit hours):** approved by the major advisor from approved upper-division courses for majors in the following:

BSCI upper-division courses	1-9	MATH upper-division courses	1-9
CHEM upper-division courses	1-9	PHY upper-division courses	1-9
CS upper-division courses	1-9		

Note: All courses taken from the list of major program requirements are used in the calculation of the major GPA.

Kent Core
Students must complete a minimum 36 credit hours of the Kent Core. Certain courses required in programs and in student's major field may also fulfill the Kent Core. Honors equivalents shall satisfy the Kent Core. None of the courses on the Kent Core list may be taken with a pass/fail grade. Visit www.kent.edu/catalog/kent-core for course list.

Diversity Course Requirement
Students must complete a two-course diversity requirement, consisting of one with a domestic (U.S.) focus and one with a global focus. One course must come from the Kent Core. The second course may be taken as a second Kent Core, within a major or minor, or as a general elective; or, with dean's approval, by completing one semester of study in another country. Visit www.kent.edu/catalog/diversity for course list.

Writing-Intensive Course Requirement
Students must complete a one-course writing-intensive requirement in their major and earn minimum C (2.000) grade. Visit www.kent.edu/catalog/wic for course list.

Experiential Learning Requirement (ELR)
To provide students with direct engagement in learning experiences that promote academic relevance, meaning and an understanding of real-world issues, students must complete this requirement at Kent State, either as a for-credit course or as a non-credit, non-course experience approved by the appropriate faculty member. Visit www.kent.edu/catalog/elr for course list.

Upper-Division Requirement
Students must complete a minimum 39 upper-division (numbered 30000 to 49999) credit hours of coursework. Programs in the College of Arts and Sciences require a minimum of 42 hours of upper-division coursework.

Foreign Language
Visit www.kent.edu/catalog/foreign-languages for course list.