

# Roadmap: Applied Mathematics - Financial Mathematics - Bachelor of Science

[AS-BS-AMTH-FMTH]

College of Arts and Sciences
Department of Mathematical Sciences

Catalog Year: 2013-2014

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.

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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				occ rent core cultimary on page 2
Kent Core Requirement	3				ECON 22060 is recommended
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				ECON 22061 is recommended
Semester Three: [16 Credit Hours]	_				
MATH 22005 Analytic Geometry and Calculus III	4				E 1611 14 10 D 1 0 1
PHY 23101 General University Physics I	5				Fulfills Kent Core Basic Sciences
Foreign Language (Elementary I)	4-5				
Kent Core Requirement	3				See Kent Core Summary on page 2
Semester Four: [15 Credit Hours]					
MATH 21001 Linear Algebra with Applications	3			•	
PHY 23102 General University Physics II	5				Fulfills Kent Core Basic Sciences
Foreign Language (Elementary II)	4-5				
Kent Core Requirement	3				See Kent Core Summary on page 2
Semester Five: [15 Credit Hours]					
ACCT 23020 Introduction to Financial Accounting	3				
MATH 32044 Introduction to Ordinary Differential Equations	3			•	
MATH 40011 Introduction to Probability Theory and Applications	3			•	
MATH 42031 Mathematical Models and Dynamical					Both courses are required; take whichever course is
Systems or MATH 42201 Introduction to Numerical Computing I	3			-	offered within this semester
Kent Core Requirement	3				See Kent Core Summary on page 2
Semester Six: [15 Credit Hours]					
FIN 36053 Business Finance	3	-		•	Majors pursuing this concentration are required to take ECON 22060 and ECON 22062; see Kent Core Summary
MATH 40012 Introduction to Statistical Concepts	3				
MATH 42045 Introduction to Partial Differential Equations	3				Offered in spring only every two years (2014, 2016, 2018;); consult with department
MATH 42091 Seminar: Modeling Projects or MATH 42202 Introduction to Numerical Computing II	3	•	С	•	Both courses are required; take whichever course is offered within this semester; MATH 42091 fulfills writing-intensive course requirement
General Elective (upper division)	3				
Semester Seven: [15 Credit Hours]  MATH 40051 Topics in Probability Theory and Stochastic	3				Offered in fall only
Processes  MATH 42031 Mathematical Models and Dynamical Systems or MATH 42201 Introduction to Numerical Computing I	3	-		•	Select course not taken earlier
MATH 42031 Mathematical Models and Dynamical	<b>3</b>	•		•	Select course not taken earlier  See Kent Core Summary on page 2



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# Critical requirements are boldface in shaded areas

Course Subject and Title	Credit Hours	Upper Div.	Min. Grade		Important Notes
Semester Eight: [12 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				•	Select course not taken earlier; MATH 42091 fulfills writing-intensive course requirement
Allied Area Elective	1-3			•	See note below
General Electives (2 credit hours must be upper-division if 1 credit hour in the Allied Area Elective is chosen above)	5				Number of credits required depends on meeting minimum 121 credit hours and minimum 42 upperdivision credit hours

#### **Graduation Requirements Summary**

	•	•					
Minimum	Minimum Upper-	Minimum	Global / Domestic Writing- Experiential Minimu		mum		
Total Hours	Division Hours	Kent Core Hours	Diversity Course	Intensive	Learning	Major GPA	Overall GPA
121	42	36	Kent Core or	MATH	Visit	2.000	2.000
121	42	30	General Electives	42091	www.kent.edu/catalog/elr	2.000	2.000

#### **Kent Core Summary**

Kent Core Categories	Important Notes	Remaining Credit Hours
Composition (6-8 credit hours) ENG 11011, 11002, 21011; HONR 10197, 10297	Enrollment based on placement test	6-8
Mathematics and Critical Reasoning (3-5 credit hours)	Fulfilled in this major with MATH 12002	0
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
Social Sciences (6 credit hours)  Must be selected from two curricular areas	May fulfill diversity requirement. ECON 22060 is recommended to fulfill prerequisite requirement for FIN 36053	6
Basic Sciences (6-7 credit hours) Must include one laboratory	Fulfilled in this major with PHY 23102 and PHY 23102	0
Additional (6 credit hours)	ECON 22061 is recommended to fulfill prerequisite requirement for FIN 36053	6

#### Note: Allied area elective (1-3 credit hours), approved by the major advisor from approved upper-division courses for majors in the following:

BSCI upper-division courses	1-9	ECON 32041 Intermediate Macroeconomic Theory and Policy	3
CHEM upper-division courses		ECON 32050 Applied Econometrics	3
CS upper-division courses	1-9	FIN 36054 Intermediate Business Finance	3
MATH upper-division courses	1-9	FIN 36059 Investments	3
PHY upper-division courses	1-9	FIN 46054 Financial Risk Management	3
ECON 32025 Money, Credit and Banking	3	FIN 46055 Options and Futures Markets	3
ECON 32040 Intermediate Microeconomic Theory and Applications	3	FIN 46064 International Business Finance	3
		FIN 46067 Portfolio Analysis	3

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 <a href="www.kent.edu/catalog/kent-core">www.kent.edu/catalog/kent-core</a> 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 <a href="https://www.kent.edu/catalog/diversity">www.kent.edu/catalog/diversity</a> 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 <a href="www.kent.edu/catalog/wic">www.kent.edu/catalog/wic</a> 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 <a href="https://www.kent.edu/catalog/elr">www.kent.edu/catalog/elr</a> 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.