

OWG 7 Math Approved Recommendations

1. Recommends that MATH 1101: Math Modeling be addressed in the catalog for the new ASU as follows:

Title: MATH 1101: Math Modeling - eCore only

Course Description: This course is an introduction to mathematical modeling using graphical, numerical, symbolic and verbal techniques to describe and explore real-world data and phenomena. Emphasis is on the use of elementary functions to investigate and analyze applied problems and questions, supported by the use of appropriate technology, and on effective communications of quantitative concepts and results. *MATH 1101 may be taken as a substitute for MATH 1001: Quantitative Reasoning.*

2. Recommends implementing the following course description and prerequisites for MATH 2008 – Foundations of Numbers and Operations:

Course Description: This course is an Area F introductory mathematics course for teacher education majors. This course will emphasize the understanding and use of the major concepts of number and operations. As a general theme, strategies of problem solving will be used and discussed in the context of various topics.
Prerequisites: MATH 1001, MATH 1111, MATH 1113 or approved equivalent.

3. Recommends implementing the following common course numbers/names:

- **MATH 2411 - Introduction to Statistics**
(Course number change for DSC, Name change for ASU)
- **MATH 1211 - Calculus I**
(Course number change for DSC, Name Change for ASU)
- **MATH 2212 - Calculus II**
(Course number change for DSC)
- **MATH 2213 - Calculus III**
(Course number change for DSC)
- **MATH 2111 - Linear Algebra**
(Course number change for DSC)
- **MATH 1113 - Pre-Calculus**
(Name Change for ASU)

4. Recommends discontinuing the following courses:

- MATH 1145 – Survey of Calculus
- MATH 1112 – Trigonometry

5. Recommends implementing the following changes to current DSC classes:

- Discontinue *CSCI 2200 – Internet Technologies*
- Discontinue *CSCI 2500 – Discrete Structures*
- For *COPR/CSCI 2235 – Database Management Systems*

6. Recommends implementing the follow course change at ASU:

- Discontinue MATH 1101: Mathematical Modeling
- Include MATH 1001: Quantitative Reasoning:

7. Recommends implementing the following common prerequisite designations:

- MATH 2411 – Introduction to Statistics
Prerequisites: MATH 1001, 1111 or 1113
- MATH 2111 – Linear Algebra
Prerequisites: MATH 1211 (Calculus I):

**MATH 2411 – Introduction to Statistics Prerequisites: MATH 1001, 1111
or 1113**

8. Recommends the outline that follows for the proposed Area F for a BS in Computer Science (Business Emphasis) degree shown within the context of the complete program of study:

Core Curriculum (60 hours)

AREAS A-E		42
AREA F Courses Related to Major		18
MATH 1211¹	Calculus I	4

¹ Calculus is an Area F requirement per BOR Advisory Committee:

http://www.usg.edu/academic_programs/areaf/compsci_Computer_Science.pdf

If Calculus is taken in Area A or D, one hour applies to Area F.

CSCI 1300²	Intro to Computer Science	3
CSCI 1301	Computer Science I	4
CSCI 1302	Computer Science II	4
MATH 2411	Basic Statistics	3

Area A – F Subtotal **60**

Above The Core (5 hours)

Computer Science Courses (30 hours)

CSCI 2211	Visual Basic Programming	3
CSCI 3111	Discrete Structures	3
CSCI 3122	Data Structures (or MATH 3112)	3
CSCI 3132	Database Management	3
CSCI 4211	Systems Analysis I	3
CSCI 4212	Systems Analysis II	3
CSCI 4113	Operating Systems	3
CSCI 4123	Computer Networks	3
CSCI 4311	Computer Graphics	3
CSCI 4921	Senior Project I	1
CSCI 4922	Senior Project II	2

Mathematics Courses (6 hours)

MATH 2111	Linear Algebra	3
MATH 3423	Intro to Operations Research	3

Business Courses (12 hours)

ACCT 2101	Accounting Principles I	3
ACCT 2102	Accounting Principles II	3
ECON 2105	Principles of Macroeconomics	3
ECON 2106	Principles of Microeconomics	3

Major Electives (12 hours) from the following courses:³

At least 9 hours in upper-level classes

CSCI 2300	Computational Informatics I	3
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² New common number for this class

³ If required courses are taken in Areas A-E, add additional electives to reach total hours.

CSCI 2311	Advanced Visual Basic Programming	3
CSCI 3200	Design & Analysis of Algorithms	3
CSCI 3300	High Performance Computing	3
CSCI 4221	Software Engineering	3
CSCI 4915	Web Design & Development	3
CSCI 4911	Special Topics in Computer Science	3
Upper-level classes in BUSA, ECON, or MGMT,		

TOTAL CREDIT HOURS: 125

³ If required courses are taken in Areas A-E, add additional electives to reach total hours.

9. Recommends the outline that follows for the proposed Area F for a BS in Computer Science (Math Emphasis) degree shown within the context of the complete program of study:

Core Curriculum (60 hours)

AREAS A-E		42
AREA F Courses Related to Major		18
<u>CSCI 1300⁴</u>	Intro to Computer Science	3
<u>CSCI 1301</u>	Computer Science I	4
<u>CSCI 1302</u>	Computer Science II	4
<u>MATH 1211⁵</u>	Calculus I	4
<u>MATH 2411</u>	Basic Statistics	3

Area A – F Subtotal **60**

Above The Core (5 hours)

Major Requirements

Computer Science Courses (33 hours)

<u>CSCI 3111</u>	Discrete Structures (or Math 3112)	3
<u>CSCI 3122</u>	Data Structures	3
<u>CSCI 4113</u>	Operating Systems	3
<u>CSCI 4123</u>	Computer Networks	3
<u>CSCI 3211</u>	Computer Org and Architecture I	3

¹ New common number for this class

⁵Calculus is an Area F requirement per BOR Advisory Committee:

http://www.usg.edu/academic_programs/areaf/compsci_Computer_Science.pdf

If Calculus is taken in Area A or D, one hour applies to Area F.

CSCI 3212	Computer Org & Architecture II	3
CSCI 4151	Systems Simulation	3
CSCI 4211	Systems Analysis I	3
CSCI 4311	Computer Graphics	3
CSCI 4221	Software Engineering	3
CSCI 4921	Senior Project I	1
CSCI 4922	Senior Project II	2

Mathematics Courses (20 hours)

MATH 2111	Linear Algebra	3
MATH 2212	Calculus II	4
MATH 2213	Calculus III	4
MATH 3211	Ordinary Differential Equation	3
MATH 3423	Intro to Operations Research	3
MATH 4215	Numerical Analysis	3

Major Electives (6 hours) selected from the following

CSCI 2211	Visual Basic Programming	3
CSCI 2300	Computational Informatics I	3
CSCI 2311	Advanced Visual Basic Programming	3
CSCI 3132	Database Management	3
CSCI 3200	Design & Analysis of Algorithms	3
CSCI 3300	High Performance Computing	3
CSCI 4915	Web Design & Development	3
CSCI 4911	Special Topics in Computer Science	3

General Electives (1 Hour)⁶

TOTAL CREDIT HOURS: 125

³ If required courses are taken in Areas A-E, add additional electives to reach total hours.

10. Recommends the outline that follows for the proposed Area F for a BS in Mathematics degree shown within the context of the complete program of study as well as a sample program of study:

Core Curriculum (60 hours)

AREAS A-E		42
AREA F Courses Related to Major		18
MATH 1211 ⁷	Calculus I	4
MATH 2212	Calculus II	4
MATH 2213	Calculus III	4
MATH 2411	Basic Statistics	3
MATH 2111	Linear Algebra	3
Area A – F Subtotal		60

Above The Core (5 hours)***Requirements for the Major (42 hours)***

MATH 3101	Introduction to Number Theory	3
MATH 3112	Discrete Mathematics	3
MATH 3211	Ordinary Differential Equations	3
MATH 3311	Geometry and Applications	3
MATH 3314	Math Statistics	3
MATH 3411	Statistical Methods	3
MATH 3423	Operations Research	3
MATH 4111	Modern Algebra I	3
MATH 4112	Modern Algebra II*	3
MATH 4211	Elements of Analysis I	3
MATH 4212	Elements of Analysis II*	3

¹If Calculus is taken in Area A or D, one hour applies to Area F.

MATH 4214	Introduction to Complex Variables	3
MATH 4215	Numerical Analysis	3
MATH 4921	Senior Project I	1
MATH 4922	Senior Project II	2

Major Electives (12 hours) – Select 12 hours from the following

MATH 3413	Introduction to Combinatorics	3
MATH 4338	Non-Parametric Methods	3
MATH 4511	History of Mathematics	3
MATH 4328	Probability Theory	3
MATH 4220	Partial Differential Equations	3
MATH 4330	Math for Compound Interest	3
MATH 4336	Intro. to Design of Experiments	3
MATH 4344	Estimation Theory	3
MATH 4346	Introduction to Analytics	3
MATH 4322	Intro. to Fluid Mechanics	3
MATH 4324	Classical Mechanics	3
MATH 4326	Operational Methods	3

General Electives (6 Hours)⁸

TOTAL CREDIT HOURS: 125

SAMPLE PROGRAM OF STUDY FOR THE BACHELOR OF SCIENCE IN MATHEMATICS

Freshman Year	
Fall	Spring

2 If required courses are taken in Areas A-E, add additional electives to reach total hours.

Course	No. of Credit Hours	Course	No. of Credit Hours
ENGL 1101 English Comp. I	3	ENGL 1102 English Comp. I	3
MATH 1113 Precalculus	3	MATH 1211 Calculus I	4
CHEM 1211K General Chem. I	4	CHEM 1212K General Chem. II	4
Or		Or	
PHYS 2221K Introductory Phys. I	4	PHYS 2222K Introductory Phys. II	4
POLS 1101 US & GA Government	3	MATH 2411 Basic Statistics	3
ASU 1201 Found. Col. Success	2	PEDH Elective	1
HEDP 1001	1		
Total Hours	16	Total Hours	15*
Sophomore Year			
Fall		Spring	
ENGL 2111 World Lit. I101 I	3	MATH 2213 Calculus III	4
MATH 2212 Calculus II	4	Hum/Fine Arts Elective	3
COMM 1100 Public Speaking	3	Social Science Elective	3
General Electives	3	MATH 2111 Linear Algebra	3
MATH 3112 Discrete Math.	3	PEDH Elective	1
		HIST 1002 Intro. To African Diaspora	2
Total Hours	16	Total Hours	16
Junior Year			
Fall		Spring	
MATH 3213 Modern Geometry	3	MATH 4112 Modern Algebra II	3

MATH 3211 Differential Equation	3	MATH 3101 Intro. Numb. Theory	3
MATH Modern Algebra I	3	MATH 3314 Statistical Methods	3
MATH 3314 Mathematical Statistics	3	Major Elective	3
MATH 3423 Intro. To Oper. Resch.	3	Social Science Elective	3
General Elective	1		
Total Hours	16	Total Hours	15*
Senior Year			
Fall		Spring	
MATH 4211 Elements of Analysis I	3	MATH 4212 Elements of Analy. II	3
MATH 4214 Intro. To Complex Variables	3	MATH 4215 Numerical Analysis	3
Major Elective	3	Major Elective	3
Major Elective	3	MATH 4922 Senior Project II	2
MATH 4921 Senior Project I	1	General Electives	2
CSCI 1001 Intro. to Technology*	2	Social Science Elective	3
Total Hours	15*	Total Hours	16

11. Recommends that all learning support math classes and faculty be housed in the same department as the accredited math classes.