

Program Change Request

Date Submitted: 11/07/18 3:47 pm

Viewing: **BS/MS-APMS/MATH-FTR : Applied Mathematics - 5-Year Bachelor of Science/Master of Science in Mathematics**

Last approved: 03/19/18 5:09 pm

Last edit: 11/12/18 10:35 am

Changes proposed by: donnalh

Catalog Pages Using this Program [Applied Mathematics - 5-Year Bachelor of Science/Master of Science in Mathematics](#)

Contact(s)

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Donna Hoffman	donnalh@tamu.edu	979-862-4306

Academic level Undergraduate-Graduate

Effective Term 2019-2020

Department Mathematics

Department 2 Mathematics

College Science

College 2 Science

Program type Combination

Degree designation BS/MS - Bachelor of Science/Master of Science

With a major in Applied Mathematics/Mathematics (APMS/MATH)

Associated Program **Not Applicable**

With a concentration in Fast Track (FTR)

Catalog Program Title
Applied Mathematics - 5-Year Bachelor of Science/Master of Science in Mathematics

CIP and Fund code 27030100

Rationale for Proposal

- To comply with new course numbers established by the Chemistry Department.**
- To comply with new course number established by the Academic Success Center.**
- To comply with new course numbers established by the Physics Department.**
- To comply with new course numbers established by the Physics Department.**
- To be in compliance with the new Core Curriculum requirement for Cultural Discourse.**
- ~~*Adding ENGL 103 as an acceptable Communication Requirement will assist students who have earned credit for ENGL 1301. *ATMO 201/ATMO 202, CHEM 107/CHEM 117, GEOL 101/GEOL 102, and OCNG 251/OCNG 252 have been approved by Undergraduate Studies Committee as eligible to satisfy the Freshman Science requirement. Adding ATMO 201/ATMO 202, GEOL 101/GEOL 102 and OCNG 251/OCNG 252 as an option for 4 credits will allow students more flexibility in their degree plans. The~~
~~*The course content of CHEM 119 MATH 220 and CHEM 107/CHEM 117 CSCE 222/ECEN 222 is too similar to allow credit for both courses.~~
- There is no longer other courses equivalent to CHEM 102/CHEM 112, so the Limitation is no longer needed.**
- This course is foundational and fundamental to virtually all upper level coursework in our degrees and as such, we are moving this course to a number that will more accurately reflect its inherent maturity level, and to stress the course's**

In Workflow

- MATH Department Head**
- Curricular Services Review**
- SC Committee Preparer UG**
- SC Committee Preparer GR**
- SC Committee Chair UG**
- SC Committee Chair GR**
- SC College Dean UG**
- SC College Dean GR**
- UCC & GC Preparers**
-UCC Preparer
-GC Preparer
- UCC & GC Chairs**
-UCC Chair
-GC Chair
- Faculty Senate Preparer**
- Faculty Senate
- Provost II
- President
- Curricular Services

Approval Path

- 11/07/18 4:42 pm
Emil Straube (e-straube): Approved for MATH Department Head
- 11/12/18 9:06 am
Angel Mario Carrizales (carri1214): Approved for Curricular Services Review
- 11/12/18 2:04 pm
Sara Thigpin (sarathigpin): Approved for SC Committee Preparer UG
- 11/12/18 2:48 pm
Kristy Vela (kdvela): Approved for SC Committee Preparer GR
- 11/12/18 4:53 pm
Lucas Macri (lmacri): Approved for SC Committee Chair UG
- 11/13/18 5:49 pm
Mark J. Zoran (mjzoran): Approved for SC Committee Chair GR
- 11/13/18 6:36 pm
Lucas Macri (lmacri): Approved for SC College Dean UG

importance and pivotal role within our degree programs. *The course content of MATH 220 and CSCE 222 is too similar to include CSCE 222 in the list of acceptable CSCE electives. As CSCE 285, 289, and 291 are directed studies/research courses, they are not acceptable for CSCE elective credit. *Removing MATH 150 from the ineligible General Elective list will assist students with the new Financial Aid regulations. Correcting the error in Howdy degree evaluation Rule A. of General Electives will make Howdy agree with the 2018-2019 Undergraduate Catalog. *With the development of the new undergraduate program in Statistics, new upper level Statistics courses have been created that are acceptable elective courses and should be included in Major GPR calculations.

Program hours **156** ~~120~~

Is this program eligible for financial aid?

Will program hours change (increase/decrease) due to the proposed curriculum changes? No

- 8. 11/15/18 3:19 pm
Mark J. Zoran
(mjzoran): Approved for SC College Dean GR
- 9. 11/16/18 10:13 am
Sandra Williams
(sandra-williams): Approved for UCC & GC Preparers
- 10. 12/14/18 2:33 pm
LaRhesa Johnson
(lrjohnson): Approved for UCC & GC Chairs

History

- 1. Mar 9, 2017 by Donna Hoffman (donnaalh)
- 2. May 23, 2017 by Angela Allensworth (arankin)
- 3. May 23, 2017 by Angela Allensworth (arankin)
- 4. Mar 19, 2018 by Donna Hoffman (donnaalh)

Catalog Program Requirements

Plan of Study Grid

		Semester Credit Hours
First Year		
Fall		
<u>ENGL 104</u>	Composition and Rhetoric	3
	or <u>ENGL 103</u> or Introduction to Rhetoric and Composition	
<u>MATH 171</u>	Analytic Geometry and Calculus	4
Select one from:		4
<u>CSCE 110</u>	Programming I	
<u>CSCE 111</u>	Introduction to Computer Science Concepts and Programming	
<u>CSCE 121</u>	Introduction to Program Design and Concepts	
<u>CSCE 206</u>	Structured Programming in C	
Elective hours 1		1
Freshman Science elective 2		4
	Semester Credit Hours	16
Spring		
<u>MATH 172</u>	Calculus	4
Select one from:		4
<u>CSCE 110</u>	Programming I	
<u>CSCE 111</u>	Introduction to Computer Science Concepts and Programming	
<u>CSCE 121</u>	Introduction to Program Design and Concepts	
<u>CSCE 206</u>	Structured Programming in C	
<u>American history</u>		3
Elective hours 1		1
Freshman Science elective 2		4
	Semester Credit Hours	16
Second Year		
Fall		
<u>ECON 202</u>	Principles of Economics	3
	or <u>ECON 203</u> or Principles of Economics	
<u>MATH 221</u>	Several Variable Calculus	4
<u>MATH 300</u>	Foundations of Mathematics	3
<u>STAT 211</u>	Principles of Statistics I	3
<u>American history</u>		3
MATH 220	Foundations of Mathematics	3
	Semester Credit Hours	16
Spring		
<u>MATH 308</u>	Differential Equations	3
<u>MATH 323</u>	Linear Algebra	3
<u>STAT 212</u>	Principles of Statistics II	3
<u>Government/Political science</u>		3

Language, philosophy and culture	3	
Semester Credit Hours		15
Third Year		
Fall		
MATH 409	Advanced Calculus I	3
MATH 410	Advanced Calculus II	3
or MATH 446	or Principles of Analysis I	
PHYS 206	Newtonian Mechanics for Engineering and Science	4
& PHYS 226	and Physics of Motion Laboratory for the Sciences	
Government/Political science		3
PHYS 218	Mechanics	4
Elective hours 2		3
Semester Credit Hours		16
Spring		
MATH 417	Numerical Methods	4
or MATH 437	or Principles of Numerical Analysis	
PHYS 208	Electricity and Optics	4
or OCNG 451	or Mathematical Modeling of Ocean Climate	
MATH 415	Modern Algebra I	3
or MATH 433	or Applied Algebra	
PHYS 207	Electricity and Magnetism for Engineering and Science	4
& PHYS 227	and Electricity and Magnetism Laboratory for the Sciences	
Elective hours 4		4
Semester Credit Hours		15
Fourth Year		
Fall		
Select one from:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Select one from:		3
MATH 412	Theory of Partial Differential Equations	
MATH 414	Fourier Series and Wavelets	
MATH 442	Mathematical Modeling	
MATH 470	Communications and Cryptography	
MATH 471	Communications and Cryptography II	
Select from:		6
MATH 325	The Mathematics of Interest	
MATH 407-MATH 499		
STAT 404-STAT 482		
CSCE 210-CSCE 470		5
ISEN 320 or ISEN 340		
Semester Credit Hours		12
Spring		
Select one from:		3
MATH 325	The Mathematics of Interest	
MATH 407-MATH 499		
Select from: 6		6
MATH 603-MATH 628		
MATH 630-MATH 639		
MATH 641-MATH 644		
MATH 647-MATH 684		
Elective hours 4		5
Semester Credit Hours		14
Total Semester Credit Hours		120
Plan of Study Grid		

Fifth Year

Fall	Semester Credit Hours
Graduate Degree 7	36
Semester Credit Hours	36
Total Semester Credit Hours	36

1 [MATH 170](#) is highly recommended for math majors co-enrolled in [MATH 150](#), [MATH 151](#), [MATH 152](#), [MATH 171](#) or [MATH 172](#).

2 Select 4 hours from: [ASTR 111](#), [BIOL 111](#), [BIOL 112](#), [CHEM 119](#), [CHEM 120](#), [CHEM 107/CHEM 117](#). The remaining 4 hours may be selected from: [ASTR 111](#), [ATMO 201/ATMO 202](#), [BIOL 111](#), [BIOL 112](#), [CHEM 119](#), [CHEM 120](#), [CHEM 107/CHEM 117](#), [GEOL 101/GEOL 102](#), [OCNG 251/OCNG 252](#).

3 Select 3 hours from any 200-400 level course.

4 Three elective hours must be chosen from the approved [University Core Curriculum](#) list for creative arts. In addition, 3 hours of courses must be in the area of [International and Cultural Diversity](#) and 3 hours of courses must be in the area of [Cultural Discourse](#). These may be in addition to [University Core Curriculum](#) courses, or if a course in this category satisfies an area of the Core, it can be used to meet both requirements. Students desiring teacher certification should consult the requirements for certification before registering for electives.

Remaining electives may be selected from any 100-499 course not used elsewhere (except [ALED 125](#); [ASCC 102](#); [ASTR 109/PHYS 109](#), [ASTR 119/PHYS 119](#); [BMEN 101](#); [BUSN 100](#); [ISEN 101](#); [KINE 199](#); [LAND 101](#); [MATH 102-148](#), [MATH 151-166](#), [MATH 304](#), [MATH 309](#), [MATH 311](#), [MATH 367](#), [MATH 368](#), [MATH 375](#), [MATH 376](#); [PHYS 109/ASTR 109](#), [PHYS 119/ASTR 119](#), [PHYS 201](#), [PHYS 202](#), [PHYS 205](#); [PSYC 301](#); [STAT 201](#), [STAT 301 - 303](#); [URPN 200](#); [WFSC 101](#)).

5 Except [CSCE 222/ECEN 222](#), [CSCE 285](#), [CSCE 289](#), [CSCE 291](#).

6 This 6 hours will be applied towards both BS and MS degrees in Mathematics.

7 The overall program hours (156 hours) includes 36 hours for a non-thesis option or 32 hours for a thesis option (up to six of which are [MATH 691](#)). Up to six hours of graduate courses may double count. [MATH 601](#) is prohibited for all graduate degree plans. Except for the MS teaching track, no distance class may be used on the degree plan nor may [MATH 696](#) appear. For the MS teaching track, students must take four distance courses: [MATH 629](#), [MATH 645](#), [MATH 646](#) and [MATH 696](#). All five tracks require at least 24 credit hours of mathematics of which at most six may be undergraduate. Depending on the MS track, courses outside of mathematics may be required or optional. For additional information, reference <https://www.math.tamu.edu/graduate/masters> and select the track of interest.

Maximum of 4 hours of [MATH 147](#), [MATH 151](#), or [MATH 171](#) may be used in this degree program.

Maximum of 4 hours of [MATH 148](#), [MATH 152](#), or [MATH 172](#) may be used in this degree program.

Maximum of 3 hours of [MATH 300](#) or [MATH 220](#) or [CSCE 222/ECEN 222](#) may be used in this degree program.

Maximum of 3 hours of [MATH 411](#) or [STAT 414](#) may be used in this degree program.

Maximum of 3 hours of [MATH 417](#), [MATH 437](#) or [CSCE 442](#) may be used in this degree program.

Maximum of 4 hours of [CHEM 119](#), [CHEM 107/CHEM 117](#) may be used in this degree program.

If a grade of D or F is earned in any of the following courses, [MATH 151](#) / [MATH 171](#), [MATH 152](#) / [MATH 172](#), [MATH 221](#) / [MATH 251](#) / [MATH 253](#), [MATH 300](#) [MATH 220](#) , [MATH 323](#) or [MATH 308](#), this course must be immediately retaken and a grade of C or better earned. The department will allow at most two D's in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Additional information

Description of changes:

- ~~*To add ENGL 103 as an acceptable alternative to ENGL 104 in the Undergraduate Catalog, First Year, fall semester and in Howdy degree evaluation Rule A. of the Communication. *To replace the listing of Freshman Science electives in the degree plan with Footnote 2 in the Undergraduate Catalog. To change the add CHEM 107/CHEM 117 as an acceptable course number of CHEM 101/111 to CHEM 119 for the 8 credits listed in Footnote 2 and CHEM 102/112 to CHEM 120 in Footnote 2. in Howdy degree evaluation Rule C. of Supporting Coursework and Rule B. and Rule C. A. and D. of Life and Physical Sciences in Howdy Degree Evaluation. Sciences-~~
- ~~To change *To replace the course number listing of STLC 102 to ASCC 102 Freshman Science electives in the degree plan with Footnote 4. 2 in the Undergraduate Catalog, and Howdy degree evaluation Rule A. of General Electives in Howdy Degree Evaluation. to, "MATH 102-148, 151-166, 304..."-~~
- ~~To change the course number *To remove MATH 150 from list of PHYS 218 to PHYS206/PHYS226 excluded General Electives in Third Year Fall Semester Footnote 4 of the Undergraduate Catalog and change Howdy degree evaluation Rule A. To add ATMO 201/ATMO 202, GEOL 101/GEOL 102 and OCNG 251/OCNG 252 as acceptable courses for the remaining 4 credits listed in Footnote 2 and in Howdy degree evaluation Rule D. of Life and Physical Sciences in Howdy Degree Evaluation. Sciences-~~
- ~~*To add the statement, "Maximum of 3 hours of MATH 220 or CSCE 222/ECEN 222 may be used in this degree program" to the Undergraduate Catalog and the corresponding "Limitation" in Howdy degree evaluation. To change *To exclude CSCE 222, 285, 289 and 291 from the course number range of PHYS 208 to PHYS 207/PHYS 227 acceptable CSCE courses in Third Year Spring Semester and Footnote 5 of the Undergraduate Catalog and in Howdy degree evaluation Rule D. E- of Life and Physical Sciences in Howdy Degree Evaluation.~~
- ~~To change the wording in Footnote 4. to reflect the new requirement of 3 hrs of Cultural Discourse. the Communication. To change Rule A. of International Cultural Diversity to 3 hrs and add Rule B. of Cultural Discourse for 3 hrs in Howdy Degree Evaluation.~~
- ~~To *To add the statement, "Maximum of 4 3 hours of CHEM 119, CHEM 107/CHEM 117 MATH 220 or CSCE 222/ECEN 222 may be used in this degree program" to the Undergraduate Catalog and update the corresponding Limitation "Limitation" in Howdy Degree Evaluation. degree evaluation-~~
- ~~To remove the Limitation, "Maximum of 4 hours of CHEM 102, 112 may be used in this degree program" in Howdy Degree Evaluation.~~
- ~~of Supporting Coursework. *To remove MATH 150 from list of excluded General Electives in Footnote 4 of the Undergraduate Catalog and change Howdy degree evaluation Rule A. of General Electives to, "MATH 102-148, 151-166, 304..." Howdy degree evaluation Rule A. of General Electives for 2017-2018 was not in agreement with the Undergraduate Catalog due to "MATH 102-166, 304" not being listed in Howdy. To *To change MATH 220 to MATH 300 in Second Year Fall Semester, the statement, "Maximum range of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this acceptable STAT courses to STAT 404- STAT 482 in the Undergraduate Catalog, Fourth Year, fall semester and Howdy degree program" and in the Departmental GPR Requirements in the Undergraduate Catalog. evaluation Rule E. To change MATH 220 to MATH 300 in Rule B. of Major Coursework and the corresponding Limitation in Howdy Degree Evaluation. of Supporting Coursework and Rule A. of Major GPR.~~

Required Proposal
Forms

[bs_apms_5yr_17e.pdf](#)
[BS-APMS-FTR.pdf](#)

[012218PresidentApprovalMemo.pdf](#)

[bs_apms_5yr.pdf](#)

Reviewer Comments

Sandra Williams (sandra-williams) (12/10/18 4:47 pm): UCC approved December 2018.

Key: 595

No AND B. MATH 172 4hrs
Must make a grade of 'C' or better.

Total Credits and GPA 0.000 .00

unofficial evaluation

Area Life and Physical Sciences (16.000 credits) - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course Title	Attribute	Credits	Grade	Source
No				A. PHYS 206/226			4hrs								
No	AND			B. Science Rqmt			4 hrs								
				Select from ASTR 111; BIOL 111, BIOL 112; CHEM 119, 120, 107/ 117.											
No	AND			C. Science Rqmt II			4hrs								
				Select from ASTR 111; ATMO 201/202; BIOL 111, 112; CHEM 119, 120, 107/117; GEOL 101/102; OCNG 251/252.											
No	AND			D. Science Rqmt III			4 hrs								
				Select from OCNG 451 or PHYS 207/227											

Total Credits and GPA 0.000 .00

unofficial evaluation

Area Language, Philosophy & Culture (3.000 credits) - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course Title	Attribute	Credits	Grade	Source
No				A. Language, Philosophy & Culture											
				Select from any 200-499 course with the [KLPC] attribute.											

Total Credits and GPA 0.000 .00

unofficial evaluation

Area Creative Arts (3.000 credits) - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course Title	Attribute	Credits	Grade	Source
No				A. Creative Arts Requirement			3hrs								
				Select three hours from any course with the Creative Arts attribute [KCRA].											

Total Credits and GPA 0.000 .00

unofficial evaluation

Area Social and Behavioral Science (3.000 credits) - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course Title	Attribute	Credits	Grade	Source
No				A. Economics Rqmt			3hrs								
				Select from ECON 202, 203.											

Total Credits and GPA 0.000 .00

unofficial evaluation

Area : Citizenship (12.000 credits) - Not Met

Description Completion of 4 semesters of Upper-Level ROTC may be substituted for 3 hours of American History and 3 hours of Political Science.

Met	Condition	Rule	Subject	Attribute	Low	High	Required	Required	Term	Subject	Course Title	Attribute	Credits	Grade	Source
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		Credits	Courses			
No	A.	American History Rqmt 6hrs				
		Select from any course with the [KHIS] attribute.				
No	AND B.	Political Science Rqmt 6hrs				
		Take POLS 206 and POLS 207.				
Total Credits and GPA						0.000 .00

unofficial evaluation

Area General Electives (11.000 credits) - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course	Title	Attribute	Credits	Grade	Source
No	A.		General Electives 11hrs													
			Select from any 100-499 course not used elsewhere. (except ALED 125; ASTR 109, 119; BMEN101; BUSN 100; ISEN 101; KINE 199; LAND 101; MATH 102-148, 151-166, 304, 309, 311, 367, 368, 375, 37; PHYS 109, 119, 201, 202, 205; PSYC 203; STAT 201, 301-303; STLC 102 ; URPN 200; WFSC 101).													
Total Credits and GPA															0.000 .00	

unofficial evaluation

Area : Work Not Applied - Met

Description See advisor for acceptable substitutions.

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course	Title	Attribute	Credits	Grade	Source
No	A.		Courses not applied													
Total Credits and GPA															0.000 .00	

unofficial evaluation

Area University Writing Requirement - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course	Title	Attribute	Credits	Grade	Source
No	A.		Writing Requirement													
			Two courses required. Only sections of MATH 100-499; STAT 407; or UGST 491 with the Writing attribute [UWRT] or the Oral Communication attribute [UCRT] may be used to satisfy this requirement.													
Total Credits and GPA															0.000 .00	

unofficial evaluation

		<i>Cultural Diversity</i>														
		Area Int'l & Cult Diversity - Not Met														
Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course	Title	Attribute	Credits	Grade	Source
No	A.		Int'l & Cultural Diversity ³ hr													
			Select from courses with the International and Cultural Diversity attribute [UICD] (except sections of BUSN 289 with the UWRT attribute).													
			B. Cultural Discourse 3 hrs													
Total Credits and GPA															0.000 .00	

unofficial evaluation

Area Foreign Language - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course	Title	Attribute	Credits	Grade	Source
No	A.		Foreign Language Rqmt													
Complete one of the following:																
1. Two years of the same foreign language in High School.																
2. A two semester sequence of the same foreign language for University credit.																
														Total Credits and GPA	0.000	.00

unofficial evaluation

Area : Residence Requirement - Not Met

Description A minimum of 36 hours of 300-400 level coursework must be completed at Texas A&M University. 12 hours must be in the major field.

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course	Title	Attribute	Credits	Grade	Source
No		A.	Residence - Major				12hrs									
No	AND	B.	Residence 300-499				24hrs									
Includes any 300-499 course taken in residence at Texas A&M University.																
														Total Credits and GPA	0.000	.00

unofficial evaluation

Area : GPR-Major - Not Met

Description A GPR of 2.00 must be maintained in all major field courses.

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course	Title	Attribute	Credits	Grade	Source
No		A.	Major GPR				48+hrs									
Includes MATH 151-499; STAT 211-212; STAT 404-482; CSCE 203-470; ISEN 320-489.																
														Total Credits and GPA	0.000	.00

unofficial evaluation

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