

Program Change Request

Date Submitted: 11/07/18 3:48 pm

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

Last approved: 03/19/18 5:12 pm

Last edit: 11/13/18 1:05 pm

Changes proposed by: donnalh

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

In Workflow

1. **MATH Department Head**
2. **Curricular Services Review**
3. **SC Committee Preparer UG**
4. **SC Committee Preparer GR**
5. **SC Committee Chair UG**
6. **SC Committee Chair GR**
7. **SC College Dean UG**
8. **SC College Dean GR**
9. **UCC & GC Preparers**
-UCC Preparer
-GC Preparer
10. **UCC & GC Chairs**
-UCC Chair
-GC Chair
11. **Faculty Senate Preparer**
12. Faculty Senate
13. Provost II
14. President
15. Curricular Services

Approval Path

1. 11/07/18 4:42 pm
Emil Straube (e-straube): Approved for MATH Department Head
2. 11/13/18 1:10 pm
Angel Mario Carrizales (carri214): Approved for Curricular Services Review
3. 11/13/18 3:19 pm
Sara Thigpin (sarathigpin): Approved for SC Committee Preparer UG
4. 11/13/18 4:52 pm
Kristy Vela (kdvela): Approved for SC Committee Preparer GR
5. 11/13/18 5:09 pm
Lucas Macri (lmacri): Approved for SC Committee Chair UG
6. 11/13/18 5:50 pm
Mark J. Zoran (mjzoran): Approved for SC Committee Chair GR
7. 11/13/18 6:36 pm
Lucas Macri (lmacri): Approved for SC College Dean UG

Contact(s)

Name	E-mail	Phone
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	Mathematics/Mathematics (MATH/MATH)
Associated Program	Not Applicable
With a concentration in	Fast Track (FTR)
Catalog Program Title	Mathematics - 5-Year Bachelor of Science/Master of Science in Mathematics
CIP and Fund code	27010100

Rationale for Proposal

1. **To comply with new course numbers established by the Chemistry Department.**
2. **To comply with new course number established by the Academic Success Center.**
3. **To comply with new course numbers established by the Physics Department.**
4. **To comply with new course numbers established by the Physics Department.**
5. **To be in compliance with the new Core Curriculum requirement for Cultural Discourse.**
6. ~~*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.~~
7. **There is no longer other courses equivalent to CHEM 102/CHEM 112, so the Limitation is no longer needed.**
8. **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**

importance and pivotal role within our degree programs. *Removing MATH 150 from the ineligible General Elective list will assist students with the new Financial Aid regulations. *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. *To correct error in Howdy degree evaluation Rule A. of General Electives that erroneously omits MATH 304 from the list of ineligible General Electives. MATH 304 is included in Footnote 6 of the 2017-2018 Undergraduate Catalog.

Program hours 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 (donnalh)
- 2. Mar 19, 2018 by Donna Hoffman (donnalh)

Catalog Program Requirements

Plan of Study Grid

First Year		Semester Credit Hours
Fall		
ENGL 104	Composition and Rhetoric	3
	or ENGL 103 or Introduction to Rhetoric and Composition	
MATH 171	Analytic Geometry and Calculus	4
Select one of the following:		3
	American history	
	Government/Political science	
Elective 1		1
Freshman Science elective 2		4
	Semester Credit Hours	15
Spring		
MATH 172	Calculus	4
Select one of the following:		3
	American history	
	Government/Political science	
Select one from:		4
	CSCE 110 Programming I	
	CSCE 111 Introduction to Computer Science Concepts and Programming	
	CSCE 121 Introduction to Program Design and Concepts	
	CSCE 206 Structured Programming in C	
Elective 1		1
Freshman Science elective 2		4
	Semester Credit Hours	16
Second Year		
Fall		
MATH 220	Foundations of Mathematics	3
MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
Select one from the following:		3
	American history	
	Government/Political science	
Science elective 3		4
	Semester Credit Hours	14
Spring		
MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
PHYS 218	Mechanics	4
PHYS 206	Newtonian Mechanics for Engineering and Science	4
	& PHYS 226 and Physics of Motion Laboratory for the Sciences	
Select one of the following:		3
	American history	
	Government/Political science	

Language, philosophy and culture 4	3
Semester Credit Hours	16
Third Year	
Fall	
MATH 409 Advanced Calculus I	3
MATH 415 Modern Algebra I	3
Elective hours 6	3
Select one from:	3
COMM 203 Public Speaking	
COMM 205 Communication for Technical Professions	
COMM 243 Argumentation and Debate	
Elective 5	3
Science elective 3	3
Semester Credit Hours	15
Spring	
MATH 410 Advanced Calculus II	3
or MATH 446 or Principles of Analysis I	
MATH 416 Modern Algebra II	3
PHYS 208 Electricity and Optics	4
or OCNG 451 or Mathematical Modeling of Ocean Climate	
PHYS 207 Electricity and Magnetism for Engineering and Science	4
& PHYS 227 and Electricity and Magnetism Laboratory for the Sciences	
Elective 5	3
Semester Credit Hours	13
Fourth Year	
Fall	
MATH 411 Mathematical Probability	3
or STAT 414 or Mathematical Statistics I	
Select one from:	3
MATH 427 Introduction to Number Theory	
MATH 431 Structures and Methods of Combinatorics	
MATH 436 Introduction to Topology	
MATH 439 Differential Geometry of Curves and Surfaces	
Elective 5	3
Elective hours 6	4
Elective 5	4
Science elective 3	3
Semester Credit Hours	16
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 5	6
Semester Credit Hours	15
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 Six (6) hours must be selected from [BICH 401-489](#); [BIOL 200-470](#); [CHEM 222-474](#); [GENE 301-452](#); [OCNG 251-252, 401-420](#); [PHYS 221, 302-305, 307-314, 324-428](#).
Four (4) hours must be selected from [ASTR 111](#); [BICH 401-489](#); [BIOL 111, 112, 200-470, 318-438](#); [CHEM 119, 120, 222-474](#); [GENE 301-452](#); [OCNG 251-252, 401-420](#); [PHYS 221, 302-305, 307-314, 324-428](#).

4 Select 3 hours from any 200- to 400-level [Language, philosophy and culture](#) course.

5 Three hours must be [creative arts](#) and three hours must be [social and behavioral sciences](#). In addition, three hours must be in the area of [international and cultural diversity](#), and three hours must be in the area of [cultural discourse](#). These may be in addition to other [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](#)).

6 This 6 hours will be used towards both the 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.

~~8 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](#) ~~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:
	<ol style="list-style-type: none"> *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. to Rule E and Rule B. E. and Rule C. 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 6. 2 in the Undergraduate Catalog. 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. To change existing Rule D. to Rule E and Rule E. and to Rule A. F. of General Electives to be in Howdy Degree Evaluation. agreement with the Undergraduate Catalog- in Howdy degree evaluation due to creation of a new Rule D. *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 remove MATH 150 from list of excluded General Electives in Footnote 6 of the Undergraduate Catalog and Howdy degree evaluation Rule A. of General Electives. To *To change the course number range of PHYS 218 STAT courses to PHYS206/PHYS226 STAT 404—482 in Second Year Spring Semester and Howdy degree evaluation Rule A. of Life and Physical Sciences in Howdy Degree Evaluation. Sciences- To change *To add the course number statement, "Maximum of PHYS 208 3 hours of MATH 220 or CSCE 222/ECEN 222 may be used in this degree program" to PHYS 207/PHYS 227 in Third Year Spring Semester the Undergraduate Catalog and Rule D. the corresponding "Limitation" in Howdy degree evaluation. of Life and Physical Sciences in Howdy Degree Evaluation. To change the wording in Footnote 5. existing Rule D. *To add MATH 304 of GPR -Major to reflect the new requirement list of 3 hrs of Cultural Discourse and add link to the Catalog page listing ICD courses. excluded General Electives in Howdy degree evaluation Rule A. 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 add the statement, "Maximum *To remove MATH 150 from list of 4 hours excluded General Electives in Footnote 6 of CHEM 119, CHEM 107/CHEM 117 may be used in this the Undergraduate Catalog and Howdy degree program" to the Undergraduate Catalog and update the corresponding Limitation in Howdy Degree Evaluation. evaluation Rule A.- To remove the Limitation, "Maximum in Howdy degree evaluation due to creation of 4 hours of CHEM 102, 112 may be used in this degree program" in Howdy Degree Evaluation. a new Rule D.- To change MATH 220 *To add ENGL 103 as an acceptable alternative to MATH 300 ENGL 104 in Second Year Fall Semester, the statement, "Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used Undergraduate Catalog, First Year, fall semester and in this Howdy degree program" and in the Departmental GPR Requirements in the Undergraduate Catalog. evaluation Rule A. To change MATH 220 to MATH 300 in Rule B. of Major Coursework and the corresponding Limitation in Howdy Degree Evaluation. of General Electives to be in agreement with the Undergraduate Catalog-

Required Proposal	bs_math_5yr_17c.pdf
Forms	BS-MATH-FTR.pdf 012218PresidentApprovalMemo.pdf bs_math_5yr.pdf

Reviewer Comments

Angel Mario Carrizales (carri1214) (11/13/18 1:05 pm): Edits made to conform to catalog style guidelines.

Sandra Williams (sandra-williams) (12/10/18 4:48 pm): UCC approved December 2018.

Key: 597

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

No AND

E. Science Rqmt IV 6hrs

Select from BICH 401-489; BIOL 200-470; CHEM 222-474; GENE 301-452; OCNG 251-252, 401-420; PHYS 221, 302-5, 307-14, 324-428.

No AND

F. Science Rqmt V 4 hrs

Select from ASTR 111; BICH 401-489; BIOL 111, 112; 200-470; 318-438; CHEM 119, 120, 222-474; GENE 301-452; OCNG 251, 252, 401-420; PHYS 221, 302-305, 307-314, 324-428.

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
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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
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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 Sciences (3.000 credits) - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course	Title	Attribute	Credits	Grade	Source
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No	A.		Social Science Rqmt 3hrs													
Select from courses with the Social and Behavioral Science attribute [KSOC].																

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 Credits	Required Courses	Term	Subject	Course	Title	Attribute	Credits	Grade	Source
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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.																

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Area General Electives (15.000 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 15hrs												
			Select any 100-499 course not used elsewhere. (except ALED 125; ASTR 109/119; BMEN 101; BUSN 100; ISEN 101; KINE 199; LAND 101; MATH 102-148, 151-166, 304, 309, 311, 367-368, 375-376; PHYS 109/119, 201-202, 205; PSYC 301; STAT 201, 225, 301-303; STLC 102 , URPN 200, WFSC 101)												
													Total Credits and GPA	0.000	.00

ASCC102;

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

Area Int'l & Cult Diversity - Not Met *Cultural Discourse*

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	12	hrs									
No	AND	B.	Residence	300-499	24	hrs									

Total Credits and GPA 0.000 .00

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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 (except MATH 166, 170), MATH 603-628, 630-639, 641-644, 647-684; STAT 404-482.												

Total Credits and GPA 0.000 .00

unofficial evaluation

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