

Program Change Request

Date Submitted: 11/07/18 3:35 pm

Viewing: **BS-APMS : Applied Mathematical Sciences - BS, Math Emphasis**

Last approved: 03/29/18 10:39 am

Last edit: 11/09/18 10:47 am

Changes proposed by: donnalh

Catalog Pages Using [Applied Mathematical Sciences - BS, Math Emphasis](#)
this Program

In Workflow

1. **MATH Department Head**
2. **Curricular Services Review**
3. **SC Committee Preparer UG**
4. **SC Committee Chair UG**
5. **SC College Dean UG**
6. **UCC Preparer**
7. **UCC Chair**
8. **Faculty Senate Preparer**
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services

Contact(s)

Name	E-mail	Phone
Donna Hoffman	donnalh@tamu.edu	979-862-4306

Academic level Undergraduate

Effective Term 2019-2020

Department Mathematics

College Science

Program type Degree

Degree designation BS - Bachelor of Science

With a major in Applied Mathematical Sciences (APMS)

Associated Program **Not Applicable**

Catalog Program Title
Applied Mathematical Sciences - BS, Math Emphasis

CIP and Fund code 27030100

Rationale for Proposal

1. To comply with new course numbers established by the Chemistry Department.
2. To comply with new course numbers established by the Physics Department.
3. To comply with new course numbers established by the Physics Department.
4. To comply with new course number established by the Academic Success Center.
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 107/117 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. ~~*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~~

Approval Path

1. 11/07/18 4:42 pm
Emil Straube (e-straube): Approved for MATH Department Head
2. 11/09/18 11:28 am
Angel Mario Carrizales (carri1214): Approved for Curricular Services Review
3. 11/12/18 2:04 pm
Sara Thigpin (sarathigpin): Approved for SC Committee Preparer UG
4. 11/12/18 4:53 pm
Lucas Macri (lmacri): Approved for SC Committee Chair UG
5. 11/12/18 4:54 pm
Lucas Macri (lmacri): Approved for SC College Dean UG
6. 11/14/18 10:50 am
Sandra Williams (sandra-williams): Approved for UCC Preparer
7. 12/10/18 10:56 am
Terra Bissett (t.bissett): Approved for UCC Chair

History

1. Mar 6, 2017 by Donna Hoffman (donnalh)
2. Mar 29, 2018 by Donna Hoffman (donnalh)

~~Statistics, new upper-level Statistics courses have been created that are acceptable elective courses and should be included in Major GPR calculations. *All courses with the [KHIS] attribute have been approved by Undergraduate Studies Committee as eligible to satisfy the Citizenship Core Requirement.~~

Program hours 120

Is this program eligible for financial aid?

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

Program delivery mode On-campus

Catalog Program Requirements

Plan of Study Grid

First Year		
Fall		Semester Credit Hours
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:		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	
Freshman Science elective 1		4
Elective hours 2		1
	Semester Credit Hours	16
Spring		
MATH 172	Calculus	4
Select one of the following:		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	
Freshman Science elective 1		4
American History		3
Elective hours 2		1
	Semester Credit Hours	16
Second Year		
Fall		
ECON 202	Principles of Economics	3
or ECON 203	or Principles of Economics	
MATH 220	Foundations of Mathematics	3
MATH 300	Foundations of Mathematics	3
MATH 221	Several Variable Calculus	4
STAT 211	Principles of Statistics I	3
American History		3
	Semester Credit Hours	16
Spring		
MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
POLS 206	American National Government	3
STAT 212	Principles of Statistics II	3
Language, philosophy and culture		3
	Semester Credit Hours	15
Third Year		
Fall		
MATH 409	Advanced Calculus I	3
POLS 207	State and Local Government	3
PHYS 218	Mechanics	4

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	
Elective hours 4		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	
Select one of the following:		4
OCNG 451	Mathematical Modeling of Ocean Climate	
PHYS 207	Electricity and Magnetism for Engineering and Science	
& PHYS 227	and Electricity and Magnetism Laboratory for the Sciences	
Elective hours 4		4
	Semester Credit Hours	15
Fourth Year		
Fall		
Select one of the following:		3
COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
Select one of the following:		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 up to six hours from the following:		6
MATH 325	The Mathematics of Interest	
MATH 407 - MATH 499		
STAT 404-STAT 482		
CSCE 210-CSCE 470	5	
ISEN 320	Operations Research I	
ISEN 340	Operations Research II	
	Semester Credit Hours	12
Spring		
Select nine hours from the following:		9
MATH 325	The Mathematics of Interest	
MATH 407 - MATH 499		
Elective hours 4		5
	Semester Credit Hours	14
	Total Semester Credit Hours	120

1 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](#).

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

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](#), 285, 289, 291.

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	<p>Description of changes:</p> <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 elective courses in the degree plan with Footnote 1 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 1 and CHEM 102/112 to CHEM 120 in Footnote 1. in Howdy degree evaluation Rule C. of Supporting Coursework and in Rule B. A. and Rule C. D. of Life and Physical Sciences in Howdy Degree Evaluation. Sciences. 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 in 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 1 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 *To replace the course number listing of STLC 102 to ASCC 102 Freshman Science elective courses in the degree plan with Footnote 4. 1 in the Undergraduate Catalog, and Howdy degree evaluation Rule A. 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 in Howdy Degree Evaluation. to, "MATH 102 148, 151 166, 304...". 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 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. 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. *To replace HIST 105 and HIST 106 with any course with the American History [KHIS] attribute in the Undergraduate Catalog to be in agreement with Howdy degree evaluation Rule A. of Citizenship.
Required Proposal Forms	<p>bs_apms_17c.pdf BS-APMS.pdf FS-February.pdf bs_apms.pdf</p>
Reviewer Comments	<p>Terra Bissett (t.bissett) (12/10/18 10:56 am): UCC approved December 2018.</p>

Key: 508

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course Title	Attribute	Credits	Grade	Source
No		A.	MATH 221	4hrs											
No	AND	B.	MATH 220 ³⁰⁰	3hrs											
No	AND	C.	MATH 323	3hrs											
No	AND	D.	MATH 409	3hrs											
No	AND	E.	MATH 417 or 437	4hrs											
No	AND	F.	MATH 308	3hrs											
													Total Credits and GPA	0.000	.00

unofficial evaluation

Area Supporting Coursework (38.000 credits) - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course Title	Attribute	Credits	Grade	Source
No		A.	Analysis/Adv. Calc II	3hrs											
No	AND	B.	Algebra Rqmt	3hrs											
No	AND	C.	Mathematics Elect I	3hrs											
No	AND	D.	Mathematics Elect II	9hrs											
No	AND	E.	MATH/STAT/ENGR Rqmt	6hrs											
No	AND	F.	STAT 211												
No	AND	G.	STAT 212												
No	AND	H.	CSCE Rqmt	8hrs											
													Total Credits and GPA	0.000	.00

unofficial evaluation

Area Communication (6.000 credits) - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course Title	Attribute	Credits	Grade	Source
No		A.	ENGL 103 or ENGL 104	3hrs											
No	AND	B.	Communication Rqmt	3hrs											
													Total Credits and GPA	0.000	.00

unofficial evaluation

Area Mathematics (8.000 credits) - Not Met

Met	Condition	Rule	Subject	Attribute	Low	High	Required Credits	Required Courses	Term	Subject	Course Title	Attribute	Credits	Grade	Source
No		A.	MATH 171	4hrs											
No	AND	B.	MATH 172	4hrs											
													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 Credits	Required Courses	Term	Subject	Course Title	Attribute	Credits	Grade	Source
No				A. American History Rqmt			6 hrs								
				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

ASCC 102

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

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 6hr 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

Cultural Discourse

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

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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; STAT 211-212; STAT 404-482; CSCE 203-470; ISEN 320-489.							

Total Credits and GPA 0.000 .00

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