

Program Change Request

Date Submitted: 11/07/18 3:36 pm

Viewing: **BS-APMS-ACT : Applied Mathematical Sciences - BS, Actuarial Emphasis**

Last approved: 03/19/18 4:53 pm

Last edit: 11/09/18 2:00 pm

Changes proposed by: donnalh

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

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

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 w/Concentration

Degree designation BS - Bachelor of Science

With a major in Applied Mathematical Sciences (APMS)

Associated Program **Not Applicable**

With a concentration in Actuarial Science Option (ACT)

Catalog Program Title

Applied Mathematical Sciences - BS, Actuarial 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 1119 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. ~~*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~~

Approval Path

1. 11/07/18 4:42 pm
Emil Straube (emilstraube): Approved for MATH Department Head
2. 11/09/18 2:29 pm
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 10:49 am
Sandra Williams (sandra-williams): Approved for UCC Preparer
7. 12/10/18 10:55 am
Terra Bissett (t.bissett): Approved for UCC Chair

History

1. Mar 6, 2017 by Donna Hoffman (donnalh)
2. Mar 19, 2018 by Donna Hoffman (donnalh)

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. *All courses with the [KHS] attribute have been approved by Undergraduate Studies Committee as eligible to satisfy the Citizenship Core Requirement. *The correction of the type of the word "Special" is an editorial change.

Program hours	120
Is this program eligible for financial aid?	No
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		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:		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	
American History		3
Freshman Science elective 1		4
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 300	Foundations of Mathematics	3
MATH 221	Several Variable Calculus	4
STAT 211	Principles of Statistics I	3
American History		3
MATH 220	Foundations of Mathematics	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 325	The Mathematics of Interest	3

MATH 411	Mathematical Probability 4	3
or STAT 414	or Mathematical Statistics I	
MATH 425	The Mathematics of Contingent Claims	3
Communication		3
Elective hours 5		3
	Semester Credit Hours	15
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 419	Applications of Actuarial Science	2
or OCNG 451	or Mathematical Modeling of Ocean Climate	
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	14
Fourth Year		
Fall		
Select six hours from the following:		6
MATH 407-MATH 499		
STAT 404-STAT 482		
CSCE 210-CSCE 470		6
Select nine hours from the following:		9
ISEN 320 or ISEN 340		
ECON 311-ECON 489		
FINC 309-FINC 489		
ECMT 463	Introduction to Econometrics	
	Semester Credit Hours	15
Spring		
MATH 409	Advanced Calculus I	3
POLS 207	State and Local Government	3
PHYS 218	Mechanics	4
PHYS 206	Newtonian Mechanics for Engineering and Science	4
& PHYS 226	and Physics of Motion Laboratory for the Sciences	
Creative arts		3
	Semester Credit Hours	13
	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 [MATH 411](#) should be taken the semester after taking [MATH 221](#).

5 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 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](#)).

6 Except [CSCE 222/ECEN 222](#), [CSCE 285](#), [CSCE 289](#), [CSCE 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 electives 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. and Rule B. D. of Supporting Coursework and Rule C. A. of Life and Physical Sciences Area of 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 Fourth Year Spring Semester Footnote 5 of the Undergraduate Catalog 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 Area of 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 6 of the Undergraduate Catalog and in Howdy degree evaluation Rule D. of Life and Physical Sciences Area of Howdy Degree Evaluation. To change *To replace the course number listing of STLC 102 to ASCC 102 Freshman Science electives in the degree plan with Footnote 5. 1 in the Undergraduate Catalog. of Supporting Coursework. *To remove MATH 150 from list of excluded General Electives in Footnote 5 of the Undergraduate Catalog Catalog and change Howdy degree evaluation Rule A. of General Electives to, "MATH 102 148, 151 166, 304..." and Howdy degree evaluation Rule A. of General Electives Area of Howdy Degree Evaluation. to, "MATH 102 148, 151 166, 304..." of General Electives for 2017 2018 was not in agreement with the Undergraduate Catalog due to "MATH 304" not being listed in Howdy. *To change the range of acceptable STAT courses to STAT 404—STAT 482 in the Undergraduate Catalog, Fourth Year, fall semester and Howdy degree evaluation Rule D. of Supporting Coursework and Rule A. of Major GPR. *To replace HIST 405 and HIST 406 with any course with the American History [KHS] attribute in the Undergraduate Catalog to be in agreement with Howdy degree evaluation Rule A. of Citizenship. To change *To correct the wording typo on the spelling of the word "Special" in Footnote 5. Rule E. 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. 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 D. To change MATH 220 to MATH 300 in Rule B. of Major Coursework and the corresponding Limitation in Howdy Degree Evaluation. of Supporting Coursework.
Required Proposal Forms	<p>bs_apms_act_17e.pdf BS-APMS-ACT.pdf 012218PresidentApprovalMemo.pdf bs_apms_act.pdf</p>
Reviewer Comments	<p>Terra Bissett (t.bissett) (12/10/18 10:55 am): UCC approved December 2018.</p>

Key: 485

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 220 ³⁰⁶	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 (40.000 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 325													
No	AND	B.	MATH 425													
No	AND	C.	MATH 411 or STAT 414													
No	AND	D.	MATH/STAT/ENGR Rqmt	6hrs												
No	AND	E.	Special Electives	9hrs												
No	AND	F.	STAT 211													
No	AND	G.	STAT 212													
No	AND	H.	CSCE Rqmt	8hrs												
No	AND	I.	MATH 419													
														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			3 hrs									
				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			6 hrs									
				Take POLS 206 and POLS 207.												

Total Credits and GPA 0.000 .00

unofficial evaluation

Area General Electives (9.000 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 9hrs													
			Select from any 100-499 course not used elsewhere. (except ALED 125; ASTR 109/119; BMEN 101; BUSN 100; ISEN 101; KINE 199; MATH 102-148, 151-166 309, 311, 367-368, 375-376; PHYS 109/119, 201-202, 205; PSYC 301; STAT 201, 225, 301-303; STLE 102 ; URPN 200; WFSC 101).													
			ASCC 102;													
														Total Credits and GPA	0.000	.00

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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, ECON 323, 445; ECMT 463; 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/} 6hr													
			Select from courses with the International and Cultural Diversity attribute [UICD] (except sections of BUSN 289 with the UWRT attribute).													
			<i>B. Cultural Discourse 3 hrs</i>													
														Total Credits and GPA	0.000	.00

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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

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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									
													Total Credits and <u>GPA</u>		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									
													Total Credits and <u>GPA</u>		0.000	.00

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