

**Department of Mathematics and Computer Science Checklist of Requirements
For Students Declaring Their Major Fall 2017 or Later. 8/15/2017**

B.S in Applied & Computational Mathematics

Mathematics Courses

Class	Hrs
MATH 123 Calculus 1	4 _____
MATH 125 Calculus 2	4 _____
MATH 225 Calculus 3	4 _____
MATH 321 Differential Equations	3 _____
MATH 315 Linear Algebra	3 _____
MATH 381 Intro to Prob & Stats	3 _____
MATH 382 Intro to Prob & Stats 2	3 _____
MATH 413 Abstract Algebra	3 _____
MATH 421 Complex Analysis	3 _____
MATH 423 Advanced Calculus I	4 _____
MATH 424 Advanced Calculus II	4 _____
MATH 432 Partial Differential Eqns	3 _____
MATH 451 Mathematical Modeling	3 _____
MATH 452 Adv. Studies in Math	3 _____
MATH 498 Undergrad Research	1 _____
MATH 402 Communications in Math	1 _____
Emphasis Area *	9 _____
Total	58 credits

* Math majors must complete three (3) courses in a science or engineering “emphasis” area. Any double major automatically satisfies this emphasis area requirement with their other major. Further information about possible emphasis areas can be found on the math flowchart.

Computational Courses

Class	Hrs
CSC 150 Computer Science 1	3 _____
CSC 215 Programming Techniques	4 _____
CSC 251 Finite Structures	4 _____
MATH 373 Intro to Numerical Analysis	3 _____
MATH 443 Data Analysis	3 _____
Total	17 credits

Science Courses

Class	Hrs
PHYS 211 University Physics I	3 _____
PHYS 213 University Physics II	3 _____
Science Requirement **	3 _____
Science Lab **	1 _____
Total	10 credits

** The science requirement for this major consists of PHYS 211, PHYS 213, one course from among BIOL 151, CHEM 112, GEOL 201, plus a lab associated with one of the science courses taken – either BIOL 151L, CHEM 112L, GEOL 201L, or PHYS 213L.

Arts/Humanities & Social Sciences**

(General Education requirement is 12 credits)

Math 110 Survey of Mathematics	1 _____
ENGL 101 Composition I	3 _____
ENGL 279 Tech Comm I	3 _____
ENGL 289 Tech Comm II	3 _____
Social Sciences	3 _____
Social Sciences	3 _____
Arts / Hum	3 _____
Arts / Hum	3 _____
Nontechnical Elective + +	3 _____
Upper level Hum/SS course **	3 _____
Free elective ***	7 _____
Total	35 credits

+ + Students must complete at least 3 credits of nontechnical coursework. Examples of nontechnical courses include: PE, MSL, Music, Humanities, or a course in the Social Sciences.

**All majors must complete at minimum of 15 credits in the area of Humanities & Social Sciences with at least 3 credits at or above the 300 level.

*** All majors must complete a minimum of 120 total credits. Please note that MATH 021, MATH 101, MATH 102, MATH 120, CSC 105 PHYS 111, PHYS 113, CHEM 106, and CHEM 108 will not count toward the major.

Student Name:

Applied & Computational Mathematics

Latest Revision: August 31, 2017

Math Emphasis Areas

3 courses are required from any one of the following areas, subject to any restrictions given

-Actuarial Science:
MATH 353, ECON 201, ECON 202, ENGM 435, IENG 302, IENG 362, IENG 415

-Atmospheric Science:
AES 201, AES 401, AES 406, AES 450, AES 460

-Biology: BIOL 151/151L, BIOL 311, BIOL 341, BIOL 371, BIOL 406

-Computer Science:
REQ: CSC 315
EMPH: CSC 372, CSC 410, CSC 412, CSC 433, CSC 442, CSC 445, CSC 454

-Chemistry: REQ: CHEM 114
EMPH: CHEM 342, CHEM 352, CHEM 344

-Electrical Engineering:
EE 220/220L, EE 221/221L, EE320/320L, EE 362, EE 381

-Geographical Info Systems:
GEOL 416, GEOL 417, GEOL 419/519, GEOL 420

-Industrial Engineering:
MATH 353, IENG 362, IENG 415, IENG 425, ENGM 435, IENG 441, IENG 486

-Physics: PHYS 341, PHYS 421, PHYS 451, PHYS 471, PHYS 481

-Statistics: IENG 362, IENG 441, IENG 415, MATH 447, MATH 486

-Structural Design:
EM 214 or ME 210, EM 215 or ME 221, EM 321 or ME 216

See SDSM&T Catalog or Math Computer Science Office for more information on each class or emphasis area.

Freshman

(Sophomore standing with 32 credits)

ENGL	3
101	

Sophomore

ENGL	3
279	

ENGL	3
289	

Junior

MATH	3
413	FE

MATH	4
423	FO

MATH	4
424	SE

Senior

MATH	1
498	

MATH	1
402	

MATH	3
381	

MATH	3
382	S

MATH	4
123	C

MATH	4
125	C

MATH	4
225	

MATH	3
315	

MATH	3
452	FE

MATH	3
421	SO

MATH	1
110	F

MATH	3
321	

MATH	3
373	

MATH	3
443	SO

MATH	3
451	SE

Co-req
Math 123

CSC	3
150	C

CSC	4
215	

CSC	4
251	

(C or Better in both MATH 225 & MATH321)

MATH	3
432	F

Elect/ Emphasis	3

Entry Level Courses

Math: _____

Placement Exam:

Trig: _____

Algebra: _____

Legend

Prerequisite

Course	
###	

← Credit Hours

← Grade Required

← When Offered

↑ Completed or Concurrent

F = Fall Semester
S = Spring Semester
O = Odd Number Years
E = Even Number Years
(blank) = Every Semester

Humanities and Social Science

(15 Credits Total are Required)

including: a) 6 Credits Humanities
b) 6 Credits Social Science

Humanities

1. _____

2. _____

3. _____

4. _____

Social Science

1. _____

2. _____

3. _____

4. _____

General Education requirements are not fully represented.