### Department of Mathematics and Computer Science Checklist of Requirements For Students Declaring Their Major Fall 2014 or Later. 6/12/2014

## **B.S in Applied & Computational Mathematics**

<b>Mathematics Courses</b>	
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

<sup>\*</sup> 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 250 Computer Science 2	4
CSC 251 Finite Structures	4
MATH 373 Intro to Numerical Anal	ysis 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
Tot	al 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 Math	ematics	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
PE + +		1
PE + +		1
Upper level Hum/SS cour	se	3
Free elective ***		8
	Total	35 credits

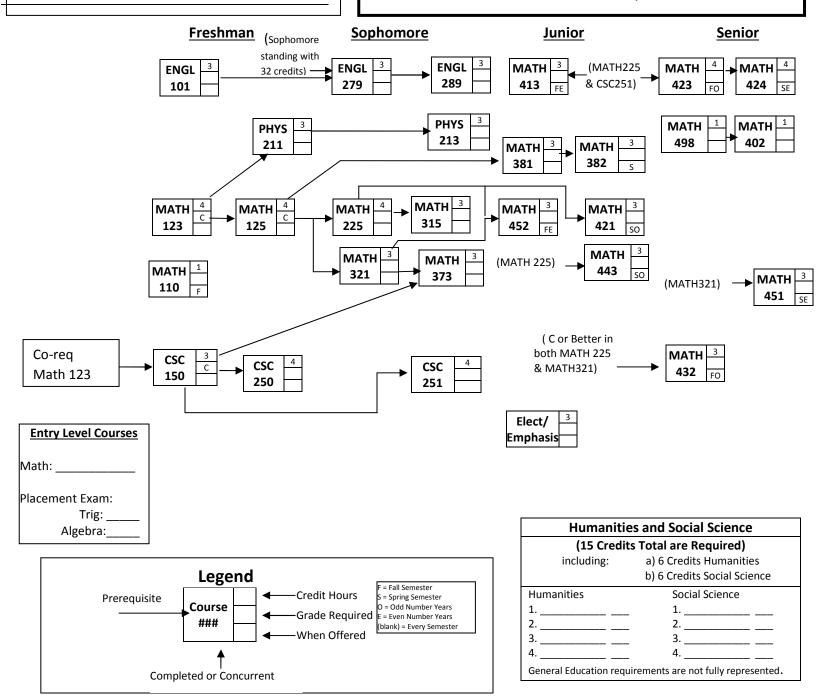
+ +MUEN 101, 121, 122 can be used to substitute for one or two of the required two Physical Education credits

- \*\*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: June 13, 2014



#### **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, IENG 302, IENG 362, IENG 415
- -Atmospheric Science: ATM 301, ATM 401, ATM 406, ATM 450, ATM 460
- -Biology: BIOL 151/151L, BIOL 311, BIOL 341, BIOL 371, BIOL 403
- -Computer Science:

REQ: CSC 300 EMPH: CSC 372 CSC 410, CSC 412, CSC 433, CSC 445, CSC 449, CSC 464

- -Chemistry: REQ: CHEM 114 EMPH: CHEM 252, CHEM 342, 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, IENG 441, IENG 486
- -Physics: PHYS 341, PHYS 451, PHYS 471, PHYS 481
- -Statistics: IENG 362, IENG 441, IENG 415, MATH 447, MATH 486
- -Structural Design: EM 214, EM 215, EM 321

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