Applied Mathematics Specialization Checklist

(for students declaring the specialization on or after Fall 2018)

1. **Choose one of the following options for the computer science correlate:**

_____CSC 220 Computer Science I **AND** CSC 230 Computer Science II

_____CSC 250 Accelerated Computer Science I and II

_____CSC 220 Computer Science I **AND** MAT 341 Computational Mathematics

(for any option: grade of C- or better in CSC220)

2. **Choose one of the following options for the lab science correlate:**

_____BIO 201 Foundations of Biological Inquiry

_____CHE 201 General Chemistry I

_____PHY 201 General Physics I

3. **Required Core Courses:**

_____MAT 127 Calculus A

_____MAT 128 Calculus B

_____MAT 229 Multivariable Calculus

_____MAT 200 Proof Writing Through Discrete Mathematics

_____MAT 205 Linear Algebra

(Average GPA of MAT 127, 128, 200, 205, 229 must be at least 2.5)

_____MAT275 Sophomore Seminar

_____MAT 310 Real Analysis

_____MAT 326 Differential Equations

_____STA 215 Statistical Inference

_____MAT 498 Capstone (must be the Applied Mathematics section of Capstone)

(*Capstone Prerequisite*: attendance to 4 seminars in junior/senior year)

4. **Depth Requirement - Choose ONE of the options A, B, C, D. For the option chosen, indicate the two courses taken to satisfy the requirement**

A. _____Probability and Statistics

Courses that satisfy this requirement are MAT 316 (Probability), any STA course at the 300 or higher level, BIO 471/CSC 471 (Genomics and Bioinformatics)

_____Course 1 to satisfy requirement

_____Course 2 to satisfy requirement

B. _____Analysis

Courses that satisfy this requirement are MAT 331 (Numerical Analysis), MAT 320 (Complex Analysis), MAT 453 (Seminar in Analysis)

_____Course 1 to satisfy requirement

_____Course 2 to satisfy requirement

C. _____Dynamical Systems

Courses that satisfy this requirement are MAT 330, MAT 426 (Partial Differential Equations), MAT 4xx (Dynamical Systems – course number coming), PHY 401 (Classical Mechanics)

_____Course 1 to satisfy requirement

_____Course 2 to satisfy requirement

D. _____Computational Mathematics

Courses that satisfy this requirement are MAT 331 (Numerical Analysis), MAT 341 (Computational Mathematics), CSC 335 (Analysis of Algorithms), CSC 445 (Theory of Computation).
Note: MAT 341 cannot be used to satisfy the Depth requirement if it has been used to satisfy the Computer Science correlate in item 1. above.
At least one course must have an MAT prefix.

_____Course 1 to satisfy requirement (MAT prefix)

_____Course 2 to satisfy requirement (MAT or CSC prefix)

5. MAT/STA Options

Two of these six courses must be the two courses chosen in item 4. above (Depth requirement).
At most two of the six courses may have an STA prefix.
At most one of the six courses may have a non-MAT or STA prefix.

_____400 level course from the Applied Math Options list

_____300 or 400 level course from the Applied Math Options list

_____300 or 400 level course from the Applied Math Options list

_____Any course at the 300 or 400 level with MAT or STA prefix

_____Any course at the 300 or 400 level with MAT or STA prefix

_____Any course at the 300 or 400 level with MAT prefix, **OR**
BIO 471/CSC 471, PHY 401, CSC 335, or CSC 445

Applied Math Options List:

MAT 315 Topics in Linear Algebra

MAT 316 Probability

MAT 317 Linear Programming

MAT 330 Mathematical Biology

MAT 331 Numerical Analysis

MAT 341 Computational Mathematics

MAT 426 Partial Differential Equations

MAT 4xx Dynamical Systems

MAT 454 Seminar in Applied Mathematics

STA 318 Operations Research