The College of New Jersey

Mathematics and Statistics Department

Fall 2016

**Mathematics Major: Applied Mathematics Specialization**

**Freshman Year** Units

*Fall:* MAT 099 Orientation for Math/Stat Majors 0

MAT 127 Calculus A (LL) 1

CSC 220 Computer Science I (or CSC 250) 3

or MAT 200: Discrete Mathematics 1

FSP 1xx First Seminar (LL)1 1

------ ---- Second Language2 1

4

*Spring:* MAT 128 Calculus B 1

MAT 200 Discrete Mathematics

or CSC 220/2503 1

WRI 102 Academic Writing4 1

------ ---- Second Language2 1

4

**Sophomore Year**

*Fall:* MAT 229 Multivariable Calculus 1

MAT 205 Linear Algebra 1

------ ---- Science (LL) 5 1 ------ ---- Second Language2 1

4

*Spring:* MAT 326 Differential Equations 1

------ ---- Science (LL) 5 1 ------ ---- Liberal Learning (LL) 2

4

**Junior Year**

*Fall:* MAT 310 Real Analysis 1

------- ---- MAT/STA Option6  1

------- ---- Liberal Learning (LL) 2

4

*Spring:* ------- ---- MAT/STA Option6  1

------- ---- MAT/STA Option6  1

------- ---- Liberal Learning (LL) 1

------- ---- Elective 1

4

**Senior Year**

*Fall:* ------ ---- MAT/STA Option6  1

------ ---- MAT/STA Option6  1

------ ---- Elective 1

------ ---- Liberal Learning (LL) 1 4

*Spring:* ------ ---- MAT/STA Option6  1

MAT 498 Applied Mathematics Capstone7 1

------ ---- Elective 2

4

TOTAL REQUIRED FOR GRADUATION: 32 UNITS

**Note:** The official major requirements, including retention and graduation grade requirements, can be found in the Undergraduate Bulletin and on the department website.

1 FSP1xx will also count as a Liberal Learning requirement. The xx in 1xx is used to designate the Liberal Learning area satisfied by the course.

2 If continuing in the same language as studied in high school, you must complete the language requirement at the 103 level or higher. Also, if you took three or more years of a language in high school and continue with this language and you are placed at the 101 level, then the 101 level course will NOT count towards the 32 units required for graduation.

3 Students may take either a) CSC 220 (Computer Science I) **and** either CSC 230 (Computer Science II or MAT 370: Topics in Mathematics (Computational Mathematics); or b) CSC 250 (Accelerated Computer Science I and II). Students are highly encouraged to take the Computer Science correlate as early as possible in their academic career.

4 You may be able to be exempted from WRI 102. See <http://www.tcnj.edu/~writing/students/placement/index.html> for details.

5 Any natural science course from the Applied Mathematics Science list (see website) – one of the two courses must have a lab.

6 This course must fill one of the 3 required Applied Mathematics options or one of the 3 required Applied Mathematics/Mathematics/Statistics options. To fulfill the Applied Mathematics options, one of the courses must be a 400 level Applied MAT course, and two must be a 300 or 400 level Applied MAT course. To fulfill the other three Applied Mathematics/Mathematics/Statistics options, the courses can be any 300 or 400 level MAT or STA course, with at least one of these not being an Applied Mathematics Options course.

Students can take at most one course unit of independent study, guided study, or independent research to fulfill the Applied Mathematics/Mathematics/Statistics options, but not the required Applied Mathematics options. When taking an independent study, guided study, or independent research course, a student’s course load should not be more than 4.5 course units. Independent study, guided study, or independent research courses may not be taken in order to improve a grade, or to replace a course that a student failed to sign up for.

7 In their senior year, majors must complete the capstone experience. The capstone experience is concerned with oral and written communication of in-depth mathematics and serves as a summative experience for the Mathematics major.