Mathematics Major: Applied Mathematics Specialization

Fall: MAT 099	Freshman Ye	ear		<u>Units</u>
CSC 220 Computer Science (or CSC 250) 1 1	Fall:	MAT 099	Orientation for Math/Stat Majors	0
FYW 102		MAT 127	Calculus A (LL)	1
Spring: MAT 128		CSC 220	Computer Science I (or CSC 250) 1	1
Spring: MAT 128		FYW 102	Academic Writing ²	1
Spring: MAT 128 Calculus B 1 MAT 200 Discrete Mathematics 1 FYS 16x First Year Seminar 1 Second Language³ 1 4 total 4 total Sophomore Year Fall: MAT 229 Multivariable Calculus 1 MAT 205 Linear Algebra 1 MAT/STA Second course of computer science 1 /CSC requirement¹ or liberal learning.⁵ Second Language³ 1 4 total Spring: MAT 326 Differential Equations 1 Science (LL)⁴ 1 STA 215 Statistical Inference 1 MAT 275 Sophomore Seminar .5 Liberal Learning (LL) 2 4.5 total Junior Year MAT/STA Option⁵ 1 MAT/STA Opt			Second Language ³	<u>1</u>
MAT 200 Discrete Mathematics 1				4 total
FYS 16x	Spring:	MAT 128	Calculus B	1
Sophomore Year Fall: MAT 229 Multivariable Calculus 1 1 1 1 1 1 1 1 1		MAT 200	Discrete Mathematics	1
Sophomore Year Fall: MAT 229 Multivariable Calculus 1		FYS 16x	First Year Seminar	1
Sophomore Year Fall: MAT 229 MAT 229 Multivariable Calculus 1 MAT 205 Linear Algebra 1 MAT/STA Second course of computer science 1 /CSC requirement¹ or liberal learning.⁵ 1 Second Language³ 1 Spring: MAT 326 Differential Equations 1 STA 215 Statistical Inference 1 MAT 275 Sophomore Seminar .5 Liberal Learning (LL) 2 Junior Year MAT 310 Real Analysis 1 Fall: MAT 310 Real Analysis 1 MAT/STA Option⁵ 1 Liberal Learning (LL) 2			Second Language ³	<u>1</u>
Fall: MAT 229 Multivariable Calculus 1 MAT 205 Linear Algebra 1 MAT/STA Second course of computer science 1 /CSC requirement¹ or liberal learning.⁵ Second Language³ 1 4 total 4 total Spring: MAT 326 Differential Equations 1 Science (LL)⁴ 1 STA 215 Statistical Inference 1 MAT 275 Sophomore Seminar .5 Liberal Learning (LL) 2 Junior Year Tall: MAT 310 Real Analysis 1 MAT/STA Option⁵ 1 Liberal Learning (LL) 2				4 total
MAT 205	Sophomore `	Year		
MAT/STA /CSC Second course of computer science requirement¹ or liberal learning.⁵ 1 Second Language³ 1/4 total Spring: MAT 326 Differential Equations 1 1 Science (LL)⁴ 1 STA 215 Statistical Inference 1 1 MAT 275 Sophomore Seminar 5 .5 Liberal Learning (LL) 2 Junior Year A.5 total Fall: MAT 310 Real Analysis 1 Liberal Learning (LL) 1 Liberal Learning (LL) 2	Fall:	MAT 229	Multivariable Calculus	1
JCSC requirement¹ or liberal learning.⁵ Second Language³ 1/4 total Spring: MAT 326 Differential Equations 1 Science (LL) ⁴ 1 STA 215 Statistical Inference 1 MAT 275 Sophomore Seminar .5 Liberal Learning (LL) 2 Junior Year Fall: MAT 310 Real Analysis 1 MAT/STA Option⁵ 1 Liberal Learning (LL) 2		MAT 205	Linear Algebra	1
Spring: MAT 326 Differential Equations 1 Science (LL) 4 1 STA 215 Statistical Inference 1 MAT 275 Sophomore Seminar .5 Liberal Learning (LL) 2 Junior Year Fall: MAT 310 Real Analysis 1 MAT/STA Option 5 1 Liberal Learning (LL) 2		MAT/STA	Second course of computer science	1
Spring: MAT 326 Differential Equations 1 1 1 1 1 1 1 1 1		/CSC	requirement ¹ or liberal learning ^{, 5}	
Spring: MAT 326			Second Language ³	<u>1</u>
Science (LL) 4 1 STA 215 Statistical Inference 1 MAT 275 Sophomore Seminar .5 Liberal Learning (LL) 2 4.5 total Junior Year Fall: MAT 310 Real Analysis 1 MAT/STA Option 5 1 Liberal Learning (LL) 2				4 total
STA 215 Statistical Inference 1 MAT 275 Sophomore Seminar .5 Liberal Learning (LL) 2 4.5 total Junior Year Fall: MAT 310 Real Analysis 1 MAT/STA Option ⁵ 1 Liberal Learning (LL) 2	Spring:	MAT 326	-	1
MAT 275 Sophomore Seminar .5 Liberal Learning (LL) 2 4.5 total Junior Year Fall: MAT 310 Real Analysis 1 MAT/STA Option ⁵ 1 Liberal Learning (LL) 2			, ,	1
Liberal Learning (LL) <u>2</u> 4.5 total Junior Year <i>Fall:</i> MAT 310 Real Analysis 1 MAT/STA Option ⁵ 1 Liberal Learning (LL) <u>2</u>		STA 215	Statistical Inference	1
Junior Year Fall: MAT 310 Real Analysis 1 MAT/STA Option ⁵ 1 Liberal Learning (LL) 2		MAT 275	Sophomore Seminar	.5
Junior Year Fall: MAT 310 Real Analysis 1 MAT/STA Option ⁵ 1 Liberal Learning (LL) 2			Liberal Learning (LL)	<u>2</u>
Fall: MAT 310 Real Analysis 1 MAT/STA Option⁵ 1 Liberal Learning (LL) 2				4.5 total
MAT/STA Option ⁵ 1 Liberal Learning (LL) <u>2</u>				
Liberal Learning (LL) <u>2</u>	Fall:	MAT 310	•	1
			•	
4 total			Liberal Learning (LL)	_
				4 total
Spring: MAT/STA Option ⁵	Spring:		MAT/STA Option ⁵	1
MAT/STA Option ⁵			MAT/STA Option ⁵	1
Liberal Learning (LL)			Liberal Learning (LL)	1
Elective <u>1</u>			Elective	<u>1</u>
4 total				4 total

Senior Year

Fall:			400 level MAT/STA Option ⁵	1
			MAT/STA Option ⁵	1
			Elective	1
			Liberal Learning (LL)	<u>1</u>
				4 total
Spring:			MAT/STA Option ⁵	1
opg.	MAT	498	Applied Mathematics Capstone ⁶	1
			Electives	1. <u>5</u>
			2.000,700	3.5 total

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.

- Three Applied Math courses (see PAWS for the list)

¹ Students may take either a) CSC 220 (Computer Science I) **and** either CSC 230 (Computer Science II or MAT 341: 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. Note that a student who takes MAT 341 for the computer requirement **may not** also count this as 1 of the 6 MAT/STA Options.

² You may be able to be exempted from FYW 102. See https://writing.tcnj.edu/sample-page/wri-102-placement-exemptions/ for details.

³ 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.

⁴See department website for list of courses: https://mathstat.tcnj.edu/information-forstudents/mathematics-major-science-requirements/

⁵ Applied Math Specialization Majors are required to take 6 math/stat options. These courses need to be chosen to meet the following requirements:

- At least one course must be a 400-level Applied Math course (must fill 1 of the 3 Applied Math courses)
- At most two of the six courses can be STA 300/400-level courses.
- Non MAT/STA courses do not count as Applied Math courses.
- Students can take at most one course unit of independent study, guided study, or independent research as one of the six course units. Regardless of the topic, this independent work course does not count as an applied math options course. Please note that 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.

Revised: 05/2023

⁶ 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.