

Advising Newsletter Department of Mathematics and Statistics

Dear Majors and Minors in the Department of Mathematics and Statistics:

Registration for Fall 2023 classes will begin on April 4th. To prepare for registration, all majors will meet with their advisors, and minors are also encouraged to do so. You will hear from your advisor soon regarding scheduling for your advising appointment. In advance of your appointment, please review your academic requirements page in PAWS, consider your educational and career goals, and identify potential courses for the spring semester.

Here are several department announcements that you should be aware of:

1. *Highlights and recent curricular changes:*

- *Course offerings:* A list of the upper-level course offerings for the fall semester may be found at the end of this letter. Note that this includes the following courses which are not offered annually: MAT320 Complex Analysis, MAT341 Computational Math, MAT405 Topology, MAT430 Seminar in Dynamical Systems, and STA314 Statistical Quality Control.

Beginning Summer 2023, two hybrid courses from TCNJ's MBA Program will be cross-listed as statistics classes. STA 308 Applied Time Series and Forecasting will be offered in Summer, 2023, and STA309 Text Mining will be offered in Fall, 2023.

Our senior seminars MAT405 Topology and MAT430 Dynamical Systems are designed as small seminar experiences, and therefore enrollments will be kept low. Since applied math students are required to take a 400-level applied math class, most seats in MAT430 will be taken by applied math seniors. Math seniors will have second priority. Other seniors, all juniors, and minors will be able to enroll if space permits.

- *Seminar requirement:* Math/Stat majors must attend four department colloquia in their junior year or fall semester of senior year as a prerequisite for their capstone course. All students should attempt to meet this expectation.

2. *Research, Internship, and Learning Assistant courses:* The department encourages students to engage in undergraduate research under the mentorship of a faculty member, to pursue academic credit for internships, and to explore pedagogy by acting as a learning assistant. Details about these opportunities are available on the website or by contacting Prof. Curtis or Prof. Liebars, and of course you are welcome to talk to your advisor about these options. Look for updates in the next few weeks from Dr. Mizuhara regarding research options and from Dr. Liebars regarding Learning Assistant options.

3. *Departmental Honors.* To earn departmental honors, students must have a 3.5 GPA in mathematics and statistics courses, complete an Independent Research 493 course during the junior year or the fall of the senior year, write a thesis, and give a research talk. Interested students should normally reach out to a potential research mentor by their junior year to discuss possible research projects.

4. *Study abroad:* Considering study abroad? Explore links from our website (Academics -> Other Academic Opportunities -> Study Abroad and Study Away) to learn about international math programs, international student teaching, and TCNJ international programs. The department encourages students to consider study abroad opportunities. Students considering study abroad should discuss this with their advisors.

5. **Liberal Learning Courses:** The list of Liberal Learning courses that satisfy specific domains or civic responsibilities can be found at:
<https://liberallearning.tcnj.edu/approved-courses-for-liberal-learning/>
6. **Waitlists and seat reservations.** The Department will again have a waitlist for all closed classes. If a math or stat class you are interested in is closed, you should fill out the Google waitlist form using the link on the department homepage.
Some courses have seat reservations to help ensure that students from different specializations and majors can take the course. If you are unable to register for an open section due to seat reservations, please try to register for another section or add your name to the waitlist.
7. **Minors:** Students with minors should plan their schedule so that they can complete the minors, if possible, before their last TCNJ semester. A few students have experienced problems completing minors in their last semester due to schedule conflicts.
8. **Required units for graduation:** As you plan your schedule, please remember that in addition to completing the specific course requirements for Liberal Learning and the major, you must complete 32 course units to graduate.
9. **Computer Science courses:** Math majors interested in taking upper level computer science courses or pursuing a Computer Science minor need to take CSC 270 or the half-unit course CSC 271. Note that the half-unit course CSC 271 is offered in spring only.
10. **Differential Equations.** Students considering the Applied Mathematics specialization should take MAT 326: Differential Equations as early as possible in their college career, ideally no later than the end of the sophomore year.
11. **Preparing for future Capstone Courses:** Students should plan their schedules so that they meet the prerequisites listed below for their capstone course. In addition all students must attend four seminar/colloquium presentations in their junior and senior years prior to enrolling in the capstone course. Please note that the capstone course is intended for students in their final two semesters at the college.
 - For Applied Mathematics: Prerequisites: Senior Standing and completion of MAT 310, MAT 326, CSC 220 (or CSC 250), and two 300/400 MAT or STA options. Corequisites: Two additional 300/400 MAT or STA options.
 - For Mathematics: Prerequisites: Senior Standing, and completion of MAT 305, 310, one MAT 400-level course and one additional 300/400-level MAT course. Corequisites: Two additional MAT 300/400 courses.
 - For Statistics: Senior Standing, and completion of MAT 316 and two 300-level courses. Corequisite: STA 410.
 - For Mathematics Secondary Education: MTT 390 and meeting all the criteria for admission for student teaching including: completion of STA 216, MAT 301, MAT 351, and MAT 305; completion of all but at most 3 of their required mathematics courses; earning a grade of at least B- in MTT 390; an overall GPA average of at least 3.0.

We wish you a successful registration session. Please write or see us if you have any questions!
Sincerely,

Professor Cynthia Curtis
Chair
Department of Mathematics and Statistics

Professor Cathy Liebars
Associate Chair
Department of Mathematics and Statistics

Upper Level Course Offerings for 2023-2024

Fall:

MAT 301: Number Theory

MAT 305: Abstract Algebra

MAT 310: Real Analysis

MAT 316: Probability*

MAT 320: Complex Analysis

MAT 326: Differential Equations

MAT341: Computational Mathematics*

MAT 351: Geometry

MAT 405: Topology

MAT 430: Seminar in Dynamical Systems*

MTT 380: Methods of Teaching Mathematics I

MTT 390: Methods of Teaching Mathematics II

MTT 490: Clinical Practice II

SED 498: Mathematics Secondary Education Capstone

STA 305: Regression Analysis

STA 309: Text Mining

STA 314: Statistical Quality Control

Spring:

STA 216: Statistical Inference and Probability for Educators

MAT 255: Perspectives on the Development of Mathematics

CSC 271: Discrete Structures of Computer Science for Math Majors (.5 unit)

MAT 275: Sophomore Seminar

MAT 301: Number Theory

MAT 305: Abstract Algebra

MAT 310: Real Analysis

MAT 326: Differential Equations

MAT331: Numerical Analysis*

MAT 351: Geometry

MAT 370: Topics in Mathematics: (*Graph Theory*)

MAT 403: Advanced Calculus with Topology

MAT 497: Topics in Secondary Mathematics from an Advanced Viewpoint

MAT 498: Capstone

MTT 490: Clinical Practice II

SED 498: Mathematics Secondary Education Capstone

STA 307: Data Mining and Predictive Modeling

STA 318: Operations Research

STA 410: Mathematical Statistics

STA 498: Statistics Capstone

* indicates an Applied Mathematics Option; **Bold** indicates a course that is not offered every year; *Italics* indicates that plans for the course remain tentative; Underline indicates that the course is a course in the graduate MBA program which has been cross-listed