

Advising Newsletter

Department of Mathematics and Statistics

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

Registration for Spring 2020 classes will start November 5th. We cannot emphasize enough the importance of meeting with your advisor to discuss your academic plans, progress, and career goals. Majors are required to meet with your academic advisor before they can register for Spring classes. To encourage you to read the advising newsletter carefully, the department will be having a \$25 raffle. To enter the raffle, please put your name and the answers to the questions at the end of this newsletter on a sheet of paper, and enter it in the advising raffle bin in the departmental office (SCP 231). The first randomly selected entry with five correct answers will be the winner of a \$25 gift card.

Here are a number of general department announcements that you should be aware of:

1. *Highlights and recent curricular changes:*

- *Sophomore Seminar:* The sophomore seminar (MAT 270) is a graduation requirement for all non-education mathematics majors who entered the major in Fall 2018 or later. There are three sections offered in Spring 2020. It is a half-unit course. The course introduces students to topics not normally seen in the foundational courses of the curriculum, career opportunities, research methods, and the use of mathematics software. MAT 200 is a prerequisite course and MAT 205 is a corequisite. If you are a sophomore major who does not meet these requirements, please discuss it with your advisor. You may be able to take the course as a junior. Some students may want to enroll in another half-unit course to complement the sophomore seminar. A partial list of TCNJ half-courses is listed at the end of this newsletter. If no half course works for you, one can sign up for either 3.5 or 4.5 units of credit. Please speak to your advisor about this.
- *CSC 220:* Sections 02 and 03 of CSC 220 in Spring 2020 will be tailored for math/stat majors. If you are taking CSC 220, try to enroll in these section, if your schedule 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.
- *Computer Science Data Science course:* Students interested in data science should consider the half-unit course *CSC 275: Mini Course in Computer Science* that is an introduction to data science.
- *Computer Science CSC 271:* 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. In Spring 2020, only CSC 270 will be offered.
- *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 where a required course for the minor conflicts with the required capstone for their major.

2. *Internships and Research:* The department offers students the opportunity to earn academic credit for internships with the courses MAT 299/399, STA 299/399, and MTT 299. For more information, please see the department webpage for details and contact internship coordinators Dr. Mizuhara, Dr. Ochs, and Dr. Liebars (for MTT 299). The department encourages students to engage in undergraduate research. The webpage <https://mathstat.tcnj.edu/undergraduate-research/> provides a list of topics that faculty work on that are amenable for student research projects. Please follow the directions provided there. For more information, please speak with your advisor.
3. *Sections of Courses.* The following list shows the currently anticipated number of sections to be offered for the upper level courses in the major. The list of all regular offerings can be found on the “Course offering” page of the math/stat website.

<i>Spring 2020 Semester (# of sections)</i>	
MAT 255: Perspectives in the Development of Mathematics (2)	MAT 453: Seminar in Algebra: Algebraic Combinatorics (1)
MAT 270: Sophomore/Junior Seminar (3)	MAT 498: Capstone (2)
MAT 301: Number Theory (2)	
MAT 305: Abstract Algebra (1)	MTT 490: Clinical Practice II (as needed)
MAT 310: Real Analysis (2)	SED 498: Math Secondary Ed Capstone (1)
MAT 320: Complex Analysis (1)	
MAT 326: Differential Equations (2)	STA 306: Applied Multivariate Analysis (1)
MAT 331: Numerical Analysis* (1)	STA 307: Data Mining and Predictive Modeling (1)
MAT 351: Geometry (1)	STA 410: Mathematical Statistics (1)
	STA 498: Capstone (1)

*= *an Applied Mathematics Options course*

4. *Waiting Lists.* The Department will again have a waiting list for all closed classes. Once your registration time opens up, if a class is closed, you should fill out the Google wait list form (the link is at the top right of our web site). As students change courses, and spots open up in closed classes, the Department will fill the spots with students from the wait-list. The wait list should be used only when there is a closed section that you need to enroll in and there is no open section that fits your schedule.
5. *Seat Reservations:* Some courses have seat reservations to help ensure that students from different specializations and majors can take the course. At registration, a course might be listed as open, but because of seat reservations, PAWS might not let you register for the course. If you

experience this, please try to register for another section of the course. If none fit your schedule, please let us know by filling out the waitlist. We will do our best to see if you can be enrolled.

6. *Differential Equations.* All students considering the Applied Mathematics specialization should take MAT 326: Differential Equations as early as possible in their college career, and if possible, no later than the end of their sophomore year. We have reserved seats in the course for applied math students and all sophomore math majors.
7. *Math Capstone courses:* Students in the mathematics specialization can choose to take either the Mathematics capstone or the Applied Mathematics capstone. Here are the descriptions of the two capstones:
 - The applied mathematics capstone will allow students the flexibility to explore a topic in applied mathematics that is of interest to them. The topic will be chosen in consultation with Professor Clark, taking into account student interest and background.
 - The mathematics capstone will allow students the flexibility to explore a topic of their choosing from among topics that will be introduced at the beginning of the course. If you have a specific area of interest, you are encouraged to speak to Professor Clifford by the end of this semester.
8. *Capstone Courses Requirements:* Mathematics (non-ed) students should plan their schedules so that they meet the following prerequisites for their capstone course.
 - 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.
9. *Capstone Courses:* All senior Mathematics and Statistics majors are required to complete a capstone course (MAT/STA 498). These courses are only offered in the Spring semester. When planning your fall schedule, you should ensure that your schedule will allow you to take the capstone course in the spring. Also, students who expect to graduate in Fall 2020 will need to take the capstone course in the Spring 2020 semester. Education students take the capstone course that accompanies Clinical Practice II. Please make sure that you have completed the necessary prerequisites for the capstone. Remember that one of the prerequisites for the capstone is to attend four seminar/colloquium presentations in your junior and senior years prior to taking the capstone course. Students currently enrolled in a capstone will be giving presentations at the end of the Spring semester. Other students, especially juniors, are encouraged to attend.
10. *Departmental Honors.* Departmental honors are awarded by our department at graduation and appear on one's transcript. They are independent of the College's Honors Program, and the Latin

honors (*summa cum laude*, ...) awarded at graduation. To earn departmental honors, students must have a 3.5 GPA in mathematics and statistics courses and complete the following:

- A student must engage in independent research during their junior or senior year. The student should successfully complete an Independent Research 493 course during a semester they spend on-campus, and prepare a paper which will be due the middle of their last (graduating) term. A presentation (which we envision being a 40 minute talk, perhaps during a lunch period) will be given in the two week period following the submission of the paper. The members of the student's Honors Committee will be present, and be given ample opportunity to ask the students questions about their research to gauge their level of understanding.

There will be Honors presentations in April in the department. Students considering departmental honors should attend these presentations.

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

Sincerely,

Professor Thomas Hagedorn
Chair
Department of Mathematics and Statistics

Professor Cathy Liebars
Associate Chair
Department of Mathematics and Statistics

List of TCNJ Half Courses Offered Spring 2020:

In addition to independent study, guided study, and independent research courses (which can be .5 unit courses), the following half-unit courses are being offered in the Spring 2020 semester.

- CRI 170: Topics in Criminology (Topic: Effective Communication)
 - CSC 275: Mini Course in Computer Science (Topic: Data Science)
 - FIN 201: Fundamental Financial Methods
 - FIN 370: Topics in Finance
 - 02: Topic: Hedge Funds/Private Equity
 - 03: Private Placement
 - IST 201: Introduction to Data and Information Science
 - MGT 201: Management Principles and Practices
 - MKT 201: Marketing Principles
 - MUS: A LOT of various music courses
 - RAL 328: Reading in Secondary Education (Supporting Adolescent Literacies)
 - SED 240: Introduction to Middle Level Education
 - SED 470: Selecting Topics in Secondary Education (Topic: Middle School Specialization)
 - VPA 201: Dance and Movement Fundamentals
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The \$25 Advising Gift Card raffle

Enter your name and the answers to these questions on a sheet of paper and enter it in the Advising Raffle bin in SCP 231 (the department office). One randomly chosen entry with the correct answers will win a \$25 gift card.

1. How many department seminars is a major required to attend in their junior year or fall of senior year to meet the capstone course prerequisite?
2. Students who began or declared their non-education mathematics majors in the _____ semester or later are required to take the sophomore seminar as a graduation requirement.
3. To learn about earning academic credit while doing an internships, students should contact one of the three professors: _____, _____, and _____.
4. Students can learn about data science in two courses being offered this spring. They are _____ and _____.
5. Education majors take the capstone course that accompanies _____.