

# MAT 221 - Elementary Probability and Statistics I - Spring 2025 Syllabus

Note: This is the common syllabus for both MAT-221 sections, M100 & M200:

- MAT 221-M100 (42434) TuTh 2:00PM - 3:20PM, Life Science Building 001
- MAT 221-M200 (42455) TuTh 3:30PM - 4:50PM, Life Science Building 001

## Instructor & Course Supervisor:

- Thomas John, PhD., Office: 313D Carnegie, email: [thjohn@syr.edu](mailto:thjohn@syr.edu), Ph: x1587
- If you are having any issues, it should be brought to the attention of the course supervisor immediately.

Each recitation instructor will provide their own contact & office hours information. Also see <https://artsandsciences.syracuse.edu/mathematics/mathematics-people/office-hours-gs/>. Office hours information on this page will be updated as the semester gets underway.

**Course Description:** This course is the first course in the Quantitative Skills sequence MAT 221-222. The primary objective of MAT 221 is to provide students with knowledge of elementary probability and statistics. Students will learn the basic concepts of descriptive statistics, design of experiments, probability theory, sampling distributions, and estimation of parameters. Students continuing to MAT 222 will learn how to use statistics to make various decisions.

**Shared Competency:** MAT 221 fosters the shared competency (Syracuse University's university-wide learning goals for undergraduate students): "Scientific Inquiry and Research Skills".

**Mathematics Prerequisite:** Algebra competency

## Textbook & Orange Inclusive Access:

- *Introduction to the Practice of Statistics*, D. S. Moore, G. P. McCabe, and B.A. Craig, 10th ed.
- Chapters 1-6 will be covered in MAT 221.
- Your course materials will be provided through Orange Inclusive Access (OIA). You are automatically enrolled and your required course material will be accessible via Blackboard (once it is made available). All you need to do is log in to Blackboard course page and follow the instructions.
- Students have fourteen days from the start of classes to choose to opt-out of participation. If a student does not opt out before that deadline, their bursar student accounts will be charged for the amount of the materials. If you opt out, you are still responsible for obtaining the materials elsewhere.

**Calculator:** You will need a calculator to do the computations that will arise throughout the course. No specific calculator is required, but TI 84 or TI 83 graphing calculator is highly recommended. Calculators are not to be shared during exams and quizzes.

**Exams:** There will be two semester examinations and a cumulative (comprehensive) final exam, as follows:

- Semester Exam 1: Thursday, February 20<sup>th</sup>, in the lecture auditorium
- Semester Exam 2: Thursday, April 3<sup>rd</sup>, in the lecture auditorium
- **CUMULATIVE FINAL EXAM:**

The final exam will be comprehensive/cumulative. Currently lower-level mathematics courses (including MAT-221) are assigned a general exam time period (Monday, May 5<sup>th</sup>, 2025, 8:00am – 2:30pm). See [registrar.syr.edu/students/final-exams/](https://registrar.syr.edu/students/final-exams/). A specific 2-hour block and a specific location (*possibly different from the lecture auditorium*) for MAT-221 will be assigned by the registrar towards the end of the semester. Once decided, this information will be available on MySlice and will be announced in lecture. All students must take the final exam at the scheduled time. ***THERE WILL BE NO EXCEPTIONS***, and so **you should not make any other plans on Mon, May 5<sup>th</sup>, 2025, 8:00am – 2:30pm**

**Quiz:** There will be a short quiz after each lecture based on the material covered in that lecture, as well as a weekly quiz in recitation. The logistics, including the due dates/times will be announced in lecture.

**Homework:** Homework will be done online using WeBWorK, an open-source homework system for math and sciences courses. The number of attempts on each problem is unlimited. Problems can be done in any order, and you do not have to do them all at once. Two lowest WeBWorK scores will be dropped.

WeBWorK access information:

- Link: [https://webwork.syr.edu/webwork2/MAT\\_221\\_Spring\\_2025\\_John](https://webwork.syr.edu/webwork2/MAT_221_Spring_2025_John)
- Instructions are on the right of the webpage ("login info"). In particular:
  - Username is your netid (without the at-syr-edu) in ALL lowercase letters (be aware of browsers sometimes capitalizing the first letter in an entry field).
  - Initial password is your 9-digit numeric SU-ID number (the physical ID card has a 10th digit past a dash and is not included in the password).

Additional HW problems may be assigned occasionally by the lecture instructor. The instructor will clarify whether or not those problems will be collected.

**Grading:** Your final grade will be based on two midterm exams (20% each), a cumulative final exam (25%), Daily Quizzes (20%), and HW (15%). Final letter grades will be based on the following scale:

Raw Grade	Letter Grade	Raw Grade	Letter Grade	Raw Grade	Letter Grade
$93 \leq x \leq 100$	A	$90 \leq x < 93$	A -		
$87 \leq x < 90$	B +	$83 \leq x < 87$	B	$80 \leq x < 83$	B -
$77 \leq x < 80$	C +	$73 \leq x < 77$	C	$70 \leq x < 73$	C -
$60 \leq x < 70$	D	$0 \leq x < 60$	F		

**Missed Exams/Quizzes:** There will be no make-up exams/quizzes for any reason. A missed exam/quiz will count as a zero unless it is due to a documented religious observance, University-sponsored event, or documented emergency. For religious observances and for university-sponsored events, this documentation must be submitted in advance. For emergencies, you must present documentation from a physician or from the Dean's Office as soon as possible. In such cases, a missed exam/quiz score will be replaced by the score on the corresponding portion of the material on the final exam.

**No HW Extensions:** No extension will be given in any circumstances. If you have a valid excuse, you may be exempted from that HW, as long as your excuse covers the entire HW period- not just the due date only. Do not wait until the due date to do your HW. "Internet problems," "Broken laptops," "homework portal down on due date," etc. are not valid excuses. However, if there is a persistent homework portal/server problem which is longer than a day (24 hours), then HW due time may be changed.

**Tentative Course Schedule:** This schedule is only tentative. It is your responsibility to find out which topics are covered in class each week.

Week	Chapter	Week	Chapter
Week of Jan-13	Chapter 4 (4.1 & 4.2)	Week of March-10	Spring Break
Week of Jan-20	Chapter 4 (4.5)	Week of March-17	Chapter 5 & 6 (5.3 & 6.1)
Week of Jan-27	Chapter 4 (4.5, 4.3)	Week of March-24	Chapter 6 (6.1 & 6.2)
Week of Feb-03	Ch. 1 & 4 (1.4, 4.3, 4.4)	Week of March-31	Sec 6.3 & <b>Exam 2 (April 3rd)</b>
Week of Feb-10	Ch. 1 & 4 (4.4, 1.1-1.2)	Week of April-07	Chapter 2 (2.1-2.4)
Week of Feb-17	Sec 1.3 & <b>Exam 1 (Feb 20th)</b>	Week of April-14	Ch. 2 & 3 (2.5, 2.6, 3.1)
Week of Feb-24	Chapter 5 (5.1 & 5.2)	Week of April-21	Ch. 3 (3.2, 3.3) & Review
Week of March-03	Chapter 5 (5.2 & 5.3)	<b>Monday May 5th</b>	<b>FINAL EXAM BLOCK</b>

**Attendance:** Attendance in classes is expected in all courses at Syracuse University. It is a federal requirement that faculty promptly notify the university of students who do not attend or cease to attend any class. Faculty will use Early-Semester Progress Reports and Mid-Semester Progress Reports in Orange SUccess to alert the Registrar and Financial Aid Office on non-attendance. Visit: [registrar.syr.edu/students/non-attendance/](https://registrar.syr.edu/students/non-attendance/)

If a student is unable to participate in-person or virtually for an extended period of time (48 hours or more), the student may request an absence notification from their home school/college Dean's Office or through Student Outreach and Support office. Instructors will be notified via the "Absence Notification" flag in Orange SUccess. See : [experience.syracuse.edu/student-outreach/student-support/absence-notifications/](https://experience.syracuse.edu/student-outreach/student-support/absence-notifications/). In addition, for a missed class, students are responsible for any announcements about changes to the course schedule, the exam schedule, or the course requirements that were made during that class.

**Available Student Assistance:** Your recitation instructor and your lecture instructor will have office hours. In addition, the Mathematics Department offers help in the Math Clinic. The hours and location are posted on <https://artsandsciences.syracuse.edu/mathematics/undergraduate-studies/math-help/> (Spring 2025 hours to be posted by the 3<sup>rd</sup> week of classes).

In addition, Center for Learning and Student Success (CLASS) offers free group tutoring sessions for MAT 221. Visit <https://class.syr.edu> to learn more and register for a session.

**Important Syllabus Reminders from the Office of Academic Affairs:** The following matters pertain to the mutual obligations of faculty, staff, and students in ensuring a positive educational experience for all. For additional details see: [academicaffairs.syracuse.edu/important-syllabus-reminders/](https://academicaffairs.syracuse.edu/important-syllabus-reminders/)

**Student Mental Health:** Mental health and overall well-being are significant predictors of academic success. As such it is essential that during your college experience you develop the skills and resources effectively to navigate stress, anxiety, depression, and other mental health concerns. Please familiarize yourself with the range of resources the Barnes Center provides (<https://ese.syr.edu/bewell/>) and seek out support for mental health concerns as needed. Counseling services are available 24/7, 365 days, at 315-443-8000.

**Discrimination or Harassment:** The University does not discriminate and prohibits harassment or discrimination related to any protected category including creed, ethnicity, citizenship, sexual orientation, national origin, sex, gender, pregnancy, disability, marital status, age, race, color, veteran status, military status, religion, sexual orientation, domestic violence status, genetic information, gender identity, gender expression or perceived gender.

Any complaint of discrimination or harassment related to any of these protected bases should be reported to Sheila Johnson-Willis, the University's Chief Equal Opportunity & Title IX Officer. She is responsible for coordinating compliance efforts under various laws including Titles VI, VII, IX and Section 504 of the Rehabilitation Act. She can be contacted at Equal Opportunity, Inclusion, and Resolution Services, 005 Steele Hall, Syracuse University, Syracuse, NY 13244-1120; by email: [titleix@syr.edu](mailto:titleix@syr.edu); or by telephone: 315-443-0211.

**Students with disabilities:** Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. There may be aspects of the instruction or design of this course that result in barriers to your inclusion and full participation in this course. I invite any student to contact me to discuss strategies and/or accommodations (academic adjustments) that may be essential to your success and to collaborate with the Center for Disability Resources (CDR) in this process.

If you would like to discuss disability-accommodations or register with CDR, please visit Center for Disability Resources. Please call (315) 443-4498 or email [disabilityresources@syr.edu](mailto:disabilityresources@syr.edu) for more detailed information. The CDR is responsible for coordinating disability-related academic accommodations and will work with the student to develop an access plan. Since academic accommodations may require early planning and generally are not provided retroactively, please contact CDR as soon as possible to begin this process.

**Academic Integrity:** As a pre-eminent and inclusive student-focused research institution, Syracuse University considers academic integrity at the forefront of learning, serving as a core value and guiding pillar of education. Syracuse University's Academic Integrity Policy provides students with the necessary guidelines to complete academic work with integrity throughout their studies. Students are required to uphold both course-specific and university-wide academic integrity expectations such as crediting your sources, doing your own work, communicating honestly, and supporting academic integrity. The full Syracuse University Academic Integrity Policy can be found by visiting [class.syr.edu](http://class.syr.edu), selecting, "Academic Integrity," and "Expectations and Policy."

Upholding Academic Integrity includes the protection of faculty's intellectual property. Students should not upload, distribute, or share instructors' course materials, including presentations, assignments, exams, or other evaluative materials without permission. Using websites that charge fees or require uploading of course material (e.g., Chegg, Course Hero) to obtain exam solutions or assignments completed by others, which are then presented as your own violates academic integrity expectations in this course and may be classified as a Level 3 violation. All academic integrity expectations that apply to in-person assignments, quizzes, and exams also apply online.

Specifically for this course, the academic integrity aspects relate to quizzes/exams. A student is not allowed to use ANY electronic device except for their calculator during the quiz/exam until the quiz/exam is handed in. Accessing material beyond standard calculator functionalities and any statistical table provided during the quiz/exam will be a violation of academic integrity.

Students found in violation of the policy are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered. Students may not drop or withdraw from courses in which they face a suspected violation. Any established violation in this course may result in course failure regardless of violation level.

**Artificial Intelligence:** Based on the specific learning outcomes and assignments in this course, artificial intelligence is permitted on certain assignments. See each assignment, quiz, or exam instructions for more information about what artificial intelligence tools are permitted and to what extent, as well as citation requirements. *If no instructions are provided for a specific assignment, then no use of any artificial intelligence tool is permitted.* Any AI use beyond that which is detailed in course assignments is explicitly prohibited except when documented permission is granted.

**Academic Integrity Online:** All academic integrity expectations that apply to in-person quizzes and exams also apply to online quizzes and exams. In this course, all work submitted for quizzes and exams must be yours alone. Discussing quiz or exam questions with anyone during the quiz or exam period violates academic integrity expectations for this course. Using websites that charge fees or require uploading of course material (e.g., Chegg, Course Hero) to obtain exam solutions or assignments completed by others and present the work as your own violates academic integrity expectations in this course and may be classified as a Level 3 violation, resulting in suspension or expulsion from Syracuse University.

**Religious observances policy:** [Syracuse University's Religious Observances Policy](#) recognizes the diversity of faiths represented in the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their traditions. Under the policy, students are given an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance, provided they notify their instructors no later than the academic drop deadline. For observances occurring before the drop deadline, notification is required at least two academic days in advance. Students may enter their observances in MySlice under Student Services/Enrollment/My Religious Observances/Add a Notification.

**Blackboard Learning Management System:** This class will use the Blackboard Learning Management to house the syllabus, course content, links to external course materials, assignments, quizzes, exams, feedback, and grades. Note when submitting materials that the University's Blackboard Learning Management System is on Eastern Time. Information about Blackboard is available on Answers Blackboard; alternatively, you can contact Information Technology Services (ITS) Center. Information can be found at [its.syr.edu/its\\_service\\_center/](http://its.syr.edu/its_service_center/)

**Email Policy:** Syracuse University has established email as a primary vehicle for official communication with students, faculty, and staff. Emergency notifications, educational dialog, research, and general business correspondence are all consistently enhanced in institutions of higher learning where email policies exist and are supported by procedures, practice, and culture.

An official email address is established and assigned by Information Technology Services (ITS) for each registered student, as well as for all active faculty and staff members. All University communications sent via email will be sent to this address. Faculty and staff members must use the officially established University email address to communicate with students registered in their classes. Keep in mind that student records sent to a non-syr.edu email address may create a FERPA violation. See [policies.syr.edu/policies/information-technology/e-mail-policy/](https://policies.syr.edu/policies/information-technology/e-mail-policy/).

**Family Educational Rights and Privacy Act (FERPA):** The Family Educational Rights and Privacy Act (FERPA) sets forth requirements regarding the privacy of student records. FERPA governs both the access to and release of those records, known as education records, and the information they contain. Under FERPA, faculty have a legal responsibility to protect the confidentiality of student records. For additional information about FERPA and Syracuse University's FERPA policy, see Compliance with the Family Educational Rights and Privacy Act (FERPA) at [policies.syr.edu/policies/university-governance-ethics-integrity-and-legal-compliance/compliance-with-the-family-educational-rights-and-privacy-act-ferpa/](https://policies.syr.edu/policies/university-governance-ethics-integrity-and-legal-compliance/compliance-with-the-family-educational-rights-and-privacy-act-ferpa/) or contact the Office of the Registrar (315.443.2422).

Among the FERPA policies, of interest is section VI (Release Without Consent): "*FERPA authorizes the following disclosures of education record information without a student's consent:*" [...] part vii: "*Disclosures to parents of a dependent student, as defined in Section 152 of the Internal Revenue Code of 1986.*"

**Learning Objectives:** After taking this course, students will be able to:

- Demonstrate understanding of the key principles of descriptive statistical analyses
- Summarize data numerically and graphically
- Recognize particular sampling and statistical experimental designs, as well as their usage and purpose
- Demonstrate understanding of basic concepts of mathematical probability.
- Compute probabilities and work with key random variable distributions based on specific contexts and using various rules
- Demonstrate understanding of the importance of Central Limit Theorem and the associated approximations
- Demonstrate understanding of basic statistical inference procedures (confidence intervals and statistical tests of hypotheses)

**Tips for success in this course:**

- It is absolutely essential that you understand how to solve all the assigned problems. Once you understand how to solve a problem, write your solution down neatly and in full detail with explanations that make your reasoning clear.
- Don't fall behind. If you are having difficulties keeping up with the material, seek help.
- Take advantage of all the help available for students (listed above in this syllabus).
- Discussing problems with a classmate is very useful.
- Questions in class and recitations are strongly encouraged.
- Expect to work hard. Don't get discouraged if you find some of the material difficult. Be persistent and patient.

**Key Dates:** Please see <https://www.syracuse.edu/academics/calendars/academic-year/#spring-2025> for the key dates for the semester.