

STOR 556: Time Series Data Analysis
Spring 2026
The University of North Carolina at Chapel Hill

Instructor: Hang Zhou

Email: hzh@unc.edu

Office: Hanes 339

Office Hours: Tu 1:30-2:30 PM

Course Website: <https://hg-zh.github.io/teaching/STOR556Spring2026>

Teaching Assistant: Jack McPherson

Email: jackrymc@unc.edu

Office Hour: Wed 12:00-2:00 PM

Classroom: Hanes B30

Schedule:

Class sessions (lectures) will take place Tuesday and Thursday from 11:00AM to 12:15PM at Hanes Hall 120.

Prerequisite:

STOR 435 or 535, and STOR 455.

Recommended Textbook:

The class material will draw from the following textbook, but the class will be self-contained so no purchases are necessary. A free electronic copy can be downloaded from UNC library.

Introduction to Time Series and Forecasting by Brockwell and Davis, 3rd edition.

List of Topics:

Zero-mean models; stationarity and autocorrelation; estimation of the trend and seasonality; testing the estimated noise sequence; causality, invertibility and identifiability; AR, MA and ARMA models; Yule-Walker estimation; maximum likelihood estimation; order selection; use of related software.

Homework:

Homework will be assigned approximately every week. Students are expected to turn in every homework assignment.

You are allowed to work with other students, but homework must be in your own words. Identical homework solutions will all receive a grade of 0.

You are encouraged to meet me or the TA in their office hours for help with homework problems after you have tried to solve the problems on your own.

Questions regarding HW grade should be addressed to the TA.

Remember: Late submissions will not be accepted under any circumstances.

Grading:

| Homework | Midterm 1 | Midterm 2 | Final |
|----------|-----------|-----------|-------|
| 30% | 20% | 20% | 30% |

| Grade | Score |
|-------|-------------|
| A | 93 or above |
| A- | 90 to 92.99 |
| B+ | 87 to 89.99 |
| B | 83 to 86.99 |
| B- | 80 to 82.99 |

| Grade | Score |
|-------|-------------|
| C+ | 77 to 79.99 |
| C | 73 to 76.99 |
| C- | 70 to 72.99 |
| D+ | 66 to 69.99 |
| D | 60 to 65.99 |
| F | Below 60 |

Important Dates:

| | |
|----------------------|---|
| Thursday, January 8 | Instruction Begins |
| Tuesday, February 10 | Midterm 1 |
| Thursday, March 12 | Midterm 2 |
| Friday, March 13 | Holiday - Spring break begins 5:00 p.m. |
| Monday, March 23 | Classes resume 8:00 a.m. |
| Thursday, April 2 | Holiday - Well-being day |
| Thursday, April 23 | Last Day of Lecture |
| Monday, May 4 | Final Exam |

Midterm dates may change.

Course Policies and Resources:

About Exams:

- There will be a review session before each exam.
- Both the midterm and final exams are open book and open notes; students may bring the textbook and either handwritten or printed notes.
- Although a calculator is not required, its use is permitted during exams. Students must bring their own calculators, and sharing is not allowed. Only non-graphing, non-programmable calculators are permitted. Smart devices, including cell phones, tablets, laptops, desktop computers and smartwatches, are not allowed. Calculators with wireless, Bluetooth, or cellular capabilities are also prohibited.
- The midterms and final exam are required and there are no make-up exams unless your absence is approved by the university. Missed exams will be made up by adding weight to the final. Midterms will be administered during our scheduled class time. You can use course materials on the exam, but you are not permitted to use the internet nor to work with others

through any platform including text, email, or chat service. If you violate the above rules, you will receive a 0% and be reported to the university.

- You cannot have three finals within a 24-hour period, and therefore you will need to be excused from the regularly scheduled final exam. In this scenario, you must obtain a Dean's excuse and discuss the situation with me at least two weeks before the regularly scheduled final exam so that an alternative arrangement can be made.
- Adherence to the UNC Code of Academic Conduct is mandatory. Any form of cheating, indisipline, or suspected violations will be reported.

About Homework:

- Late submissions will not be accepted under any circumstances.
- The lowest homework grade will be dropped when calculating the final grade.
- To receive full credit, you must show all necessary steps in your reasoning, derivations, and calculations, except for multiple-choice and true/false questions.
- Collaboration on assignments is permitted; however, each student must submit their own original work. Any indication that submitted work is not original, including copying another student's assignment or using solutions from online sources or LLM chatbots generated, will result in a zero for that assignment.
- Posting homework or any course materials provided by the instructor to online websites without permission is strictly prohibited.

About Grading:

- There will be opportunities to earn bonus points, such as quizzes and identifying errors in my mathematical derivations.
- A curve may be applied to the final grades if any of the following conditions occur: (1) fewer than 15% of students receive an A or A-; (2) fewer than 50% of students receive a grade of B- or higher; or (3) more than 5% of students receive an F. If applied, the curve will only improve (or not change the original) grades and will not lower any student's final letter grade.

About Communication:

- Canvas will be used to distribute all course materials and to post announcements. Lecture materials will be uploaded to Canvas at least 12 hours before class.
- All email questions should first be directed to the TA.
- When sending emails, please use your UNC email address and your official or preferred name as listed with UNC.

Technology Use:

- You are welcome to bring laptops or tablets to class, except on exam days. While technology can support learning, it can also be distracting. Laptops and other devices should not be used for entertainment during class and should not display material that may be distracting or offensive to others. Devices may be used only for legitimate classroom purposes, such

as coding, taking notes, or accessing course materials on Canvas. Activities such as email, messaging, web browsing, reading the news, watching videos, streaming, or playing games are not considered legitimate classroom uses. Inappropriate device use is distracting to those around you and is unprofessional.

- The world is changing rapidly, and large language model (LLM) chat services have significantly influenced daily life, study, and work. The use of ChatGPT or other LLM-based chat services is allowed and even encouraged in this course. However, students should (1) be aware that generative AI tools may produce incorrect or misleading information; (2) ensure that their use of such tools supports, rather than replaces, their learning in this course; and (3) exercise critical thinking at all times, which is the most important skill I expect students to develop.

Learning Cooperatively:

- You are encouraged to discuss course content with your friends and classmates while working on weekly assignments. Regardless of your academic background, you will learn more in this course by working with others than by working alone. Ask questions, answer questions, and share ideas freely.

Accessibility Resources:

- UNC-Chapel Hill facilitates the implementation of reasonable accommodations for students with learning disabilities, physical disabilities, mental health struggles, chronic medical conditions, temporary disability, or pregnancy complications, all of which can impair student success. See the ARS website for contact and registration information: <https://www.unc.edu/about/accessibility/>.

Counseling and Psychological Services:

- CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-term needs. Go to their website: <https://caps.unc.edu/> or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more.

Title IX:

- Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Please contact the Director of Title IX Compliance (Elizabeth Hall - cehall@email.unc.edu), Report and Response Coordinators in the Equal Opportunity and Compliance Office (reportandresponse@unc.edu), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators (gvsc@unc.edu; confidential) to discuss your specific needs. Additional resources are available at safe.unc.edu.

Honor Code Statement:

- Students are bound by the Honor Code in taking exams and in written work. The Honor Code of the University is in effect at all times, and the submission of work signifies understanding and acceptance of those requirements. Plagiarism will not be tolerated. Please consult with me if you have any questions about the Honor Code.

Potential Changes:

- Prof. Zhou reserves the right to make changes to the syllabus, including all due dates. These changes will be announced as early as possible so that students can adjust their schedules.