# The University of Iowa
# The College of Liberal Arts and Sciences
# Spring, 2024

**Title of course:** STAT:6560 Applied Time Series Analysis

**Course meeting time and place:** 9:30 - 10:20 AM MWF in 3 SH

**Department of Statistics & Actuarial Science**

**Instructor:** Prof. Osnat Stramer, 370 SH, Phone 335-3182, Email osnat-stramer@uiowa.edu

**Student drop-in hours:** MW 11:00 AM-12:15 PM in 370 SH. Students are invited to drop by during these hours to discuss questions about the course material or concerns. I am also available by appointment if you are unable to attend my drop-in hours.

**Attendance:** Attendance at lectures is expected and highly recommended. Failure to attend class regularly will affect your grade. You are responsible for all we do in class. Lectures are not recorded or broadcast via Zoom.

**Departmental Executive Officer:** Professor Kung-Sik Chan, 241 SH, Phone 335-0712, E-mail kung-sik-chan@uiowa.edu

**Course Prerequisite:** STAT:3101 (Intro to Mathematical Statistics II) **and** (STAT:3200 (Applied Linear Regression) **or** STAT:5200 (Applied Statistics I). Please make sure you completed the course prerequisite. It is required!

**Textbook:** E-book: Time Series Analysis with Applications in R by Jonathan Cryer and Kung-Sik Chan. SpringerLink (Online service) 2nd ed. 2008.

**References:**

1. E-Book: Time Series Analysis and Its Applications With R Examples by Robert H. Shumway, David S. Stoffer. SpringerLink (Online service) 4th ed. 2017.
2. E-book: Introduction to Time Series and Forecasting by Peter J. Brockwell, Richard A. Davis. SpringerLink (Online service) 3rd ed. 2016.
3. You are encouraged to use R. Helpful resources for R codes are in Textbook's web page, and David Stoffer's tutorial.

**Topics to Be Covered:** Most of the material from chapters 1-10.

**Course Website:** I will post announcements, homework problems, and other course information on ICON.

**Homework:** Generally, homework will be assigned every Friday in ICON, and due in ICON the next Friday before class starts. The deadline will be clearly shown in ICON/Assignment. Please write clearly and upload a single pdf file of your work in ICON/Assignment.

**Quizzes:** Roughly on alternative Friday's there will be a quiz in class. The quiz date and topics on the quiz will be announced a few days in advance. You can bring one standard size (8.5in $\times$11in) sheet of paper with formulas and definitions written or typed on both sides to each quiz.

**Final Exam:** You can bring two standard size (8.5in $\times$11in) sheet of paper with formulas and definitions written or typed on both sides.

**Quizzes and Final:** Bring a scientific calculator (any type) to each quiz and exam. Other than these, all quizzes and final are closed-book and closed-notes.

**Mid project:** I will assign you a data set with instructions. The project is due on Wednesday 3/20. (No homework will be due that week).

**Final Project:** Each student has to do a project. The project should represent new work, not something you have done for another course or as part of your thesis. The final written report should be typed and include your goals for this project, body of technical analyses with interpretations, a conclusion, and the listing of the data. Do not take old data sets from textbook or repositories of data sets that come from textbooks and other sources. You need to find a data set that is "fresher" and up to date. Including graphics, the report ordinarily should not exceed 15 pages in length. The final report on your project is due on Friday, May 3, and must be submitted electronically.
A proposal for your project is due on April 19 or before, and must be submitted electronically. The proposal should be at most two pages long, outlining the scientific questions to be addressed and the relevant techniques to be employed, with a separate listing of the data. More details concerning the project will be provided later in the semester.

**Grading:** Your semester grade will consist of the following components:

| | |
|---|---|
| Homework | 20 % |
| Quizzes | 20% |
| One Midterm Project | 10 % |
| Final Exam | 25% |
| Final Project | 20 % |
| Attendance | 5 % |
| Total | 100% |

A plus-minus grading system will be used. As a **rough** guide:

| A | | B | | C | | D | | F |
|---|---|---|---|---|---|---|---|---|
| A+ | 98-100 | B+ | 87-89 | C+ | 77-79 | D+ | 67-69 | F $< 59$ |
| A | 93-97 | B | 83-86 | C | 73-76 | D | 63-66 | |
| A- | 90-92 | B- | 80-82 | C- | 70-72 | D- | 60-62 | |

- Grade cutoffs will be no higher than the usual

- Bonus points are not available on an individual basis.

- Your final grade is based solely on your performance in this class.

- Your final grade can not be negotiated.

**Academic Honesty and Misconduct:** All students in CLAS courses are expected to abide by the CLAS Code of Academic Honesty.

**Student Complaints:** Students with a complaint about a grade or a related matter should first discuss the situation with the instructor, and finally with the Director or Chair of the school, department, or program offering the course.
Undergraduate students should contact CLAS Undergraduate Programs for support when the matter is not resolved at the previous level. Graduate students should contact the CLAS Associate Dean for Graduate Education and Outreach and Engagement when additional support is needed.

**Drop Deadline for this Course:** You may drop an individual course before the deadline; after this deadline you will need collegiate approval. You can look up the drop deadline for this course here. When you drop a course, a "W" will appear on your transcript. The mark of "W" is a neutral mark that does not affect your GPA. Directions

for adding or dropping a course and other registration changes can be found on the Registrar's website. Undergraduate students can find policies on dropping and withdrawing here. Graduate students should adhere to the academic deadlines and policies set by the Graduate College.

**University Policies:**
Accommodations for Students with Disabilities
Basic Needs and Support for Students
Classroom Expectations
Exam Make-up Owing to Absence
Free Speech and Expression
Mental Health
Military Service Obligations
Non-discrimination
Religious Holy Days
Sexual Harassment/Misconduct and Supportive Measures
Sharing of Class Recordings