

Course Syllabus

STAT 543: Time Series Analysis

- Description:** *This course studies statistical modeling and forecasting of time series, which are observations made sequentially through time. Applications of time series discussed are selected from finance, economics, health sciences, meteorology, and many other fields. Students will participate in periodic computer lab sessions with the software SAS.*
- Credit Hours:** 3
- Frequency:** Offered every spring semester
- Audience:** Required for actuarial science and statistics majors; elective for data science majors, mathematics majors, mathematics minors, and applied statistics minors
- Prerequisites:** STAT 540 or ECON 525
- Format:** 2 class sessions (75 min each) per week
- Textbook:** *SAS for Forecasting Time Series, 2nd ed.*, by John C. Brocklebank and David A. Dickey (*recommended, not required*)
- Technology:** SAS will be used frequently in class and out of class. SAS can be obtained for free from the following link: https://www.sas.com/en_us/software/university-edition.html. Microsoft Excel may also be used on occasion, and it can be freely downloaded from the following link: <http://www.valpo.edu/it/2015/02/13/office-365-now-available-free-of-charge/>. Course material and grades are maintained in Blackboard, and students should check Blackboard regularly.
- AARC:** The Access and Accommodations Resource Center (AARC) is the campus office that works with students to provide access and accommodations in cases of diagnosed mental or emotional health issues, attentional or learning disabilities, vision or hearing limitations, chronic diseases, or allergies. You can contact the office at aarc@valpo.edu or 219.464.5206. Students who need, or think they may need, accommodations due to a diagnosis, or who think they have a diagnosis, are invited to contact AARC to arrange a confidential discussion with the AARC office. Further, students who are registered with AARC are required to contact their professor(s) if they wish to exercise the accommodations outlined in their letter from the AARC.
- Notice of Cancellation:** In the unlikely event class is cancelled, you will be notified through your Valparaiso University e-mail account.

Student Learning Objectives:

- A. Students enhance their mathematical modeling skills.
- B. Students increase their understanding of how randomness impacts systems.
- C. Students gain competence with using SAS and other technology to analyze time series.
- D. Students can effectively communicate the results of time series analyses in both oral and written form through the use of both technical and nontechnical language.