

# Course Syllabus

## STAT 561: Introduction to R

- Description:** *An introductory course to the statistical analysis software R. Topics include basic R programming, importing and cleaning data, data visualization, performing descriptive and inferential statistics, and creating reproducible reports.*
- Credit Hours:** 1
- Frequency:** Offered fall semesters of odd-numbered years
- Audience:** Elective for the M.S. in Analytics and Modeling and the M.S. in International Economics and Finance
- Prerequisites:** STAT 540 or ECON 525 (may be taken concurrently)
- Format:** Hybrid (assignments can be completed remotely or in-person)
- Textbook:** R for Data Science, by Wickham and Golemund (*free online textbook*)
- Technology:**
1. Use of the statistical programming language R and the interface RStudio are required. Both can be freely downloaded and installed by following the instructions in the following links:
    - R (install first): <https://cran.r-project.org/>
    - RStudio Desktop (install second): <https://www.rstudio.com/products/rstudio/>
  2. Course materials 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](mailto: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:** Notifications of class cancellations will be made through Blackboard with as much advance notice as possible. It will be both posted on Blackboard and sent to your Valpo e-mail address. If you don't check your Valpo e-mail account regularly or have it set-up to be forwarded to your preferred e-mail account, you may not get the message. Please check Blackboard and your Valpo e-mail (or the e-mail address it forwards to) before coming to class.

**Emergency Protocol:** VU's Emergency Notification System (ENS) uses multiple forms of communication, including e-mail, building alarms, outdoor sirens, message boards, computer alerts, Twitter, and public address messaging. Please review the specific procedures for this class found in Blackboard. Remember: "Siren inside, GO outside; Siren outside, GO inside." To evacuate, gather your personal belongings quickly and proceed to the nearest exit. Do not use the elevator. To shelter in place, move away from the windows and stay low to the ground; lock or barricade the door if there is a threat of violence.

### Student Learning Objectives:

- A. Students can efficiently perform basic R programming, including importing and cleaning data.
- B. Students can design effective data visualizations in R, tailored for the appropriate audience.
- C. Students can conduct descriptive and inferential statistical analyses in R and determine which analyses should be performed based upon the data and research questions.
- D. Students can create well-organized reproducible reports and clearly articulate the need for reproducibility in data analysis.