ECON 3321 – Programming and Computation with R

May Term 2026 (May 11 – May 29)

Instructor

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Office Hours: By appointment (in person or Webex)
Course Website: HuskyCT

Course Description

This course introduces R programming for data analysis. Computation using a programming language is an essential component of modern economic analysis. Economists with quantitative expertise must be able not only to run existing programs but also to read, modify, and write code to build computational tools that solve economic problems.

No prior programming knowledge is assumed. Students will learn the fundamentals of R programming, including data structures, functions, control statements, data visualization, and statistical analysis. Applications will focus on economic datasets and empirical analysis.

Course Materials

Students must install the following software:

- R: https://www.r-project.org/
- RStudio: https://posit.co/download/rstudio-desktop/

Both programs are free.

Course Format

This course is taught in an intensive May Term format. Each class will include short lectures introducing programming concepts, guided coding demonstrations, and hands-on lab exercises using economic datasets. Students are expected to actively participate in coding exercises.

Course Topics

- Introduction to R and RStudio
- Arithmetic and logical operations
- Variable assignment and objects
- Data structures: vectors, matrices, lists, data frames
- Data input and data management
- Conditional statements (if / else)
- Loops (for / while)
- Functions and writing custom functions
- Apply family functions

- Data visualization
- Group comparison
- Linear regression analysis
- Logistic regression

Tentative Schedule

1. Week 1 (May 11–15)
   Introduction to R and RStudio; Objects and data structures; Data input and management; Conditional statements and loops; Functions and apply family; Assignments 1–2
2. Week 2 (May 18–22)
   Functions and apply family; Data visualization; Group comparison; Linear regression analysis; Assignments 3–4; Midterm
3. Week 3 (May 25–29)
   Linear regression analysis; Logistic regression; Project workshop; Final Project Presentation

Course Evaluation

- Participation: 20%
- Assignments: 30%
- Midterm: 20%
- Final Project and Presentation: 30%

Email Policy

I will try to respond to emails within 24 hours. If a question requires a longer discussion, I may ask you to meet during office hours.

Grading Scale:

Grade	Letter Grade	GPA
93-100	A	4.0
90-92	A-	3.7
87-89	B+	3.3
83-86	B	3.0
80-82	B-	2.7
77-79	C+	2.3
73-76	C	2.0
70-72	C-	1.7
67-69	D+	1.3
63-66	D	1.0
60-62	D-	0.7
<60	F	0.0

Final grades will be rounded accordingly (i.e., a 92.6 will be rounded to 93 and receive an A).

Due Dates and Late Policy

All course due dates are identified in the **Course Schedule**. Deadlines are based on Eastern Standard Time; if you are in a different time zone, please adjust your submittal times accordingly. *The instructor reserves the right to change dates accordingly as the semester progresses. All changes will be communicated in an appropriate manner.*
No late work will be accepted in this course. There are no makeup exams except for in extenuating circumstances. If you think you will miss an exam for any reason, please contact the instructor as soon as possible.

Feedback and Grades

I will make every effort to provide feedback and grades within 24-48 hours, with the exception of exams which may take longer to finish. To keep track of your performance in the course, refer to My Grades in HuskyCT.

Student Responsibilities and Resources

As a member of the University of Connecticut student community, you are held to certain standards and academic policies. In addition, there are numerous resources available to help you succeed in your academic work. Review these important standards, policies and resources, which include:

- The Student Code
- Academic Integrity
- Resources on Avoiding Cheating and Plagiarism
- Copyrighted Materials
- Netiquette and Communication
- Adding or Dropping a Course
- Academic Calendar
- Policy Against Discrimination, Harassment and Inappropriate Romantic Relationships
- Sexual Assault Reporting Policy

Students with Disabilities

The University of Connecticut is committed to protecting the rights of individuals with disabilities and assuring that the learning environment is accessible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately so that we can discuss options. Students who require accommodations should contact the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486-2020 or http://csd.uconn.edu/.
Blackboard measures and evaluates accessibility using two sets of standards: the WCAG

2.0 standards issued by the World Wide Web Consortium (W3C) and Section 508 of the Rehabilitation Act issued in the United States federal government." (Retrieved March 24, 2013 from Blackboard's website)

Software/Technical Requirements (with Accessibility and Privacy Information)

The software/technical requirements for this course include:

- HuskyCT/Blackboard (HuskyCT/ Blackboard Accessibility Statement, HuskyCT/ Blackboard Privacy Policy)
- Dedicated access to high-speed internet with a minimum speed of 1.5 Mbps (4 Mbps or higher is recommended).

NOTE: This course has NOT been designed for use with mobile devices.

Help

Technical and Academic Help provides a guide to technical and academic assistance. This course is completely facilitated online using the learning management platform, HuskyCT. If you have difficulty accessing HuskyCT, you have access to the in person/live person support options available during regular business hours through the Help Center. You also have 24x7 Course Support including access to live chat, phone, and support documents.

Minimum Technical Skills

To be successful in this course, you will need the following technical skills:

- Use electronic mail with attachments.
- Save files in commonly used word processing program formats.
- Copy and paste text, graphics or hyperlinks.
- Work within two or more browser windows simultaneously.
- Open and access PDF files.

University students are expected to demonstrate competency in Computer Technology. Explore the Computer Technology Competencies page for more information..

Evaluation of the Course

Students will be provided an opportunity to evaluate instruction in this course using the University's standard procedures, which are administered by the Office of Institutional Research and Effectiveness (OIRE).

Additional informal formative surveys may also be administered within the course as an optional evaluation tool.