



MATH 484-564 Section 2

Section Syllabus (August 14th Version)

Regression

Instructor: [Dr Kiah Wah Ong](#)

Email: kong2@iit.edu

Office: RE 220

Kiah's office hours: TBD

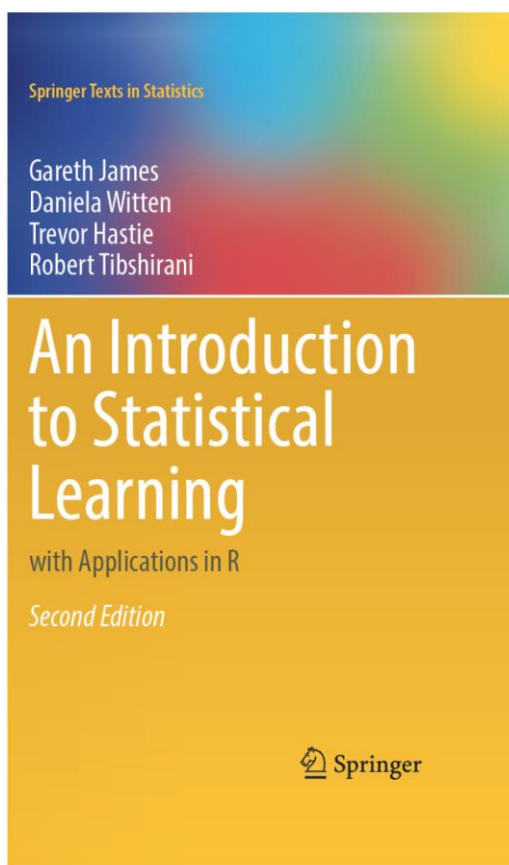
TA/Grader name: TBD

Email: TBA

TA Office hours: TBD

This class will be in-person. The class will have NO recording; however, lecture notes are available.

1. **Textbook**, you can get it for free legally at <https://www.statlearning.com/>



Lecture notes will be provided on Canvas.

2. Assessments and Grades

Assessments:

Homework	25%
Midterm	25%
Project	20%
Final Exam	30%

Grading:

A	90-100	Excellent
B	74-89	Above Average
C	60-73	Average
D	50-59	Below Average
E	0-49	Fail

3. Topics

- Introduction
 - i. What is Statistical Learning?
 - ii. Assessing Model Accuracy
 - iii. Introduction to R
- Linear regression
 - i. Simple Linear regression
 - ii. Multiple Linear regression
 - iii. Other Considerations in the Regression Model
- Classification
 - i. An Overview of Classification
 - ii. Why Not Linear Regression?
 - iii. Logistic Regression
 - iv. Generalized Linear Models
- Resampling Methods
 - i. Cross Validation
- Linear Model Selection and Regularization
 - i. Subset Selection
 - ii. Shrinkage Methods

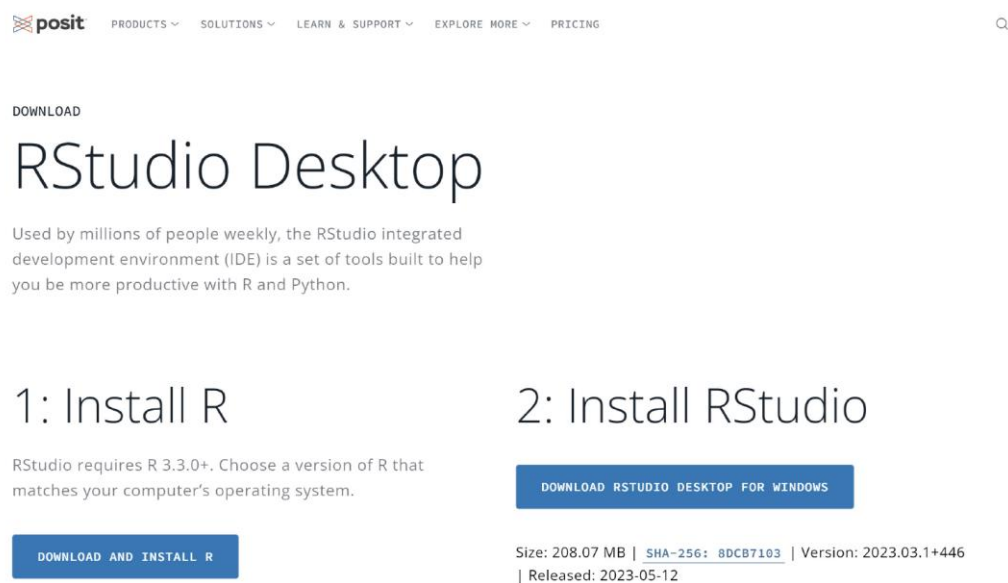
4. Computational tool, R

We will be using R for this class as a computational tool. Please install the software using the link below.

Installation of R and RStudio

Go to

<https://www.rstudio.com/products/rstudio/download/>



The screenshot shows the RStudio Desktop download page. At the top is the Posit logo and navigation links: PRODUCTS, SOLUTIONS, LEARN & SUPPORT, EXPLORE MORE, and PRICING. A search icon is on the right. Below the navigation bar, the word "DOWNLOAD" is in small caps. The main heading is "RStudio Desktop". A paragraph states: "Used by millions of people weekly, the RStudio integrated development environment (IDE) is a set of tools built to help you be more productive with R and Python." Below this, there are two columns. The left column is titled "1: Install R" and contains the text "RStudio requires R 3.3.0+. Choose a version of R that matches your computer's operating system." and a blue button labeled "DOWNLOAD AND INSTALL R". The right column is titled "2: Install RStudio" and contains a blue button labeled "DOWNLOAD RSTUDIO DESKTOP FOR WINDOWS". Below the button, it lists: "Size: 208.07 MB | SHA-256: 8DCB7103 | Version: 2023.03.1+446 | Released: 2023-05-12".

5. Course Project

The project information will be provided in a separate document later in the semester.

6. Academic Integrity:

Department of Applied Mathematics takes academic integrity very seriously. The usual penalty for a student caught cheating includes an E in the course. Further penalties may include probation, suspension, or expulsion from the university.

7. Disability assistance:

The screenshot shows the Illinois Institute of Technology (IIT) website. At the top, there is a navigation bar with links for Alumni, Give to Illinois Tech, Directories, News, and myIIT. Below this is a dark blue header with the IIT logo and a navigation menu with links for ABOUT, ACADEMICS, ADMISSION, RESEARCH, RESOURCES, APPLY NOW, and SEARCH. A red-bordered box contains a message from the Center for Disability Resources, stating that they are working remotely but staff are available Monday through Thursday from 8:30 a.m. to 5 p.m. and Friday from 8:30 a.m. to 2:30 p.m. It also provides contact information for the Dean of Students Office at dos@iit.edu and for questions or assistance with long-term ADA accommodations at disabilities@iit.edu. Below the message is the Center for Disability Resources logo and a navigation menu with links for SERVICES, FAQ, REGISTRATION, FORMS & GUIDES, DISABILITY GUIDELINES, CONFIDENTIALITY, and HANDBOOK.

Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with me as soon as possible.

8. AI Tools Policy:

MATH 484-564 is not a coding-focused course, and you are welcome to use AI tools to assist with generating code for analysis. However, for homework and projects, you should avoid using AI tools for interpreting results. Currently, these tools may produce inaccurate or nonsensical interpretations.