

**George Mason University**  
**Math 453/553**  
**Course Syllabus**

Date           Spring 2020  
Title           Advanced Mathematical Statistics  
Course         Math 453/553  
Location       Nguyen 1108  
Time           Wednesday 7:20PM

Professor:     Dr Eckley  
                  [deckley@gmu.edu](mailto:deckley@gmu.edu)  
                  office #: 703 993 1682  
                  office: Exploratory Hall room 4451  
                  office hours: Mon and Wed 1:00 - 2:45

**Description**

This course covers the basics of probability and statistical analysis. For those interested, it also helps the student prepare for the statistics-related professional exams in the Society of Actuaries and/or Casualty Actuarial Society sequences. This course will utilize the "R" programming language to some extent, and also will utilize large datasets to some extent.

The textbook is An Introduction to Statistical Learning with Applications in R by Gareth James, Daniela Witten, Trevor Hastie, and Robert Tibshirani

**Procedures**

The class will consist mostly of a series of lectures.

Grading will be divided as follows:

Progress Tests (3)	60
Final exam	40

## Calendar

Date	Topic	Reference to Book
22-Jan	Review of Probability	N/A
29-Jan	Normal and Multivariate normal	N/A
05-Feb	Intro to R	Ch 2
12-Feb	Linear Regression	Ch 3
19-Feb	Progress Test 1	
26-Feb	Classification	Ch 4
04-Mar	Resampling Methods	Ch 5
11-Mar	Spring Break	
18-Mar	Linear Model Selection and Regularization	Ch 6
25-Mar	Progress Test 2	
01-Apr	Moving Beyond Linearity	Ch 7
08-Apr	Tree-Based Methods	Ch 8
15-Apr	Support Vector Machines	Ch 9
22-Apr	Progress Test 3	
29-Apr	Review	
06-May	Reading Day	
13-May	Final Exam	