Syllabus for MATH 281 – Probability
Fall 2016

Instructor	Section(s)	e-mail	Office hours
Engin Maşazade	1	engin.masazade@yeditepe.edu.tr	Monday 16-17
Yakup Arı	2 & 3	math.stat.net@gmail.com	Wednesday 11-12

Textbook : *Probability and Statistics for Engineers and Scientists*; Walpole, Myers, Myers, Ye, 9th edition, Pearson New International Edition

Attendance: Students are expected to attend all class meetings and are responsible for all class material covered in class. Any changes in this syllabus will be announced during class meetings. A minimum 80% of attendance is required for this course.

- **The course is on Piazza, follow the announcements, ask questions to your professors or your classmates.**
  https://piazza.com/yeditepe.edu.tr/fall2016/math281/home

Exams: There will be two exams and a final exam. Week 7, Week 12
Course Grading: Exam 1 30%, Exam 2 30%, Final Exam 40%

Course Plan

Week	Subject	Book section	Exercises
1	Sample space, outcomes, events. Set Theory.	2.1-2.2	1,4,5,9,11,12,13,14,15, 16,17,19,20
2	Interpretations and axioms of probability. Basic theorems of probability. Finite sample spaces. Counting techniques. Multiplication rule. Permutations, combinations. Sampling with and without replacement.	2.3,2.4,2.5	21,22,24,27,30,31,33,36, 41,45,49,52,53,58,66,70,
3	Independence of events. Conditional probability. Bayes' theorem.	2.6,2.7,2.8	73,76,77,82,85,88,89,93 95,97,99,101
4	Discrete random variables. Probability function. Distribution function. Mean and variance.	3.1,3.2 4.1 discrete 4.2 discrete	1,2,3,4,5,11,15,16, 1,2,4,5,7,9,17,19 34,35,36,41
5	Special discrete distributions: Uniform, Bernoulli, Binomial, Hypergeometric	5.1,5.2,5.3	1,3,4,6,8,9,11,16,17,27 29,32,33,38,39
6	Geometric, Negative Binomial, Poisson distributions.	5.4,5.5,5.6	49,50,54,57,59,60,62, 65,67
7	Continuous random variables. Probability density function. Review. EXAM I	3.3 4.1,4.2 (continuous)	7,9,12,18,19,21,27,28 12,14,20,50
8	Special continuous distributions: Uniform, Normal, Normal approximation to the Binomial, Gamma, Exponential.	6.1,6.2,6.3 6.4	2,3,4,5,6,7,8,9,11,13,14,15, 16,18

9	Special continuous distributions: Uniform, Normal, Normal approximation to the Binomial, Gamma, Exponential.	6.5,6.6,6.7	24,25,27,32,34,35, 39,40,41,44,45,46
10	Joint, marginal and conditional distributions. Covariance and Correlation. Conditional Mean and Variance. Independence of Random Variables.	3.4	37,38,39,40,42,43,44,47, 49,50,56
11	Covariance and Correlation. Conditional Mean and Variance. Independence of Random Events.	Rest of chapter 4	10,23,44,45,48
12	Review problems, EXAM II		
13	Introduction to Statistics and Data Analysis	8.1-8.6	5,8,13,19,20,22,23,25,30,31, 32,37,39,41,44,45,47,48,49
14	Hypothesis Testing	Chapter 10	1,4,5,6,9,12,13,14,15,19,20, 23,25,28,29,31,32,35,36,39