

18665- Advanced Probability and Statistics for Engineers

Course Material: The course starts with a basic probability approach to real life problems. It gradually moves on to explain the fundamentals of Machine Learning using probabilistic approach. The law of large numbers, the central limit theorem which you will probably come across in machine learning a numerous times are explained quite well in the course. I had taken Introduction to Machine Learning along with this course and my understanding became much better. There are a lot of lectures on Markov Chains which will help you to understand the n-gram models in Natural Language Processing. Not only NLP, it is helpful in many other courses. Tom Mitchell's book takes a probabilistic approach to understand machine learning and so you can understand how important it is to the core of machine learning. The explanations are taken from real life situations and you will be able to relate theory to real life.

Assignments: The assignments are initially more concentrated towards building the basics. But at the same time, there are some problems like 'Monty Hall' problem which will improve your thinking ability. The assignments then gradually move towards solving real life puzzle questions using probability. And after 3rd assignment, the questions are more of machine learning related. Using probability to solve image processing question is something which I will cherish forever. There are 10 assignments in total and you can submit 9.

Grading: 10 Assignments (1 can be dropped)- 60%

1 Mid-Term Exam- 20%

1 Final Exam- 20%

It's not very difficult to score an A in this course. It requires 10 hours of dedication per week.

Professor: He is the best professor I have met in my entire life. His explanations are crystal clear and to the point. Not only he considers every question that is asked but he goes one step further by explaining the other parts on piazza. He is more responsive than his TA's and your answer will probably be answered within an hour or so. I very much liked his sincerity towards the students and I will highly recommend you guys to do some research under him. His name is 'Osman Yagan'. You can probably search out his research areas. The TAs are very helpful as well.

How to do well: Attend the classes regularly
Sufficient time to do assignments
Revision takes time for Mid-semester and End-semester
Exams are tougher but grades are curved