

STATE UNIVERSITY OF NEW YORK AT STONY BROOK
COLLEGE OF ENGINEERING AND APPLIED SCIENCES

EMP 590 - Graduate Seminar

SPRING 2019

Prof TianLih Teng

COURSE SUMMARY:

This course will cover all the basic models in Statistical Learning such as LDA, GLM, Tree, Random Forest, Knn, Kmeans and also include the advanced algorithms such as Cross Validations, Principal components analysis, Support vector machine, BIC, AIC, CP and adjusted R square. In addition, Deep learning will be in few real world project using Convolution Neural network and Recurrent neural tensor network.

GENERAL COURSE ORIENTATION AND REQUIREMENTS:

The course is conducted using lecture and computer distance learning techniques with active class discussion and workshops. Thorough preparation and individual class participation are required. Cases will augment assigned and supplemental readings. Students are responsible for an analysis of methodology trends and management practices within an individually assigned company.

The course grade is split approximately as follows: 10% course participation, 40 % homework and group work; 50% projects presentation and report.

Objective of this course

This course will summarize all the basic concepts in Data science and learn more advanced knowledge in Deep Learning. Students are expected to familiar with all the important models and using them to participate and complete in few real world projects such as Landing approval, Movie rating, Product recommendation, Spam, and Titanic survival predictions.

Schedule and project list

Session #	Description
1.00	LDA
2.00	GLM
3.00	TREE
4.00	Random forest
5.00	Knn
6.00	Kmeans
7.00	BIC AIC
8.00	CP and Adj R squar
9.00	Intro to Deep Learning
10.00	Basic Neural Network
11.00	CNN
12.00	RNN
13.00	RNTN and CNN
14.00	Project presentation
15.00	Project presentation
Project List	
1.00	SPAM
2.00	Landing approval
3.00	Titanic
4.00	Movie rating
5.00	Grades analysis
6.00	Product Recommendation
7.00	Wine detection
8.00	Facial Recognition

References:

Deep Learning By Ian Goodfellow

Statistical Learning By T Hastie