Course Title: Pattern Recognition
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Level: Undergraduate (Fourth Year)

Course Objectives:
Pattern Recognition concepts and algorithms for supervised and unsupervised classification.

Resources:
1-lecture slides, class notes, material from other sources (papers, internet sites, etc)
2- "Pattern Recognition", 3rd Edition by Theodoridis, Sergios & Koutroumbas, Konstantinos
3- "Pattern Classification and Scene Analysis" by Richard O. Duda, Peter E. Hart (http://rii.ricoh.com/~stork/DHS.html)
4-"Data Mining", 2nd edition, by Jiawei Han**,** Micheline Kamber.

Course Contents:

- Introduction
- Data Pre-processing
- Pattern Representation & Similarity/Distance Measures

Supervised Learning:

- Basic Classifiers : MED, MICD, k-NN
- Bayesian Classifiers
- Linear Discriminants
- Combining Classifiers
- Classifier Evaluation

Unsupervised Learning:

- Basic Clustering Algorithms: k-Means and variations, Hierarchical
- Density based clustering
- Graph Theoretic clustering
- Cluster Validity

Applications: image analysis, character recognition, document analysis

Grading Scheme:

- Programming Assignments + sheets + Todo's (30%)
- Final Exam (70%)