cse3537
Artificial Intelligence

Professor Anita Wasilewska

Fall 2015

GENERAL INFORMATION

Course Web Page
www.cs.stonybrook.edu/~ cse634

Note that the webpage address link has a different course number

I will be updating the page regularly and will use it to communicate with students

The webpage contains : Course Syllabus and all Lecture Notes slides and some additional course materials

It also contains Project Data and Project Description

Course Main Text Book

Main Book

DATA MINING - Concepts and Techniques

Jiawei Han and Michelle Kamber

Morgan, Kauffman Publishers, 2006, 2011

Here is the author webpage: www.cs.uiuc.edu/ hanj

Here is a full set of Book Second Edition Slides;

http://web.engr.illinois.edu/ hanj/bk2/slidesindex.htm

We will use this Book for the **Part 2: Machine Learning** of the course

We will use my own **Lecture Notes** based on the Book

Course Additional Text Books

Book 1

LOGICAL FOUNDATION of ARTIFICIAL INTELLIGENCE

Michael, F. Genesereth, Nils, J. Nilsson

Morgan, Kauffman Publishers

This is the most classical book and unfortunately out of print

I will provide **PDF copies** of the first section of the book that we cover

We will use this Book for the **Part 1: General Introduction** of the course

We will use my own **Lecture Notes** based on and extending the book

Course Additional Text Books

Book 2

MANAGING UNCERTAINTY IN EXPERT SYSTEMS

Jerzy W. Grzymala-Busse

Kluwer Academic Publishers

This is very well written and comprehensible book with a lot of exercises

I will provide **PDF copies** of relevant chapters covered in my **Lecture Notes**

We will use this Book for the **Part 1: General Introduction** of the course

Course Content and Schedule

Part One: GENERAL INTRODUCTION

We will cover the following subjects included in the Lecture Notes

1. AI short history and applications

2. Knowledge Representation

3. Short overview of Expert Systems Design and Technology

4. Short overview of Propositional and Predicate Logic; Predicate languages and basic Laws of Quantifiers

5. Automated theorem proving 1: Propositional Resolution

6. Automated theorem proving 2: Predicate Resolution

MIDTERM 1 - Date to be determined

Course Content and Schedule

Part Two: MACHINE LEARNING

We will follow the Data Mining book very closely and in particular we will cover the following chapters and subjects

We will use my own **Lecture Notes** based on the BOOK and I will also post relevant Book Slides as a reference

Chapter 1 General overview: what is Data Mining, which data, what kinds of patterns can be mined

Chapter 2 Data preprocessing: data cleaning, data integration and transformation, data reduction, discretization and concept hierarchy generation

Chapter 5 Mining Association Rules: Apriori Algorithm

Course Content and Schedule

Chapter 6 Classification

1. Decision Tree Induction ID3, C4.5

2. Neural Networks

3. Classification by Association

4. Bayesian Classification

5. Genetic algorithms

Chapter 7 Cluster Analysis

MIDTERM 2 - Date to be determined

We will use my own **Lecture Notes** based on the BOOK and I will also post relevant Book Slides as a reference

Workload

During the semester you have to complete the following.

1. TWO mid- semester TESTS - total for two - (200 pts)

2. Research Presentation - (70pts)

For Details and description look in **Syllabus**

3. Students Presentations evaluation reports - (30 points)

For Details and description look in **Syllabus**

4. Final Paper - (40pts)

For Details and description look in **Syllabus**

5 Final Project - (60pts)

For Details and description look in **Syllabus**

Final grade computation

You can earn up to 400 points during the semester plus up to **extra credit** points

The grade will be determined in the following way:

# of earned points divided by 4 = % grade

The % grade is translated into a letter grade in a standard way as described in the course Syllabus

Attention:

NONE of the GRADES will be curved!

Letter Grade Determination

The **LETTER grade** will be determined as follows

100 - 90 % is an A **range** : A (100-94%), A- (93- 90%)

89 - 80 % is a B **range** :

B + (89 - 86%), B (85- 83%) B - (% 82- 80)

79 - 70 % is a C **range** :

C + (79 -76%), C (75- 73%) C - (% 72- 70),

69 - 60 % is D **range** and F is **below** 60%