1 Scope and Syllabus

This is a specialized course on machine learning that introduces the students to statistical learning theory and focuses on kernel methods. The syllabus is as follows:

I. Background
   - Introduction to Statistical Learning Theory and Support Vector Machines (30%)
   - Introduction to Kernel Methods (30%)

II. Advanced Topics
   Learning theory, Formalization and Algorithms for:
   - Learning with Structured-Data (40%)

Basic background in the following subjects will be assumed: Linear Algebra, Probability Theory, Optimization Theory and Machine Learning.

The following books may be referred to during this course: [1, 2, 3, 4, 5, 6, 7].

2 Evaluation Scheme

The grades (relative grading) will be decided based on the overall marks obtained in:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Exam</th>
<th>Weightage</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>End-Semester</td>
<td>35%</td>
<td>As per TT</td>
</tr>
<tr>
<td>2.</td>
<td>Mid-Semester</td>
<td>35%</td>
<td>As per TT</td>
</tr>
<tr>
<td>2.</td>
<td>Projects</td>
<td>30%</td>
<td>One each around mid and end sems</td>
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¹Numbers in brackets roughly indicate the number of lectures spent on the corresponding topic.
Practice problems will be given and they do not carry direct credit. However 30% of overall marks in exams may come from these practice problems.

3 Contact

The course page is at http://www.cse.iitb.ac.in/saketh/teaching/cs729.html. Office hours for the course are “ANYTIME”. The instructor can also be contacted via phone: x7903 or email: saketh at cse anytime.

References


[2] Relevant papers (will be announced in class).


