<table>
<thead>
<tr>
<th>Title</th>
<th>CMPE5001 Data Mining 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Required area course for graduate computer engineering program in artificial intelligence</td>
</tr>
<tr>
<td>Semester</td>
<td>Fall 2009</td>
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<tr>
<td>Level</td>
<td>Graduate</td>
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<tr>
<td>Credit-hours</td>
<td>3</td>
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<td>ECTS credits</td>
<td>3</td>
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<tr>
<td>Weekly hours</td>
<td>3 hours of theory,</td>
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<tr>
<td>Catalogue description</td>
<td>This course provides an introduction to data mining concepts. Basic concepts in data mining: frequent item set detection, association rules, clustering and classification is covered in depth</td>
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<tr>
<td>Prerequisite courses</td>
<td>None</td>
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<tr>
<td>Co requisite courses</td>
<td>None</td>
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<tr>
<td>Prerequisites by topic</td>
<td>Basic programming in Java, data structures and algorithms knowledge are required for programming projects</td>
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</tbody>
</table>
| Goals | 1. Frequent item set detection  
2. Association Rule Mining  
3. Several clustering algorithms  
4. Classification algorithms  
5. Be an expert programmer |
| Learning objectives | 1. Understanding the importance of data mining  
2. Handling large scale code  
3. Being an expert on:  
   a. frequent item set detection  
   b. clustering  
   c. classification  
4. Being able to deal with very large data sets  
5. Being an expert programmer in Java |
| Textbook | # Publisher: Morgan Kaufmann; 2 edition (November 3, 2005)  
# Language: English  
# ISBN-10: 1558609016  
# ISBN-13: 978-1558609013 |
| Web resources | (1)Syllabus, assignments, announcements, grades, slides (in University course management system Course ONLINE)  
(2)Slides of textbook (in MK site and in Course ONLINE) |
| Topics by week | Week 1: Introduction to Data Mining  
|               | Week 2: Frequent Item Set Mining (Ch5)  
|               | Week 3: Various frequent item set algorithm: Aprioro, FPGrowth  
|               | Week 4: Association Rule Mining (Ch5)  
|               | Week 5: Midterm 1  
|               | Week 6: Classification (Ch6)  
|               | Week 7: Bayesian classification (Ch6)  
|               | Week 8: Rule based classification (Ch6)  
|               | Week 9: Midterm 2  
|               | Week 10: Cluster Analysis (Ch7)  
|               | Week 11: K-means  
|               | Week 12: K-medoids  
|               | Week 13: Hierarchical clustering techniques  
|               | Week 14: Final  
| Projects      | Projects are assigned on weekly bases, check course home page for detailed information on projects  
| Tools         | Java, Eclipse, emacs, Ubuntu Operating Systems  
| Lab Sessions  | None  
| Computer use  | Use our PC labs, and your own PCs, and laptops for developing programming projects. Get familiar with eclipse, emacs, java  
| Exams         | 2 Midterm exams  
|              | 1 Final exam  
| Grading       | Midterm exam 1 15%  
|              | Midterm exam 2 15%  
|              | Final exam 20%  
|              | Programming Projects 45%  
|              | Participation 5%  
| Prepared by   | Assistant Professor Dr. Selim Necdet Mimaroglu  
| Last revised  | Fall 2009 |