COURSE DESCRIPTION

In the new digital age, data collection is ubiquitous. The sheer amount of data is overwhelming, and raw data as such quickly becomes useless. For businesses, it is critical to extract information out of this data. In this course, we look at how modern data management approaches and technology be used to understand data, extract knowledge, and operationalize it in better ways.

The overall objective of this course is to introduce students to both technical and managerial issues and implications for business decisions of knowledge management, data mining, and data warehousing. Lectures will be complimented by homework assignments and laboratory exercises to expose students to practical applications of these concepts and technologies. The knowledge discovery process includes data selection, cleaning, coding, using different statistical pattern recognition and machine learning techniques, and reporting and visualization of the generated structures. The course will cover all these issues and will illustrate the whole process by examples of practical applications.

COURSE MATERIALS

- **Textbook and Resources:**
  - Software used: Weka.
CLASS ORGANIZATION & ADMINISTRATION

Attendance:
The Instructor expects your attendance at each and every class; however, actual attendance is up to the student. Grade performance is a demonstrated function of attendance, preparation and participation. You can get behind very easily by skipping classes, resulting in a poor understanding of the material, which will show up as a poor grade for the class. Any class sessions missed by the student are the student's responsibility to make up, not the instructor's. Late arrival that causes disruption, early departure that causes disruption, excessive conversation among students (a disruption in its own right), inappropriate use of electronic devices that cause disruptions, and other actions that disrupt the classroom are unacceptable.

Guidelines for submitting work:
All homework assignments are to be submitted through the assignment tab in Blackboard. Assignments will be posted on Blackboard. Late assignments will not be accepted!

Electronic Devices:
In order to minimize the level of distraction, all watches, beepers and cellular phones must be on quiet mode during class meeting times. Students who wish to use a computer/PDA for note taking need prior approval of the instructor since key clicks and other noises can distract other students. Recording of lectures by any method requires prior approval of the instructor.

Email Messages:
Remember to put the course name (MIS335) in the subject field of every e-mail message that you send me. E-mail messages that are missing this information are likely to be automatically redirected to a folder the instructor will seldom check, and it is not our responsibility to respond to these.

Lab Assignments:
There will be several in class computer assignments. Details and due dates will be made available through Blackboard.

No lab make up sessions are available, and late assignments will not be accepted! If you are unable to arrive at the lab on time on the day of the lab session and must then perform the lab work on your own, you are responsible for turning on the lab assignment on time. You may turn the assignment in early. Assignments are submitted via blackboard (Assignments) unless specified otherwise.

General Assignments:
Five-Six general assignments are due throughout the term. Details and due dates for these assignment will be posted in the future.

Late assignments will not be accepted! You may turn the assignment in early. Assignments are submitted via blackboard (Assignments) unless specified otherwise.

Semester Project:
A group project will be performed with delivery during the last week of class. Details of this group project assignment will be available on blackboard later.

Internet Services Account:
Accounts may be applied for online. Go to http://scarletmail.rutgers.edu to activate your ScarletApps service, if you have not already done so. You are responsible for knowing and following all policies that are posted on the RUCS site. If you established a scarletapps account prior to registering, make sure that your account is active and that you know your password before the second week of class.
Instructions for creating a web page are available at http://oit.rutgers.edu/websupport.html

Exams:
There will be two examinations – a midterm and a final exam. The exams will be combinations of objective and short-answer questions. Makeup exams will not be given. The content will come from the text and other material presented in lecture sessions as well as labs. Note that material presented in class and in lab will supplement the assigned reading. Therefore, class attendance and good note taking are essential tactics for success.

There will be no make-up examinations. It is the student’s responsibility to arrange for an excused absence before the exam. A grade of zero will be assigned if the exam is missed without an excused absence.

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**FINAL GRADE ASSIGNMENT**

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Midterm Exam</td>
<td>25%</td>
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<tr>
<td>Final Exam (is cumulative)</td>
<td>25%</td>
</tr>
<tr>
<td>5-6 Homework’s</td>
<td>15-20%</td>
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<tr>
<td>Term Project</td>
<td>25%</td>
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<tr>
<td>Class Participation</td>
<td>5-10%</td>
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**Note:** There will be no extra credit assignments, quizzes, or exams. Therefore, please plan to put in your best effort right from the start.

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<tr>
<th>Grade Evaluation (Tentative):</th>
<th>Grading will be based on the class curve</th>
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<tbody>
<tr>
<td>A,A-</td>
<td>90% - 100%</td>
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<tr>
<td>B+,B,B-</td>
<td>89% - 75%</td>
</tr>
<tr>
<td>C+,C,C-</td>
<td>74% - 60%</td>
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<tr>
<td>D</td>
<td>60% - 50%</td>
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<tr>
<td>F</td>
<td>49% or below</td>
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**Evaluation criteria explained:**

- Students are expected to be active participants in each class meeting. Full credit for participation will be extended to students who regularly ask questions, share observations, and contribute relevant personal experiences.
- The assignments will consist of a number of individual in class and homework tasks. Students will be given specific guidance on the amount of collaboration permitted for each assignment. Unless otherwise specified, all assignments are individual assignments, and thus must be completely the original work of the student submitting them and include proper citations to the published work of others.
| Week #1  | Jan 22 *(HW1 assigned)* | Course Overview  
Introduction to Data Warehousing and Data Mining (Chapter 1)  
Introduction to Weka |
| --- | --- | --- |
| Week #2 | Jan 29 | Data (Chapter 2)  
Data Exploration and Data Visualization (Chapter 3)  
Introduction to IBM Manyeyes |
| Week #3 | Feb 5 *(HW1 due, HW2 assigned)* | Basic Classification (Chapter 4) |
| Week #4 | Feb 12 *(HW3 assigned)* | Advanced Classification (Chapter 5) |
| Week #5 | Feb 19 *(HW2 due)* | Association Analysis (Chapter 6) |
| Week #6 | Feb 26 *(HW3 due)* | Project Work Session  
Review |
| Week #7 | Mar 5 | Midterm (covers Chap 1-5)  
Project Work Session |
| Week #8 | Mar 12 *(HW4 assigned)*  
(Project Outline Due) | Extended Association Analysis (Chapter 7) |
<p>| Week #9 | Mar 26 | Clustering (Chapter 8) |
| Week #10 | Apr 2 <em>(HW4 due, HW5 assigned)</em> | Advanced Clustering (Chapter 9) |</p>
<table>
<thead>
<tr>
<th>Week #11</th>
<th>Apr 9</th>
<th>Anomaly Detection (Chapter 10)</th>
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<tbody>
<tr>
<td>Week #12</td>
<td>Apr 16 <strong>(HW5 due, HW6 assigned)</strong></td>
<td>Advanced Topics: Matrix Decomposition</td>
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<tr>
<td>Week #13</td>
<td>Apr 23</td>
<td>Review</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project Work Session</td>
</tr>
<tr>
<td>Week #14</td>
<td>Apr 30 <strong>(HW6 due)</strong></td>
<td>Project Presentations</td>
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**Academic Integrity Statement:**

Here at Rutgers Business School, our goal is to ensure that our students have a solid foundation that is grounded in integrity and respect of basic ethical principles. Rutgers University, in conjunction with the RBS Committee, has established an Honor Code that states:

“I pledge, on my honor, that I have neither received nor given any unauthorized assistance on this examination (assignment).”  ([http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers.](http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers.))

In the future, students may be required to write and sign the Honor Pledge on every major paper, examination and assignment. This Honor Pledge will not displace, modify or amend the standards and procedures set forth in the Rutgers University Code of Student Conduct, ([http://judicialaffairs.rutgers.edu/university-code-of-student-conduct](http://judicialaffairs.rutgers.edu/university-code-of-student-conduct)), but simply suggest a higher set of standards to which RBS students adhere.

**Disability Statement:**

Any student with a documented disability needing academic adjustments is requested to notify the instructor as early in the semester as possible, and must do so before the middle of the term. All discussions will remain confidential.

Students are encouraged to study together and to work together on class assignments and lab exercises; however, the provisions for Academic Honesty will be strictly enforced in this class. Every University student is responsible for upholding the provisions of the Student Code of Conduct. The policy on academic integrity can be found at [http://cat.rutgers.edu/integrity/policy.html](http://cat.rutgers.edu/integrity/policy.html). This is very important. Violations involving plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards will not be tolerated. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program. Refer to the policy for further details.
Frequently students will be provided with “take-home” exams or exercises. It is the student’s responsibility to ensure they fully understand to what extent they may collaborate or discuss content with other students. No exam work may be performed with the assistance of others or outside material unless specifically instructed as permissible. If an exam or assignment is designated “no outside assistance” this includes, but is not limited to, peers, books, publications, the Internet and the WWW. If a student is instructed to provide citations for sources, proper use of citation support is expected. Additional information can be found at the following locations.

http://www.apa.org/journals/webref.html
http://www.lib.duke.edu/libguide/citing.htm
http://bailiwick.lib.uiowa.edu/journalism/cite.html
http://www.cas.usf.edu/english/walker/papers/copyright/ipdummie.html
http://www.indiana.edu/~wts/wts/plagiarism.html
http://plagiarism.phys.virginia.edu/links.html
http://www.arts.ubc.ca/doa/plagiarism.htm
http://alexia.lis.uiuc.edu/%7ejanicke/plagiary.htm
http://webster.commnet.edu/mla/plagiarism.htm
http://www.virtualsalt.com/antiplag.htm
http://www.engr.washington.edu/~te231/course_info/plagiarism.html
http://quarles.unbc.edu/lsc/rpplagia.html