Fall 2015, Statistics 873
Statistical Learning and Data Mining

Time: M-W, 8:30–9:50 am
Place: A106 Wells Hall
Instructor: Luda Sakhanenko
Telephone: (517)432-9795
Office Hours: T 9:15-11:30 am or by appointment

Website: http://stt.msu.edu/Academics/ClassPages/

Resources:
Bousquet, O., S. Boucheron and G. Lugosi. Introduction to Statistical Learning
Theory. Advanced Lectures on Machine Learning, Lecture Notes in Artificial Intelli-
gence 3176, 169-207. (Eds.) Bousquet, O., U. von Luxburg and G. Ratsch, Springer,


Hastie, T., Tibshirani, R., and Friedman, J. The Elements of Statistical Learning:


Devroye, L., Gyorfi, L., and Lugosi, G. A Probabilistic Theory of Pattern Recogni-

Prerequisites: STT 868 and STT 872 or equivalent courses.

The specific topics of the course include statistical methods focusing on machine
learning and data mining, modern regression and classification techniques, support vec-
tor machines, boosting, kernel methods and ensemble methods, clustering dimension
reduction, manifold learning, and selected topics.

The course will cover selected chapters in the resources and lecture notes.

Examinations:
There will be one Midterm Exam on October 21, worth 100 points, given during
lecture time.

A comprehensive final exam will be given on Tuesday, December 15, 7:45-9:45 am.
If you are unable to take an exam, you must contact the instructor on or before the
day of the exam. All excuses must be verifiable. The make-up exams will be given only
under exceptional circumstances.

Homework: There will be five homework assignments worth 20 points each that
will be given during the semester as we cover the corresponding material. In addition,
during each class some reading and suggested homework problems from the resources
will be assigned. These problems will not be collected.
**Course Grade:** The final course grade will be based on the total number of points earned by a student during the term in

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<tr>
<td>Homework</td>
<td>$5 \times 20 = 100$ points</td>
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<tr>
<td>Midterm Exam</td>
<td>$1 \times 100 = 100$ points</td>
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<td>Final Exam</td>
<td>200 points</td>
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<td><strong>Total</strong></td>
<td><strong>400 points</strong></td>
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The grading scale will be as follows:

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<tr>
<th>Percentage Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90–100%</td>
<td>4.0</td>
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<tr>
<td>80–89%</td>
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<td>70–79%</td>
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**Academic Honesty:** The Department of Statistics and Probability adheres to the policies of academic honesty as specifies in the General Student Regulations 1.0, Protection of Scholarships and Grades, and in the All-University of Integrity of Scholarship and Grades which are included in *Spartan Life: Student Handbook and Resource Guide*. Student who plagiarize will receive a grade 0.0 on the assignment.

**Note:** The instructor reserves the right to make any changes she deems academically advisable.

**Important Dates for Fall Semester 2015**

- Sept. 2 First day of Classes
- Sept. 7 Labor Day, No Classes
- Sept. 9 Close of Adds
- Sept. 28 End of 100% Refund
- Oct. 21 Middle of the semester
- Nov. 26-27 Thanksgiving holiday, No Classes
- Dec. 11 Last day of Classes
- Dec. 15 Final exam