<table>
<thead>
<tr>
<th>Course Number</th>
<th>CS 434</th>
<th>Course Title</th>
<th>Learning from Data</th>
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<tbody>
<tr>
<td>Semester Hours</td>
<td>3</td>
<td>Course Coordinator</td>
<td>Norman Carver</td>
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<tr>
<td>Catalog Description</td>
<td>An introduction to classical machine learning theory and practical techniques. Topics to be covered include computational learning theory (VC theory), linear classification and regression models, SVMs and kernel methods, decision trees, the bias-variance tradeoff, overfitting, and regularization.</td>
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**Textbooks**

**References**


**Course Learning Outcomes**

- Obtain the theoretical knowledge needed to understand the basis of machine learning.
- Obtain knowledge of classical machine learning methods.
- Obtain practical knowledge for successfully applying standard learning methods to real-world problems.

**Assessment of the Contribution to Student Outcomes**

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<tr>
<th>Outcome</th>
<th>1</th>
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<tr>
<td>Assessed</td>
<td>X</td>
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**Prerequisites by Topic**

CS 330 with a grade of C or better or graduate standing.
## Major Topics Covered in the Course

1. Introduction to Machine Learning (3 lectures)
2. Computational Learning Theory (6 lectures)
3. Linear Models for Learning (12 lectures)
4. Support Vector Machines and Kernel Methods (9 lectures)
5. Decision Tree Learning (3 lectures)
6. Issues in Machine Learning (7 lectures)

Revised: Fall 2020