# CS 4320: Machine Learning

## Spring 2019 Schedule

<table>
<thead>
<tr>
<th>Day</th>
<th>Topic</th>
<th>Reading</th>
<th>Work Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 7</td>
<td>Introduction to Machine Learning</td>
<td>Chapter 1</td>
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<tr>
<td>W01</td>
<td>Loading and Visualizing Data</td>
<td>Chapter 2</td>
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<tr>
<td>W01</td>
<td>Pre-processing Data</td>
<td>Chapter 2</td>
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<tr>
<td>W01</td>
<td>Training Models</td>
<td>Chapter 2</td>
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<td>W01</td>
<td>Tuning Models</td>
<td>Chapter 2</td>
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<tr>
<td>W01</td>
<td>Evaluating Models</td>
<td>Chapter 2</td>
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<tr>
<td>W01</td>
<td>Deploying Models</td>
<td>Chapter 2</td>
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<tr>
<td>W01</td>
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<td><strong>Assignment 1</strong></td>
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| Jan 14  | Cross-Validation                           | Chapter 2        |          |
| W02     |                                            |                  | **Assignment 2** |

| H Jan. 21 | *Martin Luther King Jr. Day* (no classes) |                  |          |
| W03     | Classification                             | Chapter 3        |          |
| W03     | Performance Measures/Confusion Matrix      | Chapter 3        |          |
| W03     | Error Analysis                             | Chapter 3        |          |
| W03     |                                            |                  | **Assignment 3** |

| Jan 28  | Linear Regression                          | Chapter 4        |          |
| W04     | Gradient Descent                           | Chapter 4        |          |
| W04     | Learning Curves                            | Chapter 4        |          |
| W04     | Regularization                             | Chapter 4        |          |
| W04     | Logistic Regression                         | Chapter 4        |          |
| W04     |                                            |                  | **Assignment 4** |

| Feb 4   | Support Vector Machines                    | Chapter 5        |          |
| W05     | Linear SVM Classification                   | Chapter 5        |          |
| W05     | Nonlinear SVM Classification                | Chapter 5        |          |
| W05     | SVM Regression                              | Chapter 5        |          |
| W05     |                                            |                  | **Assignment 5** |

| Feb 11  | Decision Trees                             | Chapter 6        |          |
| W06     | CART                                       | Chapter 6        |          |
| W06     | Gini and Entropy                           | Chapter 6        |          |
| W06     | ID3/C4.5                                    | Papers           |          |
| W06     |                                            |                  | **Assignment 6** |

| H Feb. 18 | *President’s Day* (no classes) |                  |          |
| W07     | **Midterm Examination**               |                  |          |
| W07     | Ensembles                                | Chapter 7        |          |
| W07     | Forests                                  | Chapter 7        |          |
| W07     | Boosting                                  | Chapter 7        |          |

| Feb 25  | Dimensionality Reduction                  | Chapter 8        |          |
| W08     | Principle Component Analysis              | Chapter 8        |          |
| W08     |                                            |                  | **Assignment 7** |

<p>| Mar 4   |                                            |                  |          |</p>
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>W09</td>
<td>Mar 11-15</td>
<td>Spring Break (no classes)</td>
</tr>
<tr>
<td>W10</td>
<td>Mar 18</td>
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<tr>
<td>W10</td>
<td>Mar 25</td>
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<tr>
<td>W11</td>
<td>Apr 1</td>
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<td>W12</td>
<td>Apr 8</td>
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<td>W13</td>
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<tr>
<td>W14</td>
<td>Apr 22</td>
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<tr>
<td>W15</td>
<td>Apr 24</td>
<td>Last Day of Classes</td>
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<tr>
<td>W15</td>
<td>Apr 25</td>
<td>Reading Day (no classes)</td>
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<tr>
<td>W15</td>
<td>Apr 26-May 2</td>
<td>Final Exams</td>
</tr>
<tr>
<td>W09</td>
<td>May 1</td>
<td>Final Exam 09:00 am - 10:50 am</td>
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Class announcements may modify schedule from that listed above.