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| [Stnf](http://www.stanford.edu/class/cs229/) | CS 229 Machine Learning Handout #2: Course Schedule |

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| **Syllabus** |

* **Introduction** (1 class)

Basic concepts.

* **Supervised learning.** (7 classes)

Supervised learning setup. LMS.  
Logistic regression. Perceptron. Exponential family.   
 Generative learning algorithms. Gaussian discriminant analysis. Naive Bayes.   
Support vector machines.   
Model selection and feature selection.   
Ensemble methods: Bagging, boosting.   
 Evaluating and debugging learning algorithms.

* **Learning theory.** (3 classes)

Bias/variance tradeoff. Union and Chernoff/Hoeffding bounds.   
VC dimension. Worst case (online) learning.   
Practical advice on how to use learning algorithms.

* **Unsupervised learning.** (5 classes)

Clustering. K-means.   
EM. Mixture of Gaussians.   
Factor analysis.   
PCA (Principal components analysis).   
ICA (Independent components analysis).

* **Reinforcement learning and control.** (4 classes)

MDPs. Bellman equations.   
Value iteration and policy iteration.   
Linear quadratic regulation (LQR). LQG.   
Q-learning. Value function approximation.   
Policy search. Reinforce. POMDPs.

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| **Dates for Assignments and Midterm** |

* Assignment 1: Out 10/05. Due 10/19.
* Assignment 2: Out 10/19. Due 11/02.
* Midterm: 11/09 (6 PM - 9 PM) - *Venue - To Be Announced*
* Assignment 3: Out 11/02. Due 11/16.
* Assignment 4: Out 11/16. Due 12/07.

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| **Dates for Project Related Submissions** |

* Project Proposal: Due 10/21 at 11:59 PM.
* Project Milestone: Due 11/18 at 05:00 PM.
* Poster Session: 12/13 (08:30 AM - 11:30 AM) at **Arrillaga Center for Sports and Recreation** [(ACSR)](https://www.google.com/maps?ll=37.425763,-122.181572&z=14&t=m&hl=en-US&gl=US&mapclient=embed&cid=4363644545589339878)
* Final Writeup: Due 12/16 at 11:59 PM. *(No Late Days)*
* All assignments are due at 11:00 AM after the class on corresponding Wednesdays.
* Project related submissions are due at the times specified above.
* A maximum of three late days can be applied to any single assignment, project proposal, or project milestone.
* Late days cannot be used for the poster and the final report.

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| Comments to [cs229-qa@cs.stanford.edu](mailto:cs229-qa@cs.stanford.edu). | [Home Page](http://www.stanford.edu/class/cs229/) |