# Introductor Applied Machine Learning

## School of Informatics, University of Edinburgh

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**Assessment** is by formal examination (75%) and four equally-weighted assignments together worth 25%. The assignments will be released in weeks 3, 5, 7 and 9, and will be due at the end of weeks 4, 6, 8 and 10 respectively.

**Online material** is available at http://www.inf.ed.ac.uk/teaching/courses/iaml.

**Resources:** The course textbook is "Data Mining: Practical Machine Learning Tools and Techniques" (Second Edition) I.H. Witten and E. Frank, Morgan Kaufmann, 2005. ISBN 0-12-088407-0.

**Tutorials and Labs:** There will be 4 tutorials and 4 labs classes for the course, in weeks 3,5,7 and 9. There will be no labs or tutorials in weeks 1 and 2.

**Syllabus** Note: this list is provisional

- Introduction (NG)

- Thinking about data (VL)

- Basic probability (NG)

- Naive Bayes classication (VL)

- Nearest-neighbor methods (VL)

- Decision trees (VL)

- K Nearest Neighbours and KD-Trees (VL)

- Linear regression (NG)

- Generalization (NG)

- Logistic regression, perceptrons (NG)

- Support vector machines (NG)

- Dimensionality reduction (VL)

- Clustering (k-means, hierarchical) (VL)

- Mixture models and the EM algorithm (VL)

- Performance evaluation (VL)

- Further topics as time permits, e.g. Mixtures of Experts, Boosting and Bagging, Hidden Markov Models, dealing with Big Data, Collaborative Filtering