**6.891 Machine Learning Approaches for Natural Language Processing**

| Time:     | MW 4-5:30pm       |
| Location: | Room 1-379        |
| Credit:   | 3-0-9 H-Level Graduate Credit |
| Prerequisites | 6.034 or permission of instructor |
| Instructor: | Prof. Michael Collins, Room NE43-723, MIT CSAIL/EECS |
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**Syllabus**

- Introduction (1 lecture)
- Estimation techniques, and language modeling (1 lecture)
- Stochastic parsing (3 lectures)
- Stochastic tagging, and maximum entropy/log-linear models (2 lectures)
- The EM algorithm for PCFGs, HMMs, and machine translation (2 lectures)
- Information extraction (2 lectures)
- Machine translation (3 lectures)
- Vision and language (1 lecture)
- Dialogue systems (2 lectures)
- NLP issues in different languages, e.g., Czech, Chinese, Arabic, German (1 lecture)
- Word-sense disambiguation (1 lecture)
- Semi-supervised approaches (2 lectures)
- Discriminative/reranking approaches, and kernels over NLP structures (2 lectures)
- Learning in Optimality Theory (1 lecture)
- Conclusions/open problems (1 lecture)