# Natural Language Processing

Course Introduction

Instructor - Soumajit Pramanik

# Welcome!

Course Logistics:

**TAs**
Kartikey Saraswat, Atharva Inamdar, Ranjith Vutnoor, Sudev Kumar Padhi

**Website:** Will be shared soon.


**Timing:** Tuesday and Thursday - 5pm - 6.30pm

# Evaluation

**Tierce Exams** - 3*15% = 45%

**Quizzes** - ~6 = 15%

**Assignments** - ~6 = 25%

**Project** - 10%

**Attendance** - 5%

- Full marks if attendance is >80%
- Will not be allowed to appear in the final tierce exam if overall attendance is below 50%.

# Syllabus

Basic Text Processing: Tokenization, Stemming;

Language Modeling: N-grams, smoothing;

Morphology, Parts of Speech Tagging;

Syntax: PCFGs, Dependency Parsing;

Semantics: Distributional Semantics; Lexical Semantics, Word Sense Disambiguation;

Topic Models

# Syllabus

Information Extraction: Relation extraction;

Named entity recognition, coreference resolution,

Sentiment analysis, Document summarization,

Machine Translation;

Deep Learning for NLP: Basic and Advanced Models (Seq-to-Seq, CNN, Word2Vec, BERT)

# Tutorials

- After every 3 or 4 classes there will be a tutorial class.
- Hands-on Coding- Please bring your laptops
- Mostly use the PyTorch Framework.
- During the tutorial class there will be a quiz.
- After the tutorial class we will be floating assignments.
- 3 person groups for assignments. Penalty will be there for plagiarism.

# Resources

Books -

- Daniel Jurafsky and James H. Martin. 2021. Speech and Language Processing. 3rd Edition, https://web.stanford.edu/~jurafsky/slp3/

- Delip Rao, Brian McMahan, Natural Language Processing with PyTorch: Build Intelligent Language Applications Using Deep Learning. O'Reilly Publishers

- Hobson Lane, Cole Howard, Hannes Hapke. 2019. Natural Language Processing in Action. Link to Live Book - https://livebook.manning.com/book/natural-language-processing-in-action/about-this-book/

# Resources

Course content will be adapted from -

- Slides of the books if available online.
- Course content of popular NLP courses offered in institutes like Stanford, IITD, IITKGP etc.
- Material available for online courses.

Proper Acknowledgement will be provided for every case.