Theory and Methodology

- Splits: train, dev, test
- Loss: cross entropy, MSE
- Evaluation metrics: F1, accuracy, MSE, MAE
- Learning curves
- Models: Linear models , multilayer perceptron, recurrent neural networks, convolutional neural networks (1d, 2d).
- Activation functions: ReLU, sigmoid, softmax
- Input representations: dense (embeddings) vs sparse.
- Optimizers and gradients: SGD, Adam
- Underfitting, overfitting of deep models: how to combat them

- **PyTorch**
  - Batching
  - Tensors and dimensions
  - PyTorch datasets
  - Implementation of models: linear regression, logistic regression, deep models, simple RNNs,LSTMS, simple CNNs, pre-trained CNNs, (pre-trained) embeddings