

## CSE 481N NLP

### **Credits**

5.0 (3 hrs lecture, 2 hrs+ meeting times)

### **Lead Instructor**

Yejin Lee

### **Textbook**

None

### **Course Description**

Student teams design and implement a software project involving multiple areas of the CSE curriculum. Course emphasizes the development process, rather than the product.

### **Prerequisites**

CSE 332; CSE 351; either CSE 331 or CSE 352.

### **CE Major Status**

Selected Elective

### **Course Objectives**

This class will provide students with an intensive 10-week experience in successfully completing a challenging, but well-scoped research project.

Participants will work in small groups (2-3 people in each group) to hone their technical skills to quickly absorb and adapt new technical knowledge, gain experience in complex programming, perform thorough experiments and analysis, and learn how to find a path when faced with negative results.

Additional objectives of this class include:

- (1) technical communication skills to produce high quality interim technical reports that inspire insightful discussion across project groups,
- (2) advisory project experience to provide technical advice and constructive feedback on others, and

(3) project management skills to prioritize work items to maximize the chance for successful outcome.

## **ABET Outcomes**

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics (H)
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors (H)
3. an ability to communicate effectively with a range of audiences (H)
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts (H)
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives (H)
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions (H)
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. (H)

## **Course Topics**

Areas of applications include text classification, information extraction, social media analysis, summarization, conversation (usually called dialogue by researchers), interpretation of deep neural models, question answering, and semantic parsing. In addition, cross-disciplinary applications are also encouraged, for example, image captioning, code generation from natural language descriptions, language based robot manipulation and navigation, connecting NLP with various disciplines such as computer vision, robotics, HCI, and programming languages.