Course Information

- ECE 40875 <u>Data Mining Basic Concepts and Techniques</u>

- 3 Credits, <u>EE Elective, CMPE Selective, and AI/ML Concentration</u>

- **Time and Location:** 12-1:15PM TR, BHEE115

- **Prerequisites:** Python for data science, probability and linear algebra.

- **Textbook:** Introduction to Data Mining, Second Edition, Pearson.

- **Instructor:** Prof. Jing Gao
  https://engineering.purdue.edu/~jinggao/

Course Description

  This course introduces fundamental techniques in data mining, i.e., the techniques that extract useful knowledge from a large amount of data.

Topics to be covered

- Data preprocessing and exploration.
- Association analysis—finding interesting relationships in items.
- Clustering—grouping similar objects.
- Classification—predicting the category of a record.
- Link Analysis—assigning importance scores to nodes in a graph.
- Recommendation—recommending new things to users based on user ratings.
- Anomaly Detection—detecting data points that deviate from normal behavior.
- Applications of these data mining solutions.

Course outcome and assessment

- Upon completion of this course, students are able to formulate problems in real world applications into data mining tasks and find suitable solutions based on data mining techniques.
- Assessment: Quizzes (multi-choice questions), programming assignments (Python), final exam and project.