FALL 2019

Instructor: Harry Wechsler wechsler@gmu.edu ENG 4448

Theory / Application Data Mining – 72736 – CS 584 001

Art and Design Building L008 – R 4:30 – 7:10

Office Hours: R 3:45 – 4:15 and 7:30 – 8:00

(Tentative) Course Description: Concepts and methods for data mining and multidisciplinary applications. Topics include (1) Artificial Intelligence, Data Bases, Machine Learning, and Pattern Recognition, Analytics, Data Mining: Big and Small Data, Explanation and Prediction, Learning and Model Selection, and (Modular) System Design and Architectures; (2) Protocols and Standards, Benchmarks and Metrics, Interoperability, Performance Evaluation and Cross-Validation, Logistics, and Software Platforms and Hardware; (3) Probability, Bayes and Maximum a Posteriori (MAP) Classification, Naïve Bayes, and Statistics; (4) Databases and Data Sets, Data Cleaning and Transformation, Deep Learning, Classification and Decision Trees, Ensemble Methods, Association and Production Rules, Clustering and Anomaly Detection (see textbook); (5) Advanced Topics: Deep Learning (see Reference) and Learning Vector Quantization and Self-Organization Maps; and (6) Applications including Image, Sentiment, and Text (word2vec) Analysis, Scalability and Transfer Learning, and Generative Adversarial Networks (GAN).


(Weekly) Lecture and Discussion: (1) Background and Methods; (2) Critical Thinking; (3) Challenges and Emerging Themes; and (4) Ethics, Privacy, and Security.

https://registrar.gmu.edu/calendars/fall-2019/

First day of classes: August 29

Thanksgiving Recess: November 28

Last day of classes: December 5

https://registrar.gmu.edu/calendars/fall-2019/final-exams/

Exam Date and Time: R, 12/12, 4:30 – 7:15

Grading

Homework (Problem Solving) Assignment 10%
Homework (Data Mining #1) Assignment 15%
Term (Team) Project (Data Mining #2) Project 30%
Mid-Term 15%
Final 30%

**Special Accommodations**

If you are a student with a disability, please see your instructor and contact the Office of Disability Services (ODS) at (703) 993-2474. All academic accommodations *must* be arranged through ODS http://ods.gmu.edu

**Academic Integrity and Honor Code**