

MAT 259A. Projects in Visualizing Information (Winter 2019)

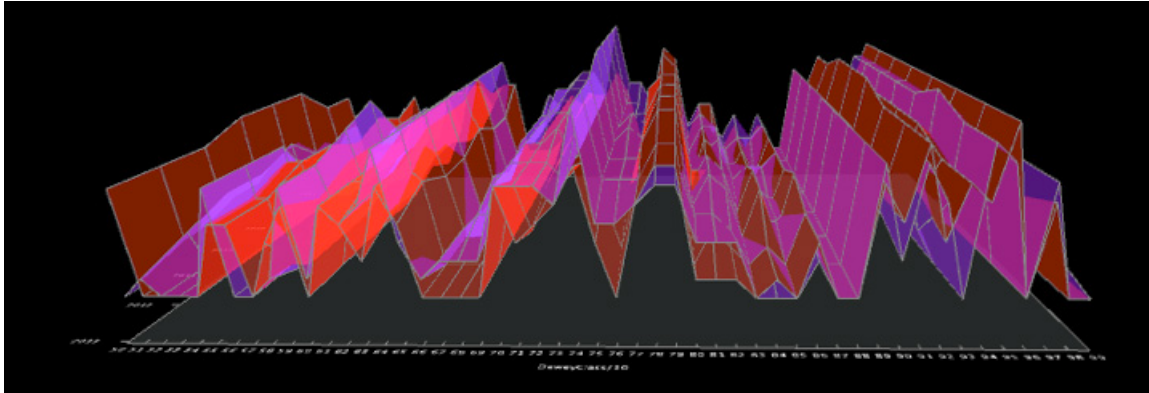
Instructor: George Legrady, glegrady@ucsb.edu

TA: Rodger/Jieliang Luo, jieliang@ucsb.edu

Elings Hall, ExpVisLab #2611, Tues-Thurs 3:30-5:20

General Catalog Description: Project-based course focused on aesthetics of algorithmic visualization. Course concentration on fundamentals of data visualization and design, with an emphasis on data query, analysis, processing and visualization in linear, 2D frequency, and spatial map visualizations

Specifics: A ten-week comprehensive overview of visualization for Data Science from data queries/knowledge discovery, algorithms, resulting in projects in 2D and interactive 3D



Course Assignments:

Data mining, Knowledge Discovery, Culture Analytics through MySQL

Goals: Discover unexpected patterns, anomalies, etc. in a large dataset

Source: 90 million/13-year multi-dimensional datasets of check-outs from the Seattle Public Library

2D Frequency Data Mapping - Visual Language Basics

Goals: Acquire visual language basics, visualize data in java-based Processing

Source: Seattle Public Library data

3D Interactive Visualization

Goals: Design in 3D, interactive space, implement associative rule-mining and other algorithms

Source: Seattle Public Library data

Final Student Project

Goals: Student defined project building on skills acquired through previous assignments

Source: Student determined

Knowledge acquired through the course:

- 1) Learn to explore and retrieve significant data from a dataset with MySQL
- 2) Develop skills in the fundamentals of visual language expressed through programming
- 3) Visualize abstract data to reveal patterns and relationships
- 4) Normalize data to enhance legibility and coherence
- 5) Implement interactivity within 3D volumetric visualization
- 6) Correlate various data sources through JSON and APIs
- 7) Document and post projects online

Course Software: MySQL, Java-based Processing, JSON

Links:

Syllabus (2018): <http://www.mat.ucsb.edu/~g.legrady/academic/courses/18w259/18w259.html>

Student work-in-progress at: <http://www.mat.ucsb.edu/forum/viewforum.php?f=75>

Student project results (2011-2018): <http://vislab.mat.ucsb.edu/>