# ISDA 609 - Mathematical Modeling Techniques for Data Analytics

## Project Team

Team consists of

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2. Vincent Ying

## Project proposal

We will go by Option 1 which states:

At the end of each chapter in the textbook, you can find a section titled “Projects”. Form a team with at least one other classmate and complete any three projects. It is desirable that the projects selected are from different chapters and use three different mathematical modeling methods. It is also highly desirable that you select one from the first five chapters, one from chapter six to chapter ten, and one from chapter eleven onward. Bonus points will be awarded for projects that go beyond the scope of the initial description. To qualify, please be specific in your final report and final presentation as to the extensions your team implemented.

On meet-up session dated 10/28, Prof. Harry informed that we need to address only 2 of the projects instead of 3 as decided initially (see above). Per that instruction, we have decided to complete the first 2 projects.

Project 1, 5.5.3:

Problem Statement:

Pick a traffic intersection with a traffic light. Collect data on vehicle arrival times and clearing times. Build a Monte Carlo simulation to model traffic flow at this intersection.

Analysis of the Problem:

Dataset Description:

Data Sources – Description of Instances and Features, Location, Source and Date

Methodology:

Results:

Conclusions:

Project 2, 9.4.2:

Problem Statement:

Retirement and Social Security. Should US citizens build their own retirement through 401Ks or use the current Social Security program? Build models to be able to compare these systems and provide decisions that can help someone to plan a better retirement.

Analysis of the Problem:

Dataset Description:

Data Sources – Description of Instances and Features, Location, Source and Date

Methodology:

Results:

Conclusions:

Project 3, 10.7.2:

Problem Statement:

Research the Cuban missile crisis of 1962. Determine the possible strategies of the United States and the Soviet Union. Provide values to your payoff matrix. Determine what each side should do.

Analysis of the Problem:

Dataset Description:

Data Sources – Description of Instances and Features, Location, Source and Date

Methodology:

Results:

Conclusions: