APSC 200 P2: Week 2 Outline

Department of Mathematics and Engineering
Queen's University

September 8, 2019

1 Objectives

The main objectives for this week are

1. to identify areas of your simulation where system behaviour will vary between designs,
2. to identify and derive the parameters that correspond to variations in design alternatives, and
3. to complete the Proposal Report.

1.1 Formation Algorithm

1. Derive adjacency matrices that you want to test in the simulation. Matrices could vary based on communication methods or other real-world parameters. Ensure your matrices are compatible with an arbitrary number of agents.
2. Conduct research in application area to establish ranges for other simulation parameters

1.2 Flocking Algorithm

1. Research for suitable ranges for K, σ and β for the adjacency matrix based on your application.
2. Conduct research into application area to establish ranges for other simulation parameters.

1.3 Opinion Algorithm

1. Research for suitable ranges of communication for each agent for nodes to be used in the adjacency matrix based on your application.
2. Conduct research into application area to establish ranges for other simulation parameters.

1.4 Lloyd's Algorithm

1. Determine arena dimensions, radii of communication and observation for each different design
2. Begin research into economic analyses, density metric(s), movement behaviour(s), energy metric(s), etc.

2 Lectures and Workshops

There is no lecture scheduled for this week. There are two workshops scheduled this week. The workshop periods to act as work periods and opportunities to get answers to project related questions.

3 Deliverables

This weeks deliverables are

1. Proposal Report.