Final Project Deliverable

CS 4632: Modeling and Simulation

October 23, 2024

Total Points: 300

This rubric outlines how the final project will be graded. The project consists of three major components: the video demonstration, the source code submission, and the final report. The breakdown of points for each section is provided below.

1 Video Demonstration (60 points)

You will be graded based on the clarity and thoroughness of your video demonstration, which should clearly explain and showcase your simulation.

Grading Levels:

☐ **Level 4 (Excellent)**: 60 points - Clear, well-structured demonstration. The video thoroughly explains the simulation, inputs, outputs, and shows the complete execution process.

☐ **Level 3 (Proficient)**: 45 points - The video explains the simulation well but may lack minor details. The simulation is shown running, and the explanation is mostly clear.

☐ **Level 2 (Satisfactory)**: 30 points - The video is somewhat unclear or incomplete. Important steps are missing, or the explanation is difficult to follow.

☐ **Level 1 (Needs Improvement)**: 15 points - The video is poorly structured or does not provide sufficient explanation of the simulation. Missing major components.

☐ **Level 0 (No Submission)**: 0 points - No video or an unusable video file.

2 Source Code Submission (60 points)

Your source code will be evaluated based on completeness, organization, and clarity of documentation.

Grading Levels:

☐ **Level 4 (Excellent)**: 60 points - Source code is complete, well-organized, and thoroughly documented. The README includes clear, step-by-step operating instructions.

☐ **Level 3 (Proficient)**: 45 points - Source code is mostly complete and functional. The README provides operating instructions, but there may be some gaps in clarity or detail.

☐ **Level 2 (Satisfactory)**: 30 points - Source code is functional but incomplete or disorganized. The README lacks sufficient detail or has errors in instructions.

☐ **Level 1 (Needs Improvement)**: 15 points - Source code is incomplete, disorganized, or difficult to run. README is minimal or insufficient for proper usage.

☐ **Level 0 (No Submission)**: 0 points - No code submitted, or unusable code file.

3 Final Report (180 points)

The final report should provide a clear and comprehensive summary of your simulation project. Each section of the report is graded individually:

3.1 Abstract and Introduction (30 points)

☐ **Level 4 (Excellent)**: 30 points - Abstract and introduction provide a clear overview of the project and its objectives. Motivation is well-stated, and the goals are clear.

☐ **Level 3 (Proficient)**: 22.5 points - Abstract and introduction are good but may lack minor details. Objectives are mostly clear.

☐ **Level 2 (Satisfactory)**: 15 points - Abstract and introduction are basic or unclear. Objectives are difficult to discern.

☐ **Level 1 (Needs Improvement)**: 7.5 points - Abstract and introduction are missing or poorly written.

☐ **Level 0 (No Submission)**: 0 points - No abstract or introduction submitted.

3.2 Model Overview (30 points)

☐ **Level 4 (Excellent)**: 30 points - Thorough and detailed explanation of the model, including diagrams. The model is clearly described and easy to follow.

☐ **Level 3 (Proficient)**: 22.5 points - Good explanation of the model, with some details missing. Diagrams are included but may be limited.

☐ **Level 2 (Satisfactory)**: 15 points - Basic description of the model with limited detail. Diagrams are unclear or missing.

☐ **Level 1 (Needs Improvement)**: 7.5 points - The model overview is incomplete or lacks necessary details.

☐ **Level 0 (No Submission)**: 0 points - No model overview provided.

3.3 Simulation Results (30 points)

☐ **Level 4 (Excellent)**: 30 points - Clear, well-documented results from the simulation. Includes data presented in tables, charts, and graphs. Explanation of conditions is thorough.

☐ **Level 3 (Proficient)**: 22.5 points - Good documentation of results, but with minor omissions. Data is presented well but may lack some clarity or explanation.

☐ **Level 2 (Satisfactory)**: 15 points - Basic presentation of results. Data is present but not well-explained or visualized.

☐ **Level 1 (Needs Improvement)**: 7.5 points - Simulation results are incomplete or difficult to interpret.

☐ **Level 0 (No Submission)**: 0 points - No simulation results included.

3.4 Scenario and Sensitivity Analysis (30 points)

☐ **Level 4 (Excellent)**: 30 points - Comprehensive analysis of different scenarios and sensitivity analysis. Impacts of parameter changes are clearly explained.

☐ **Level 3 (Proficient)**: 22.5 points - Good analysis of scenarios and sensitivity. Minor details may be missing.

☐ **Level 2 (Satisfactory)**: 15 points - Basic scenario analysis. Sensitivity analysis lacks detail or is incomplete.

☐ **Level 1 (Needs Improvement)**: 7.5 points - Minimal or unclear scenario analysis. Sensitivity analysis missing or incomplete.

☐ **Level 0 (No Submission)**: 0 points - No scenario or sensitivity analysis included.

3.5 Verification and Validation (30 points)

☐ **Level 4 (Excellent)**: 30 points - Thorough verification and validation of the model. Clearly explains testing and validation processes.

☐ **Level 3 (Proficient)**: 22.5 points - Good verification and validation, with minor details missing. Testing methods are explained adequately.

☐ **Level 2 (Satisfactory)**: 15 points - Basic verification and validation, with limited detail.

☐ **Level 1 (Needs Improvement)**: 7.5 points - Incomplete or unclear verification and validation processes.

☐ **Level 0 (No Submission)**: 0 points - No verification or validation included.

3.6   Overall Analysis and Discussion (15 points)

☐ **Level 4 (Excellent)**: 15 points - Comprehensive discussion of results, including detailed interpretation and insights gained.

☐ **Level 3 (Proficient)**: 11 points - Good discussion of results, with minor details missing.

☐ **Level 2 (Satisfactory)**: 7.5 points - Basic discussion of results. Interpretation is limited.

☐ **Level 1 (Needs Improvement)**: 4 points - Minimal or unclear discussion of results.

☐ **Level 0 (No Submission)**: 0 points - No discussion or analysis included.

3.7   Conclusion (15 points)

☐ **Level 4 (Excellent)**: 15 points - Clear and well-structured conclusion summarizing key findings and suggesting future work.

☐ **Level 3 (Proficient)**: 11 points - Good conclusion but lacking in minor details or suggestions for future work.

☐ **Level 2 (Satisfactory)**: 7.5 points - Basic conclusion with limited insight or no future work suggested.

☐ **Level 1 (Needs Improvement)**: 4 points - Conclusion is unclear or incomplete.

☐ **Level 0 (No Submission)**: 0 points - No conclusion provided.