Final assignment rubric

Heuristic Optimization Course (2025-2026)

Grading rubric:

PowerPoint report:				
weight	**< 5**	**5-6**	**6.5-7.5**	**8-9**	**9+**
Research design (20%)	No meaningful solution method is presented. There is little to no evidence of understanding the problem or relevant methods. Solution methods, if present, are not explained, and/or incorrectly applied to the problem. Experimental design choices are incomplete, and/or not in line with the research questions, and/or with no justification. Referencing is completely missing or incomplete.	Solution methods are poorly designed, showing limited understanding of the problem or relevant literature. Solution methods are not well-suited to the problem. Most experimental design choices are not in line with research questions and/or are not well justified. Explanation and application of the solution methods are incomplete. Referencing is mostly missing or is not appropriate.	The solution methods are sufficiently based on the relevant literature. Designed solution methods are meaningful but occasionally lack depth in understanding or application. Solution methods are mostly appropriate, but they may not fully address all aspects of the problem. Experimental design choices are mostly justified but are not fully in line with the research questions. Solution methods are explained but occasionally lack details and rigor in application. Some references may be missing.	The solution methods show a solid understanding of relevant literature. Solution methods are well designed though some minor improvements could be made to improve the fit to the problem and/or justification/explanation of experimental design choices. Solution methods are adequately explained with appropriate referencing where needed, and applied correctly.	The solution methods show a thorough review and understanding of the literature. Solution methods are designed using ideas beyond what is covered in the lectures and are well adapted to the problem. Experimental design choices have been fully justified and explained and are completely in line with the research questions. Solution methods are well explained with appropriate referencing where needed, and are applied effectively.

Criterion				
Description and Analysis of Results (25%)	The results are poorly reported, lacking organization and clarity. Major findings are missing or not explained, and the analysis is incomplete or incorrect. The results do not connect to the research questions, and conclusions are either absent or unsupported by the data. Little to no effort is made to use visualizations to present results. Visuals, if present, are poorly designed, unclear, or irrelevant to the data. Analysis and conclusions are missing, incomplete, or contain important errors of interpretation or logic.	The reporting of results lacks clarity or structure with key metrics missing or incomplete. Key findings may be missing or poorly explained, and there is limited connection between the results and the research questions. Visualizations are present but are either unclear, poorly labelled, or not effective in communicating the results. The choice of reporting tools may be inappropriate or disconnected from the analysis, requiring more explanation to make sense of the data. Analysis and conclusions are incomplete and/or mostly unjustified. Considerable unused potential for further analysis.	The results are generally reported with clarity, but some key metrics are missing or inadequately discussed. The analysis may lack depth or could be better connected to the research questions. Visualizations are generally clear but may lack depth or clarity in conveying the results. Some tables, graphs or charts might be misaligned with the data or not fully explained. There is room for improvement in labelling, formatting, or using reporting formats. Analysis and conclusions are meaningful, with conclusions that are partially justified.	The results are clearly reported but minor improvements could be made in the depth of interpretation or clarity of presentation. The findings are well-linked to the research questions. Visualizations are well-organized and appropriate for the data being presented. Tables, graphs, charts, and figures are mostly well-labelled and easy to interpret but could be more deeply integrated or insightful. Analysis and conclusions are logical and convincing, yet minor areas for clarification remain.	The results are presented in a clear, concise, and well-structured manner, highlighting key performance metrics. All findings are thoroughly explained and directly tied to the research questions. Visualizations are clear, insightful, and directly enhance understanding of the results. All tables, graphs, charts, and figures are appropriately chosen, well-labelled, and effectively highlight key findings. Analysis and conclusions are strong, data-driven and beyond what is covered in the lectures, showing the creativity of the students.
Editorial quality (slides) (10%)	Very frequent errors in spelling or syntax; sloppiness or unclarity in references, formulae, tables or graphs; Poorly conceived structure of paragraphs and slides. Incohesive, unclear, and disorganized throughout. Argumentation quality and consistency across sections is poor. No real arguments are given, or most arguments given have significant problems.	Fairly frequent errors in spelling or syntax, poorly conceived structure of paragraphs and slides. Some sloppiness or unclarity in references, formulae, tables and graphs. Argumentation quality and consistency across sections is weak. Very few real arguments given, and some arguments given had problems.	Generally adequate in the light of academic standards. Notwithstanding occasional slips, it is evident that reasonable care has been bestowed on spelling, syntax, presentation slides, tables, figures and references. Argumentation quality and consistency across sections is adequate. Decent arguments, yet a few had minor problems.	The submitted report is of a good quality, thoughtfully written and designed, readable, having cohesive structure and carefully edited to high academic standards. Argumentation quality and consistency across sections is good. Many good arguments were given, with only minor problems.	Rigorous editing to high academic standards. High-quality document, very well structured, accessible and easy to use report, powerfully expressed and persuasive argumentation. Argumentation quality and consistency across sections is excellent. Consistently cohesive structure; Completely clear and orderly presentation.

Codes and data file:

weight	< 5	5-6	6.5-7.5	8-9	9+
Implementation (15%)	No meaningful implementation of the models and solution methods is provided. Code is either non-functional, incomplete, or some key components are missing.	The implementation of the models and solution methods is incomplete or flawed. Code is incomplete, contains issues, or lacks functionality.	The implementation of the models and solution methods is basic but functional. Code works but contains inefficiencies, bugs, or lacks clear structure.	The implementation of the models and solution methods is correct. Code is functional with minor inefficiencies or issues.	The implementation of the models and solution methods is correct and fully functional. Code is well-organized, efficient, and error-free. Implementation skills go beyond what is covered in the lectures and the efforts made are impressive given the study load.
Documentation (5%)	The code has hardly documentation or comments.	The code has little documentation, making it difficult to follow. No significant explanations of key steps/decisions are present in the comments.	Documentation is present and provides only basic details. The code contains comments, but they are sparse or lack clarity in some places.	The code is mostly well-documented with minor issues. Documentation explains key steps/decisions, though it may miss some nuances.	The code is thoroughly and clearly documented with meaningful comments for every significant section. The documentation explains the thought process behind design decisions, making the code easy to understand for any developer.
Data collection/generation (5%)	Little to no relevant data is collected/generated, and/or data is irrelevant to the problem. Data sources are hardly identified or explained. Data presentation is unclear and/or non-existent.	Data collection/generation is incomplete, with several critical aspects of the problem missing. Data sources are poorly chosen or not well justified, leading to irrelevant or insufficient input for the problem. Data is presented but does not follow the given template. Data collection efforts are at a minimum level of adequacy for study load (if applicable).	Basic relevant data is collected/generated, though occasionally some aspects of the problem may be missing. Data sources are adequate but lack convincing justification or explanation of their relevance to the problem. Data is presented and mostly follows the template. Data collection/generation efforts are broadly appropriate for study load (if applicable).	Relevant data is well collected/generated, covering most aspects of the problem. Data sources are mostly justified, though there could be stronger motivation of why certain inputs were chosen. Data is presented in an organized way based on the given template. Data collection/generation efforts show a willingness to go the extra mile (if applicable).	Comprehensive and relevant data is collected/generated, thoroughly addressing all aspects of the problem. The selection of data sources is fully justified, with evidence of critical thinking in the choice of inputs. Data is presented clearly in the given template. Very extensive efforts in data collection/generation.

Oral presentation:				
weight	**< 5**	**5-6**	**6.5-7.5**	**8-9**	**9+**
Oral presentation (20%)	Presentation is disorganized and unclear. Failing to convey the overall problem statement, methodology, results and recommendations due to issues with the contents of the slides and/or how they are presented to the audience. Most questions on the assignment and overall course material are left unanswered. answer questions in an unacceptable manner. Very poor time management.	Although the key components of the presentation are available, the presentation contents lacks structure and/or is not delivered in convincing way. The questions on the assignment and overall course material are answered with significant difficulty. Time management is poor where the speaker is visibly rushed or too slow.	Clear presentation in some parts but not overall. All components of the presentation are present, but some parts have minor problems. The explanation of the problem or methods is limited. The student answers questions on the assignment and overall course material but with some difficulty. Satisfactory time management with slightly rushed or prolonged moments.	Organization of the presentation is clear and orderly in all parts. Convincing and correct problem statement. Motivation for methodology and data selection, results and recommendations are provided with possible occasional issues. The student answers questions on the assignment and overall course material but may struggle with some details. Time management is good and within an acceptable range. Flow of presentation is mostly smooth.	The presentation is completely clear and well-structured. Very strong presentation and argumentation throughout. All questions on the assignment and overall course material are confidently answered. The student would be able to convince professionals for adopting the recommendations provided. Presentation was completed within the allocated time, finishing naturally without rushing or delay.