Machine Learning and Optimization

Project Grading Rubrics, Spring 2026

Grading of each criterion will be done using a scale of 0/50/70/100%.

Research Project Selection Rubric (100 points)

Criterion	Pts	Exemplary (A)
Problem Statement & Novelty	40	Clearly articulates a nontrivial research question in ML/Opt, explains why it matters and how your approach is novel.
Techniques & Feasibility	40	Outlines concrete methods/approaches that feasible within the semester timeline and are computationally feasible.
Concreteness of Claims	20	Measures of success are clear

Scoring Sheet (for instructor use):

- Problem Statement & Novelty (40): _____
- Techniques & Feasibility (40): _____
- Concreteness of Claims (20): _____

Total: _____/100

Pedagogical Project Selection Rubric (100 points)

Criterion	Pts	Exemplary (A)
Learning Objectives & Audience	40	Identifies a ML/Opt course not covered in class, and provides relevant learning objectives
Pedagogical Approach	40	Proposes concrete instructional methods (visualizations, worked examples, interactive demos, problem sets with solutions) appropriate to the learning objectives. Scope is realistic for semester timeline.
Assessment & Deliverables	20	Specifies clear deliverables (tutorial document, code repository, problem bank) and how you can gauge achievement of learning objectives.

Scoring Sheet (for instructor use):

- Learning Objectives & Audience (40): _____
- Pedagogical Approach (40): _____
- Assessment & Deliverables (20): _____

Total: _____/100

Research Progress Report Rubric (100 points)

Criterion	Pts	Exemplary (A)
Introduction & Problem Statement	15	Clear statement of research problem and its significance for TML.
Background & Related Work	15	Situates project within literature; contrasts with prior work.
Methodology & Experimental Design	25	Detailed description of methods, datasets, models, metrics, and baselines.
Initial Results & Analysis	25	Presents at least half of experiments; interprets results rigorously; identifies limitations.
Challenges & Adaptation	10	*If appropriate*, explains obstacles faced and justified adjustments to plan.
Clarity & Organization	10	ICLR workshop-paper style, coherent structure, professional writing.

Scoring Sheet (for instructor use):

- Introduction & Problem Statement (15): _____
- Background & Related Work (15): _____
- Methodology & Experimental Design (25): _____
- Initial Results & Analysis (25): _____
- Challenges & Adaptation (10): _____
- Clarity & Organization (10): _____

Total: _____/100

Pedagogical Progress Report Rubric (100 points)

Criterion	Pts	Exemplary (A)
Learning Objectives & Motivation	15	Clear statement of pedagogical goals and target audience.
Background & Existing Resources	15	Reviews relevant textbooks, tutorials, or course materials; identifies gaps or shortcomings.
Pedagogical Design & Methods	25	Description of instructional approach, materials being developed (examples, visualizations, exercises), and rationale for design choices.
Draft Materials & Pilot Testing	25	Presents at least half of planned materials in draft form.
Challenges & Adaptation	10	*If appropriate*, explains obstacles faced (e.g., scope, technical implementation) and justified adjustments to plan.
Clarity & Organization	10	Tutorial or teaching-guide style, coherent structure, professional presentation.

Scoring Sheet (for instructor use):

- Learning Objectives & Motivation (15): _____
- Background & Existing Resources (15): _____
- Pedagogical Design & Methods (25): _____
- Draft Materials & Pilot Testing (25): _____
- Challenges & Adaptation (10): _____
- Clarity & Organization (10): _____

Total: _____/100

Research Project Presentation Rubric (100 points)

Criterion	Pts	Exemplary (A)
Problem Motivation	15	Clearly states the problem, why it matters for trustworthy ML, and its significance.
Contributions & Relation to Prior Work	20	Articulates main contributions, compares fairly to prior literature, highlights novelty.
Method Explanation	20	Provides intuitive and technically accurate explanation of method or theoretical results; both high-level and precise details accessible.
Evaluation & Results	20	Presents empirical results or formal guarantees; includes appropriate baselines/metrics; interprets results rigorously.
Limitations & Future Work	10	Thoughtfully discusses shortcomings, assumptions, and potential extensions.
Delivery & Engagement	10	Both team members speak; well-paced 20-minute recording; slides are clear and professional.
Q&A Participation	5	Engages actively in live discussion; answers questions thoughtfully and accurately.

Scoring Sheet (for instructor use):

- Problem Motivation (15): _____
- Contributions & Relation to Prior Work (20): _____
- Method Explanation (20): _____
- Evaluation & Results (20): _____
- Limitations & Future Work (10): _____
- Delivery & Engagement (10): _____
- Q&A Participation (5): _____

Total: _____/100

Pedagogical Project Presentation Rubric (100 points)

Criterion	Pts	Exemplary (A)
Learning Goals & Motivation	15	Clearly states the target audience, learning objectives, and why this topic was selectted.
Pedagogical Contributions & Context	20	Articulates main pedagogical innovations, compares to existing tutorials/textbooks, highlights what makes this approach effective.
Instructional Design	20	Effective pedagogical content.
Materials	20	Showcases key deliverables (worked examples, visualizations, problem sets); demonstrates how materials address learning objectives.
Limitations & Extensions	10	Thoughtfully discusses scope limitations, prerequisite assumptions, and potential improvements or additional topics.
Delivery & Engagement	10	All team members speak; well-paced 20-minute recording; slides are clear, professional, and pedagogically sound (e.g., good examples, appropriate detail).
Q&A Participation	5	Engages actively in live discussion; answers questions thoughtfully about topic.

Scoring Sheet (for instructor use):

- Learning Goals & Motivation (15): _____
- Pedagogical Contributions & Context (20): _____
- Instructional Design (20): _____
- Materials (20): _____
- Limitations & Extensions (10): _____
- Delivery & Engagement (10): _____
- Q&A Participation (5): _____

Total: _____/100

Research Deliverables Rubric (100 points)

Criterion	Pts	Exemplary (A)
Reproducibility & GitHub Repo	40	Complete, documented code/data/scripts; straightforward reproduction of results; instructions clear.
Final Report (ICLR workshop format)	40	Thorough, rigorous workshop-style paper covering problem, methods, results, and conclusions; clear writing and figures. All issues I identified in the progress report should be rectified.
Slide Deck	10	Should be present.
Presentation (20-min prerecorded)	10	Box link should be present and accessible.

Scoring Sheet (for instructor use):

- Reproducibility & GitHub Repo (40): _____
- Final Report (ICLR workshop format) (40): _____
- Slide Deck (10): _____
- Presentation (10): _____

Total: _____/100

Pedagogical Deliverables Rubric (100 points)

Criterion	Pts	Exemplary (A)
Usability & GitHub Repo	40	Complete, documented materials (tutorial text, code, exercises, solutions); straightforward for target audience to use; README explains structure and prerequisites clearly.
Final Report (tutorial/guide format)	40	Thorough pedagogical document covering learning objectives, and pedagogical materials developed; clear writing and examples suitable for intended audience. All issues I identified in the progress report should be rectified.
Slide Deck	10	Should be present.
Presentation (20-min prerecorded)	10	Box link should be present and accessible.

Scoring Sheet (for instructor use):

- Usability & GitHub Repo (40): _____
- Final Report (tutorial/guide format) (40): _____
- Slide Deck (10): _____
- Presentation (10): _____

Total: _____/100