MLRE Course: Modules with layered scaffolds.

Week	Dates	Lecture Topics	Paper Reading & Literature Review	Exposure to Research Topics	Research Methodology	Oral Presentations	Writing and Peer Review
1	Aug 27-28	Lec 1-2: Course Overview + Paper reading basics	How to read ML papers (template intro), whole class reads same foundational paper	ML research landscape overview, different subfields introduction	–	–	–
2	Sep 3-5	Lec 3-4: Paper list introduction + Reading techniques	Template-guided reading practice with curated paper list	Exposure to diverse ML subfields through paper categories	–	How to present technical content, slide structure basics	–
3	Sep 10-12	Lec 5-6: Conference talk analysis + First presentations	Individual and group reading with guided structure. [📄 INDIVIDUAL PAPER SUMMARY #1, GROUP PAPER SUMMARY #1]	Watch & analyze conference talk together, and identify presentation techniques.	Mock replication introduction. [📄 REPLICATION WARM-UP #1 - INDIVIDUAL AND GROUP AS SEPARATE SUBMISSION]	First group paper presentations and discussion on curated papers.	Peer & self-review with instructor [📄 STRUCTURED FEEDBACK FORMS]
4	Sep 17-19	Lec 7-8: Presentation skills + Research methods	Individual and group reading with guided structure [📄 INDIVIDUAL PAPER SUMMARIES #2, #3, GROUP PAPER SUMMARY #2, #3]	Paper presentation and discussion on assigned topics	–	Presentation delivery, learning Q&A, technical communication.	Learning to give constructive feedback, identifying own insights
5	Sep 24-26	Lec 9-10: Q&A techniques + Research design	individual and group reading with guided structure [📄 INDIVIDUAL PAPER SUMMARY #4, GROUP PAPER SUMMARY #4]	Paper presentation and discussion on assigned topics	Mock replication results discussion, extension ideation (organized).	Advanced Q&A skills, defending technical choices.	Slide review & paper feedback [📄 PEER EVALUATION PRACTICE]
6	Oct 1-3	Lec 11-12: Guest Lecture	–	*Guest Talk 1: Ethical Issues for Autonomous Teaming Agents; Guest Talk 2: Trustworthy AI.*	–	–	Formulating questions for researchers [📄 GROUP TALK SUMMARY #1, #2]
7	Oct 8-10	Lec 13-14: Guest Lecture + Proposal Q&A	–	*Guest Talk 3: Algorithm Fairness. + General discussion on AI news*	Mock replication continuation + group project discussion. [📄 REPLICATION WARM-UP #2 + GROUP MEETING MINUTES #1]	–	[📄 GROUP TALK SUMMARY #3]
8	Oct 15-17	Fall Break + Exam logistics	*Break Period*	*Break Period*	*Break Period*	*Break Period*	*Break Period*
9	Oct 22-24	Lec 16-17: Guest Lecture	–	*Guest Talk 4: Human-AI Interaction; Guest Talk 5: LLMs and Clinical Conversations.*	* PROPOSAL PHASE: Project definition, timeline planning. [📄 GROUP MEETING MINUTES #2]	–	[📄 GROUP TALK SUMMARY #4, #5]
10	Oct 29-31	Lec 18: Project proposal development	Literature search for chosen project topic, building bibliography	Colab tutorial	* PROPOSAL PHASE: Proposal handout, instructor meeting [📄 PROJECT PROPOSAL]	Proposal Proposal Check-in (proposal feedback)	peer feedback on the proposal
11	Nov 5-7	Lec 19-20: Project Proposal Check-in	–	–	*REPLICATION PHASE: Experimental strategy, design for real project.	Proposal Proposal Check-in (proposal feedback)	peer feedback on the proposal
12	Nov 12-14	Lec 21-22: Project check-in + PhD Panel	–	*Senior PhD Student Panel - application process, research career paths, academic life. [📄 QUESTIONS FOR PhD STUDENTS]*	*REPLICATION PHASE: Live project execution, troubleshooting implementation. [📄 MEETING MINUTES #3]	–	–
13	Nov 26-28	Lec 23-24: Project check-in + Slide feedback	Independent literature review for project, results interpretation	–	* EXTENSION PHASE: Extension implementation, data collection, analysis. [📄 MEETING MINUTES #4]	Research paper writing, slide preparation. [📄 SLIDES DRAFT].	Slide review & paper feedback
14	Nov 26-28	Thanksgiving Break	*Break Period*	*Break Period*	*Break Period*	*Break Period*	*Break Period*
15	Dec 3-5	Lec 25: Lightning Talks	Research synthesis, related work positioning	–	* EXTENSION PHASE: Extension results analysis. Open office hours for project support [📄 FINAL PAPER SUBMISSION]	* Lightning talk delivery (3-5 min research pitch)	Peer feedback on the lightning talks
17	Dec 10-12	Lec 26-27: Lightning Talks + Mock Conference	Final research synthesis	–	* MOCK CONFERENCE: Paper submission on EasyChair, conference simulation with assigned reviewers	* Lightning talk delivery (3-5 min research pitch)	* Paper peer review process, reviewer assignment. Peer Reviews
18	Dec 17-19	Final Poster Session	–	–	* MOCK CONFERENCE: Poster session, conference networking simulation	* Poster presentation, defending research to audience	* Final peer evaluations, review quality assessment

Paper Reading & Literature Review: High | Medium | Low **Exposure to Research Topics:** High | Medium | Low **Research Methodology:** High | Medium | Low

Oral Presentations: High | Medium | Low **Peer Review:** High | Medium | Low | Guest * = Milestone 📄 = Submission