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Human and Machine Intelligence AIML 950/MORS950

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Section 31 Tuesdays and Fridays	10:30 AM to 12:00 PM	TBD, Evanston
Section 81 Saturdays	9:00 AM to 12:00 PM	TBD, Chicago

Office Hours: Schedule available on Canvas and by appointment.

Course overview

Human and Machine Intelligence builds upon the foundations of AIML901-MO and dives deeper into how humans and AI interact, what that means for leadership and organizations, and how to successfully lead AI adoption in organizations. This is a real-world applications oriented course that draws on interdisciplinary insights from machine learning, cognitive science, human-computer interaction, organizational behavior, and literature to examine how and why humans and machines differ in problem solving abilities. By understanding the strengths and weaknesses of current and future humans and machines across a breadth of case studies, you will learn to recognize where AI can complement human intelligence and organizational processes, when human judgment is indispensable, what kind of trade-offs emerge when employing humans versus machines, and how to design hybrid teams that outperform either humans or machines working alone. This course is an interactive lecture-based course with reading reflection assignments and a final group project. The goal of the course is to prepare you to identify and evaluate AI opportunities, uncover human and machine blindspots, navigate ethical dilemmas, and lead teams of hybrid human and machine intelligence to effectively integrate AI into new businesses and adapt old ones.

Northwestern University Syllabus Standards

This course follows the [Northwestern University Syllabus Standards](#). Students are responsible for familiarizing themselves with this information. Students can find useful resources for safety and security, academic support, and mental and physical health and well-being on the [NU help website](#). Unauthorized copying or distribution of any course materials is strictly prohibited.

Class Attendance and Screen Policy

Students are expected to attend every class in-person unless they're feeling sick or have an approved absence. No laptops, tablets, or cell phones are allowed to be used in class except when we're using laptops for in-class exercises, which we will do from time to time. This policy is designed to avoid distractions for you and your classmates. I highly encourage note taking with a pen and notebook because research shows that writing by hand is better for memory and learning than typing (see Flanigan et al 2024 "Typed versus Handwritten").

Grading

Final Project (55%)

Today, nearly every company represents a case for AI adoption. The real managerial question is how to do it effectively given the organization's operational processes, strategy, and culture. In the final

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group project (with individual and group deliverables), you will identify, think through, and artfully write up an AI adoption playbook for a Fortune 500 company. The goal is to produce a C-suite ready playbook that is a concise, insightful, and action-oriented report that an executive team would want to read and would benefit from reading.

The AI Adoption Playbook should be 6 to 8 pages and structured as if being delivered to the company's executive leadership. Please follow this rubric: (1) Executive Summary (1 page) (2) What the company does with a focus on the value generation process (3) Where AI can add value to current processes (4) How to integrate AI into current processes including what to pilot, how to measure success, and what organizational enabled talent, data, and leadership are required (5) What an AI first version of this company could look like in 2031 and where new significant revenue streams could emerge.

By the end of week 2, you each individually will turn in a 1 page outline on how this company works with a focus on the **problem**: what are the main revenue streams of the company?

By the end of week 3, you each individually will turn in a 1 page outline on how this company is positioned for AI adoption with a focus on the **solution**: how AI can decrease costs and increase value of new and existing revenue streams. This should include business processes, specific AI tools, and back-of-the-envelope orders of magnitude numbers for cost and benefits.

By the end of week 4, you will complete an interview with someone in the organization responsible for management and innovation. This is hard because it requires you to find someone at this organization, schedule a call, prepare questions for the call based on prep work in the first three weeks, call the individual, and write up a report of the interview. Only one interview per team required! This call is intended to ground your diagnosis of the problem and solution in the most up-to-date real-world form possible. As a team, you will turn in a 1-3 page overview of the interview.

By the end of week 5, you will submit a 6 to 8 page AI Adoption Playbook for your team's selected organization that would be useful for helping the C-suite navigate AI adoption in their organization. Your team will also present an 8 minute version to the class!

Your AI Adoption Playbook will be evaluated on **depth, specificity, thoughtfulness, effort, and clarity**. We will collect peer evaluations to encourage all group members to make active contributions. These peer evaluations will be directly used to help determine an individual's grade on the final project. We will grade deliverables in week 2, 3, and 4 on a check plus, check, check minus scale. We will grade the final deliverable on a standard A, B, C, etc. grading scale.

Depth refers to how fully and insightfully you understand the company, its industry, and the potential for AI adoption. The strongest projects go beyond surface-level summaries to analyze how strategy, operations, data, and culture interact to shape what's possible.

Specificity reflects how concrete and detailed your analysis is. Excellent work describes real processes, decisions, and workflows in detail rather than general statements about "efficiency" or "innovation." Your recommendations should include specific examples, metrics, or process improvements that could be implemented.

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Thoughtfulness captures the originality and reasoning behind your insights. Strong projects show independent thinking that acknowledges tradeoffs, anticipates challenges, and offers perspectives that demonstrate real managerial judgment rather than repeating buzzwords or generic narratives.

Effort assesses the rigor and completeness of your work. This includes the quality of your research, the depth of your interview, the integration of sources, and the evident time spent refining your analysis and writing. Peer evaluations will also contribute to this dimension to ensure active contribution across the group.

Clarity evaluates the structure, writing quality, and professionalism of your final playbook. The report should be clear, well-organized, concise, and polished. In other words, something that could credibly be shared with a company's C-suite.

Reflection Assignments (30%)

In the second, third, and fourth weeks, you will write a short reflection paper (minimum 1 page, maximum 2 pages) reflecting on one or more of the readings that week. The paper should be double-spaced in 12-point type.

Please follow this rubric: (1) Summarize the main topic, key ideas of the reading, and how this related to management in a brief paragraph, (2) Share what you find exceptional and what surprises you about the article, (3) Describe an experience from your work or organization that connects to this week's reading. What in your experience matches the author's ideas, what doesn't, and what new questions does that raise for you as a leader?

Your reflection will be graded on depth, specificity, and originality. This means I'm looking for your own voice and concrete experiences. Specifically, I'm not looking for a generic summary that could have come from an AI tool. Each paper is graded out of 10 points. There are 1 point for the summary, 4 points for what you find exceptional and discussing what surprises you, and 5 points for connecting your experience to the reading.

If you use AI for light brainstorming or proofreading, that's fine and encouraged! But the *thinking* must be yours. The best reflections on your experience include details only *you* could know and connect insights to your actual management context such that the act of writing can help you develop your thinking and reveal how your perspective is evolving.

The assignment is **due one hour before the start of class**. Late assignments will incur a 10% penalty for the number of days (up to 3) the assignment is late: 1 minute late is a 10% deduction, 25 hours late is a 20% deduction, 3 days late is 30%, and 4 days late is considered a 0%.

Participation (15%)

You are expected to attend every class and actively engage in group discussions. Your participation grade is based on your attendance and participation in class.

AI Policy

I expect you to think critically and use AI as a tool for assignments in this class. With that said, do not blindly trust AI outputs. Do not copy AI outputs. Use your own words. You are responsible for errors and omissions in the assignments you submit.

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AIML 950/MORS 950 Winter 2026 Schedule

1. Intelligence across Scales

How do we compare intelligence across biological organisms, artificial systems, and organizations? Why do size, age, and resource constraints matter for intelligence? What lessons about scaling intelligence can managers draw from evolution, childhood, and Moore's Law?

- [Measuring AI Ability to Complete Long Tasks](#) (2025) by METR
- [Powers of Ten](#) by Charles and Ray Eames

2. Decision-Making Blindspots

What cognitive biases systematically distort human decision-making? Why do AI systems introduce new kinds of blindspots? How can managers combine human and machine intelligence to mitigate blindspots?

- [*Why People Resist Embracing AI](#) by Julian de Freitas (2024)
- [The Illusion Illusion](#) by Tomer Ullman (2024)

3. Creativity

What is creative thinking? How is generative AI disrupting creative work? How can you boost your own and your team's creativity?

- Innovation (Chapter 5) in *Primal Intelligence* by Angus Fletcher (2026)

4. The Media Equation, Eliza, and AI Boyfriends

Why do humans treat computers and AI systems as social actors, often unconsciously? What are the implications of anthropomorphism for trust, marketing, and organizational culture? How should managers responsibly design human-AI relationships in products and workplaces?

- Chapter 1 "The Media Equation" Byron Reeves and Cliff Nass (1996)
- [Empowering AI Companions for Enhanced Relationship Marketing](#) by Rijul Chaturvedi, Sanjeev Verma, and Vartika Srivastava (2025) ([video companion](#))

5. Hype Engineering and Dousing

Why does hype emerge so predictably around new technologies like AI? How do managers distinguish between overpromising narratives and genuine breakthroughs? What strategies can leaders use to harness hype productively while avoiding disillusionment?

- [Normal Technology](#) by Arvind Narayanan and Sayash Kapoor (2025)
- Chapter 1 "An Introduction to AI Hype" from *The AI Con* by Emily Bender and Alex Hanna (2025)

6. Recommendations

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Why do people trust (or resist) recommendations differently when they come from humans versus algorithms? What risks emerge when organizations over-rely on machine recommendations??

- [The Netflix Recommender Systems: Algorithms, Business Value, and Innovations](#) by Carlos Gomez-Urbe and Neil Hunt (2015)

7. Intuition and Imagination

What role should human intuition play in high-stakes managerial decisions alongside AI? How does science fiction enable leaders to build strategic visions? What organizational practices cultivate imagination? Why has common sense reasoning been a bottleneck for AI research, and why does it matter for business? How do humans build common sense and what are the limits of transferring this to machines? What happens when organizations mistakenly assume machines have common sense?

- [*Where Data-Driven Decision Making Can Go Wrong](#) by Michael Luca and Amy Edmondson (2024)
- [The Last Question](#) by Isaac Asimov (1956)
- Optional: [Common Sense](#) by John McCarthy (2002)

8. Storytelling

Why did Steve Jobs say “The most powerful person in the world is the storyteller”? How can you weave meaning, create serendipity, and grow wiser through story. And, how AI can make us all better storytellers?

- [Why Your Intuition, Imagination, and Emotion will Outlast AI](#) Eric Markowitz and Angus Fletcher (2025)
- [The Secret Structure of Great Talks](#) by Nancy Duarte (2011)

9. Emotions

How well can machines recognize, respond to, and express emotion? How do emotions guide vision and influence?

- [Feeling Machines: Emotion AI at Affectiva](#) by Shane Greenstein and John Masko (2019)

10. Presentations

You and your team present your AI Adoption Playbook to the class. 8 minute presentation followed by 2 questions from your classmates.

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Session	Module	Reading + Assignments
1	Intelligence	Measuring AI Ability to Complete Long Tasks (2025) by METR
2	Blind Spots	Why People Resist Embracing AI by Julian de Freitas (2024) The Illusion Illusion by Tomer Ullman (2024) Project: Team Formation Complete and Fortune 500 company chosen (by the end of lecture 2)
3	Creativity	Innovation (Chapter 5) in Primal Intelligence by Angus Fletcher (2025) One page reflection on readings due before class
4	Media Equation	Chapter 1 “The Media Equation” (1996) * Empowering AI Companions for Enhanced Relationship Marketing by Rijul Chaturvedi, Sanjeev Verma, and Vartika Srivastava (2025) Project: Revenue Streams Outlined (Individual)
5	Hype	Normal Technology by Arvind Narayanan and Sayash Kapoor (2025) Chapter 1 “An Introduction to AI Hype” from The AI Con by Emily Bender and Alex Hanna (2025) One page reflection on readings due before class
6	Recs	The Netflix Recommender Systems: Algorithms, Business Value, and Innovations by Carlos Gomez-Urbe and Neil Hunt (2015) Project: AI Adoption Opportunities Outlined (Individual)
7	Intuition & Imagination	The Last Question by Isaac Asimov (1953) Where Data-Driven Decision Making Can Go Wrong by Michael Luca and Amy Edmondson (2022) Optional: Common Sense by John McCarthy One page reflection on readings due before class Project: Interview Completed (Team)
8	Storytelling	Why Your Intuition, Imagination, and Emotion will Outlast AI Eric Markowitz and Angus Fletcher (2025) The Secret Structure of Great Talks by Nancy Duarte (2011)
9	Emotion	Feeling Machines: Emotion AI at Affectiva by Shane Greenstein and John Masko (2019)
10	Presentations	You’re presenting! Project: Final AI Adoption Playbook Submitted (Team)