

Human-Machine Communication (HMC)
COMS930
SP 2025



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Drop-by hours: M: 9:00 – 10:30 am, W: 12:30 – 2:00 pm, and by appointment:

<https://tinyurl.com/bookwithpiercy>

Office: Bailey Hall 112

Course time/location: M/W 11:00 – 12:15 in Bailey 401

Course Overview

HMC marries research from human-robot interaction (HRI), human-computer interaction (HCI), human artificial intelligence interaction (HAII), computer science, and other fields to emphasize the importance of communication in all human-machine processes. HMC values all types of machine interaction (e.g., with robots, artificial intelligences, algorithms, and more). HMC scholarship centers on communication encouraging researchers to focus on how relationships between humans and machine partners unfold through social processes, perceptual dynamics, and interaction. HMC, thus, represents the site of meaning making for both human and machine communication partners.

This course surveys this emerging field to tackle the humanistic, ontological, epistemological, and empirical questions about how humans and machines interact. The course will survey what is known about HMC processes across domains (e.g., organizational, political, interpersonal communication, etc.).

Course Learning Goals and Objectives

By the end of this course, you will be able to:

- Define and conduct research in human-machine communication
- Articulate clear issues associated with human-machine interaction
- Apply theories helpful in explaining human-machine communication processes

Course Format

This is a graduate level course comprised of both MA and PhD students. The course is discussion based, and all students are expected to have completed the class reading prior to the assigned day. Classes will feature a minimal amount of lecture and will focus on discussion of key ideas in the articles assigned for a given class and practice through a complete research proposal. We will mix theory and practice, and students are encouraged to bring their own experiences/data/theories into the classroom.

Course Readings

Required:

American Psychological Association (2019). *Publication manual of the American Psychological Association* (7th Ed.). Washington, DC: APA.

Major Assignment

This course is a survey of a novel type of communication which is increasingly common across domains (i.e., in interpersonal relationships, at work, in politics, etc.). Students are expected to engage with content beyond their specialization, but also to personalize content from the course to apply to their unique research interests. Overall, the course is laid out to allow students to engage in a research project from conceptualization, to proposal, and eventual completion.

The semester is a short time to accomplish a complete research project, so students will initially present individual ideas and then are invited to work in teams or dyads and class time is dedicated to work on this project. Specifically, students are invited to (1) individually draft a [letter of intent](#) (no more than 2 pages), (2) individually write 5 pages on their topic area, (3) together craft a literature review on their topic, and (4) finalize a full proposal that includes a clear method and plan for completing the paper including IRB materials (if applicable) and a concrete timeline and target for completed work.

Writing is a critical part of communication, and in order to be successful in this class, it is important that you communicate clearly and concisely in writing. KU offers a Writing Center where students can obtain help with writing skills and assignments: <http://writing.ku.edu/ku-graduate-students>. Students are encouraged to take advantage of their tutoring services before handing in any written work.

Grading

Your final grade will be allocated between the required course project as follows:

- Letter of Intent (10%)
- Write something (15%)
- Literature Review and Plan/IRB/Method (25% + 15%)
- HMC Assignment (5%)
- Participation (Article discussion leadership and in-class discussion; 30%)
 - Drafted paper (friendly) review: Uncompensated, like all reviews.

Participation & Discussion Leadership (20% discussion leadership, 10% participation):

Students will be responsible for leading discussion on given days. Students will serve as discussion leaders each class. The discussion leader will provide a summary of the readings for classmates, will pose technical questions to the instructor to clarify the readings, and will offer five to seven critical questions for the class to consider in seminar. The goal is to put the readings in terms which help to generate discussion based on:

- The objectives of the studies and an overview of the topics covered.
- Theories addressed in the research
- Aspects of the design and implementation of the studies
- Key contributions of the study and questions/issues it provokes
- Ways in which the reading connects to other research
- A list of several discussion questions which remain unanswered in the papers

Each student leading discussion will be expected to provide a 1-page summary over the topic covered that day and list key questions (both theoretical and methodological). Concise approaches are valued in your discussion materials. Bullets are encouraged. Your job is to

identify key aspects of the readings explained in plain language (your own words, direct quotes should be minimized as much as possible), and to find common themes, discoveries, controversies, etc., across articles. Include an **opening comment on the connections among the articles. Upload the summary and questions for that day onto Canvas Discussion Forum by midnight the day before your discussion leadership (i.e., Sunday and Tuesday).**

HMC Class Activity: You will be asked to create a class activity which can be used in an undergraduate course (e.g., CMC, HMC, Org. Comm., etc.). This activity should be able to be executed as part of a standard 60 - 75 minute course. Assignments will become part of a shared activity repository.

Full research project proposal:

Students are encouraged to work in dyads or as a team to complete a research project in the course this semester. My goal is to make the project iterative and incremental. That is, you, your co-authors, and I will work together throughout the semester to build out the idea for the project. The class offers critical waypoints to help develop the paper.

This project will reflect scholarly rigor that could be submitted to a conference commensurate with your interest upon completion of the course. The project will review and summarize/synthesize the existing research pertaining to a subtopic related to the course. It will (1) integrate, synthesize, and/or theorize an original problem or a set of conflicting findings in the field, including a call for the kinds of future research that can help assess the utility of the integration/synthesis/theory; or (2) present original empirical research that will either (a) apply HMC theory and research into a domain or purpose that is previously underdeveloped, and propose or present a test of the effects of that application, (b) address a conflict or theoretical controversy in the HMC literature, and propose or present a critical test that may reconcile the conflict, or (c) conduct an original empirical study that will provide an original extension to some theoretical question in HMC.

The research proposal will likely be 15 pages in length. An accompanying IRB submission, including protocol, recruitment messages, information statement, etc. (if application) is required if applicable. Completed class projects should include a clear timeline with a conference (and, potentially journal) target as well as any remaining steps related to completing the proposal.

Students are encouraged to consider the potential for a strong secondary analysis of existing datasets. In the past this has been a very fruitful avenue (see Piercy & Lee, 2019 in *NMS* and Parviz & Piercy, 2021 in *SM+S*). Please spend significant time exploring potential datasets before you settle. There are many publicly available datasets and I want you to find one that fits your interest, needs, and skill. Here are some potential sources of data:

- <https://toolbox.google.com/datasetsearch>
- <http://networkrepository.com>
- <https://www.redeftiedata.eu/>

Papers need to be prepared according to the guidelines specified in the Publication Manual of the American Psychological Association 7th edition. You are free to use this as an opportunity to develop ideas you have worked on in other courses or for thesis/dissertation. If you are using an idea, you have worked on in the past, inform Dr. Piercy BEFORE you begin the project: Avoid self-plagiarism.

*The term paper idea and timeline for completion is due on **Monday, May 12th at 10 a.m.*** The entire research proposal paper should be complete (including any Figures, Tables, References, and Appendices), using 12-point font, double-spaced, and with 1" margins. Students will present their term paper on the last day of the course. Presentations will be 10- minutes in length followed by ~5 minutes for discussion/Q&A and are meant to be a forum for sharing the project you developed.

Ungrading

Your final grade will be allocated between the required assignments listed below. In the spirit of ungrading, a practice designed to center your contribution and the value of feedback, each assignment will be graded only as pass or not. Ungrading values feedback over evaluation—it centers conversation over penalization. I am getting better at ungrading, but it requires a great deal of trust between you and me. Please let me know if you prefer I evaluate your work in a ‘conventional’ points-based way (I have much experience with this approach). Otherwise, it is my hope you feel more comfortable talking to me about what you hope to accomplish, how you see the work of this class relative to your own career and interests.

For me, ungrading centers your efforts and contributions (varied as they may be across your graduate program) and helps both of us find ways to increase the value of this course by focusing on conversation and growth. The weights assigned above signal that by completing each component you will receive the cumulative percent of your grade. For example, if you choose not to complete the Letter of Intent your grade will automatically move to 90%.

An incomplete can only be assigned to a student who due to unforeseen (and generally emergency) circumstances cannot finish coursework within the given semester. Students should not assume that they have the option of an I grade; this option will be utilized infrequently and at the professor's discretion.

University Policies and Academic Success

Inclusion, Diversity, Equity, and Access

KU is a large campus and finding help or support can be challenging. The Department of Communication Studies has a dedicated committee to focus on IDEA (Inclusion, Diversity, Equity, and Access). You can find many resources, events, reporting tools, and more on their website: <https://coms-idea.ku.edu>. A large list of KU resources is available directly on this page: <https://coms-idea.ku.edu/find-support>

The University of Kansas has a variety of resources to support your success on campus. In addition to the links below, visit the [Student Resources website](#) (KU Student Affairs) for additional policies and resources.

- [Change of Grade Policy](#) and [USRR, Section 3: Change of Grade](#)
- [Code of Student Rights and Responsibilities](#)
- KU Policy on [Commercial Notetaking](#)
- [KU Statement on Diversity and Inclusion](#)
- [Mandatory Reporting](#) (Civil Rights & Title IX)
- [Nondiscrimination, Equal Opportunity, and Affirmative Action](#)
- [Racial and Ethnic Harassment Policy](#)
- [Sexual Harassment](#)
- [Counseling and Psychological Services](#)
- [Kansas Board of Regents Statement on Freedom of Expression](#)
- [Student Support and Case Management](#)

Plagiarism and AI:

Plagiarism: Plagiarism is a serious offense. Using the words and ideas of others is borrowing something from those individuals. It is always necessary to identify the original source of supporting information. **You must cite the source of any material, quoted or paraphrased, in both written work and oral presentations.**

Sometimes writers are uncertain about what to cite. Here are some firm guidelines:

- If you write word-for-word content which appears in another source, put quotation marks around it and cite the source (author, year, page number).
- If you borrow and summarize ideas, arguments, data, or other information from another source, cite the source even if you put the material in your own words (author, year).
- Agreeing with the material does not make it your own. If an idea you share originated from someone else, give that person credit according to a formally recognized style.

Generative AI: Use of Generative AI tools (e.g., ChatGPT, Bard, Claude) are encouraged in this course. But AI tools should be cited and any words generated by the tool should be in quotation marks (with the exception of grammar edits involving less than three words in a sentence).

Further, each student is responsible for ensuring accuracy of content produced including references and citations. Finally, any assignment using AI tools should include an **AI Design Statement**. The AI Design Statement should come at the end of the written work and should include the model used (e.g., ChatGPT with GPT3.5) and the prompt entered into the system to generate the content utilized (e.g., “Prompt: Please provide three reasons why child hunger is an important social cause.”). Commercial Generative AI is relatively new, and this we will experiment with this tool together in class. This policy, more than any other, is subject to change this semester. Modifications will be made via a Canvas announcement.

Tentative Schedule

***Subject to change based on class needs and demands*

January 22nd What is Human-Machine Communication

- Guzman, 2018 – *What is HMC anyway?*
- Piercy, 2024 – [*AI Meets Communication Theory*](#)
- Sundar & Lee, 2022 – *Rethinking Communication in the Era of Artificial Intelligence*

January 27th Agency and Ontology in HMC

- Edwards, 2018 – *Animals, humans, and machines: Interactive implications of ontological classification*
- Roberge, 2024—HMC Handbook—Ch. 5: *The Meaning and Agency of Twenty-First-Century AI*

January 29th The Agency Question in HMC ctd.

- Piercy et al., 2023 - *Agency in computer-mediated communication: Bots and U.S. political elections*
- Pan et al., 2024 - *AI Agency Human–AI communication in initial encounters: How AI agency affects trust, liking, and chat quality evaluation*

February 3rd Computers as Social Actors

- Heyselaar, 2023—*The CASA theory no longer applies to desktop computers*
- Gambino et al., 2020 - *Building a stronger CASA: Extending the Computers Are Social Actors paradigm*
- Suggested reading: Nass & Moon, 2000 - *Machines and mindlessness: Social responses to computers*

February 5th Computers as Social Actors ctd.

- Lombard & Xu, 2021 - *Social responses to media technologies in the 21st century: The media are social actors paradigm*
- Sundar & Chen, 2024—HMC Handbook—Ch. 7 *From CASA to TIME: Machine as a Source of Media Effects*

February 10th The Machine Heuristic

- Yang & Sundar, 2024 - *Machine heuristic: concept explication and development of a measurement scale*
- Molina & Sundar (2024) - *Does distrust in humans predict greater trust in AI? Role of individual differences in user responses to content moderation*

February 12th Conversational AI

- Piercy et al., 2025—*Gender and accent stereotypes in communication with an intelligent virtual assistant.*
- Mou & Wu, 2024 – HMC Handbook – Ch. 53 *Communicating with Conversational Assistants: Uses, Contexts, and Effects*

February 17th Theory of the Mind with Machines

- Banks, 2020 – *Theory of mind in social robots: Replication of five established human tests*
- Bharadwaj et al., 2024—HMC Handbook— *Ch. 10: Developing a Theory of Artificial Minds (ToAM) to Facilitate Meaningful Human–AI Communication*

February 19th Methods and Machines

- Survey Part 2 of the HMC Handbook (*Ch. 18 – 29*): *Approaches and Methods* and read three chapters that relate to your interest in machines.

2-page Letter of Inquiry/Intent is Due - Individual

February 24th Novelty and Acceptance

- Smedegaard, 2019 - *Reframing the role of novelty within social HRI: From noise to information*
- Seok et al., 2025 – *What Emotions and Personalities Determine Acceptance of Generative AI?: Focusing on the CASA Paradigm*
- Fisher et al., 2015 – *Searching for explanations: How the internet inflates estimates of internal knowledge*

February 26th Fear and Affordances

- Zhan et al. 2024- *What is There to Fear? Understanding Multi-Dimensional Fear of AI from a Technological Affordance Perspective*
- Buder et al., 2024 - *Beyond Mere Algorithm Aversion: Are Judgments About Computer Agents More Variable?*
- Nagy & Neff, 2024—HMC Handbook—*Ch. 30 Rethinking Affordances for HMC Research*
- Suggested: Yilmaz et al. 2024 —*Generative Artificial Intelligence Acceptance Scale: A Validity and Reliability Study (UTAUT)*

March 3rd Social Presence and Machines

- Reeves et al., 2020 - *Social robots are like real people: First impressions, attributes, and stereotyping of social robots*
- Xu et al., 2023 *The Hitchhiker's Guide to a Credible and Socially Present Robot: Two Meta-Analyses of the Power of Social Cues in Human–Robot Interaction*
- Xu & Jeong, 2024 – HMC Handbook—*Ch. 32 Social Presence in Human-Machine Communication*

Writing check in: 5 pages of work - Individual

March 5th Expectations of and Evaluations by Machines

- C. Edwards et al., 2021 - *Interpersonal impressions of a social robot versus human in the context of performance evaluations*
- Grimes et al., 2021 - *Mental models and expectation violations in conversational AI interactions*

March 10th (Mental) Health

- Kuhail et al., 2024 *Human-Human vs Human-AI Therapy: An Empirical Study*
- Kim et al., 2024 –HMC Handbook—*Ch. 50 Human-Machine Communication in Healthcare*
- Chen et al., 2024 *When an AI Doctor Gets Personal: The Effects of Social and Medical Individuation in Encounters With Human and AI Doctors*

Friendly Review of Peer work - Individual

March 12th Dark Side of HMC

- Natale, 2024—HMC Handbook—*Ch. 46 AI, Human-Machine Communication and Deception*
- Coleman, 2024—HMC Handbook—*Ch. 40 – Human-Machine Communication, Artificial Intelligence, and Issues with Data Colonialism*

March 17th – 19th SPRING BREAK

March 24th Everyday AI

- Kim et al. 2024 *One AI Does Not Fit All- A Cluster Analysis of the Laypeople's Perception of AI Roles*
- Bucher (2016). The algorithmic imaginary: Exploring the ordinary affects of Facebook algorithms. *Information, Communication & Society*, 20(1), 30-44. <https://doi.org/10.1080/1369118X.2016.1154086>
- Pick one:
 - Yalcin et al., 2022 - *Thumbs up or down: Consumer reactions to decisions by algorithms versus humans*
 - Molina & Sundar, 2022 *When AI moderates online content: effects of human collaboration and interactive transparency on user trust*

March 26th Machines in News and Politics

- Wang & Huang, 2024 *AI in News The Impact of Machine Authorship on News Audience Perceptions: A Meta-Analysis of Experimental Studies*
- Jia et al., 2024 *News bylines and perceived AI authorship: Effects on source and message credibility*

March 31st Social Relationships with Machines

- Rheu et al., 2024 *When a Chatbot Disappoints You: Expectancy Violation in Human-Chatbot Interaction in a Social Support Context*
- De Graaf & Peter, 2024 – HMC Handbook—*Ch. 50 Human social relationships with robots*

April 2nd Machines in Relationships

- Brandtzaeg et al., 2022 *MyAIFriend- How Users of a Social Chatbot Understand Their Human–AI Friendship*
- Rosenthal-von der Pütten & Koban, 2024 –HMC Handbook—*Ch. 33 Interpersonal Interactions between People and Machines*

April 7th Social Media Algorithms and Relationships

- Huang et al. (2022). Folk theories of online dating: Exploring people’s beliefs about the online dating process and online dating algorithms. *Social Media + Society*, 8(2), 1-12. <https://doi.org/10.1177/20563051221089561>
- Richards, 2024 – HMC Handbook—*Ch. 56 HMC in Love, Sex, and Robots*

April 9th Machines in the Dating Process (with special guest Dr. Liesel Sharabi)

- Sharabi (2022). Finding love on a first date: Matching algorithms in online dating. *Harvard Data Science Review*, Issue 4.1. <https://doi.org/10.1162/99608f92.1b5c3b7b>
- Sharabi (2021). Exploring how beliefs about algorithms shape (offline) success in online dating: A two-wave longitudinal investigation. *Communication Research*, 48(7), 931-952. <https://doi.org/10.1177/0093650219896936>

April 14th Framing Machines

- Gil de Zungia et al., 2024 *A Scholarly Definition of Artificial Intelligence (AI): Advancing AI as a Conceptual Framework in Communication Research*
- Xu & Li, 2024 *Visioning a two-level human–machine communication framework: initiating conversations between explainable AI and communication*
- Lee, 2023 *Minding the source: Toward an integrative theory of human–machine communication*

April 16th AI Snake Oil?

- Narayanan & Kapoor, 2024
<https://ebookcentral.proquest.com/lib/ku/reader.action?docID=31315362&ppg=1>
Everyone reads introduction and conclusion, and everyone is assigned a chapter to cover.

Literature Review Checkin (8 pages) due - Team

April 21st Machines and Educational Spaces

- Edwards & Craig, 2024 – HMC Handbook--*Ch. 58 HMC in Educational Contexts*

Teaching Assignment Presentations

April 23rd Critical Approaches to Machines

- Hoffman et al., 2022 *Five Big Ideas about AI*
- Gardner & Rauchberg, 2024 – HMC Handbook (see also HMC journal article)—*Ch. 28 Feminist cybernetic, critical race, postcolonial, and crip propositions for the theoretical future of Human-Machine Communication*

April 28th Intersectionality and HMC

- Goggin, 2024—HMC Handbook—Ch. 42: *Dishuman–Machine Communication: Disability Imperatives for Reimagining Norms in Emerging Technology*
- West, 2024 – HMC Handbook—Ch. 39 *Intersectionality and HMC*
- Zhang et al., 2022, “*It’s Just Part of Me:” Understanding Avatar Diversity and Self-presentation of People with Disabilities in Social Virtual Reality*

April 30th Machines and Work

- Jia et al. 2024 *When and How Artificial Intelligence Augments Employee Creativity*
- Weber & Treem, 2024 *Organizational Metrics of Technology Use and the Transparency Paradox*
- Piercy & Turner-Leatherman, 2025 —*Sociotechnical Exchange with Machines: Worker Narratives of Human-Technology Workplace Interaction*

May 5th Biased Machines

- Benjamin, 2019- *Chapter from: Race after technology: The new Jim Code*
- Noble, 2018 -*Chapter from: Algorithms of Oppression*

May 7th Talking with Machines

- Piercy, C. W., & Cummings, A. (2025). *Sociotechnical Communities of Inquiry: Student Questions to Instructors or Artificial Intelligence (AI)*.
- Parde, 2024 – HMC Handbook – Ch. 36 *Natural Language Processing*

Final Presentations: May 12th 10:30 am – 1:00 p.m.

Roadmap/IRB/Timeline Due