

COMS 493: Special Topics in Media Studies

Fall Semester 2018

Location: DuSable Hall 218

Time: W 6:00-8:40pm

Instructor: [Dr. David J. Gunkel](#)

Department: [Communication](#)

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Course Description

This undergraduate seminar investigates the important points of contact between artificial intelligence (AI), social robotics and communication, providing students with the following:

- Critical overview of the significant technological developments in AI, robots, algorithms, and autonomous systems
- Facility with the important questions, issues, and problems that shape contemporary debates and conversations about AI and robotics
- Knowledge of the influential individuals and organizations that define the field and help shape our increasingly technologically dependent society.

In the process, students not only investigate recent innovations in AI, robotics and communication but develop proficiency with the literature, history, major theories, and important practices of work in this field. The objective of the course is to cultivate informed, critical citizens and decision makers, who are confident dealing with both current and future technological innovation.

Texts & Materials

- Jerry Kaplan. *Artificial Intelligence: What Everyone Needs to Know*. Oxford University Press, 2016. ISBN: 9780190602390
- Thierry Poibeau. *Machine Translation*. The MIT Press, 2016. ISBN: 9780262534215
- David J. Gunkel. *The Machine Question: Critical Perspectives on AI, Robots and Ethics*. The MIT Press, 2012. ISBN: 9780262017435

These three texts are required and must be procured by all students enrolled in the course. In addition to these traditional print materials, we will employ a number of on-line texts. These materials are indicated on the course calendar and are required reading.

Objectives

Students will learn and become proficient with the following:

- *Theory & Concepts* - Students will know the terminology, fundamental texts, and basic concepts of AI and robotics. They will be able to talk the talk, to analyze the major issues and debates, and to trace complex relationships between work in AI, robotics and communication.

- *Technology & Skills Development* - Students will learn and cultivate practical skills with computer technology. They will learn how to write algorithms, and they will develop and interact with their own chatterbot.
- *Critical Thinking & Information Literacy* - Students will practice critical evaluations of texts, media, and technology. They will learn how to question information, assess its importance, and communicate their findings.

Responsibilities

Preparation - Students are responsible for reading and preparing all assigned class materials in accordance with the course calendar. Reading involves not only looking at the text but engaging the material in a thoughtful and organized fashion. Note taking, outlining, and other reading strategies are highly recommended.

Course Structure - This class is not a lecture-course. It is a seminar. Therefore, the responsibility for working through the material and structuring an effective learning environment falls to each member of the seminar.

Attendance - Because the environment of the course is interactive and collaborative, it is necessary that students attend and participate in every class meeting. Attendance is, therefore, mandatory. Seminar participants are permitted one (1) unexcused absence over the course of the semester. After that, the final grade will be reduced by 20 points per additional absence. This guideline is not inflexible and is subject to change due to individual circumstances. This alteration, however, must be confirmed with the instructor. When possible, this should be accomplished before the additional absence(s). In the case of any absence, it is the student's responsibility to make-up the missed work by obtaining notes from classmates or reading the assigned material. The instructor will not provide individual instruction for students who have missed a regularly scheduled class meeting.

Activities - Student learning and achievement is assessed by three activities: a presentation, three technology exercises, and a final examination.

1. Presentation - One of the skills necessary to live and work successfully in an age of increased automation is the ability to process, organize, and present data. For this reason, the course offers you the opportunity to exercise, develop, and demonstrate this ability that has been and will continue to be an integral part of your educational experience. Each class meeting one or more seminar members will provide a formal presentation (approximately 20-30 minutes) of the texts/topics that are to be considered that class period. These presentations are not book reports. They must be critical engagements with the material that are designed to initiate and to structure seminar discussion. The manner of presentation is wide open, and you are encouraged to be creative and innovative. In presenting the material, each presenter is required to incorporate some mode of presentation technology. This may include video, overheads, web materials, PowerPoint graphics, etc. The presentations will be formally evaluated using the following evaluation form:



Presentation Evaluation Form

Sign-up Procedure - A sign-up sheet will be circulated during the second class meeting. You are encouraged to browse the course calendar to decide on a presentation topic and date. It is your responsibility to remember the date of your presentation and plan accordingly. Missing your presentation will constitute failure of the assignment.

Slide Share - After your presentation, please upload your presentation slides in order to make these materials available to the seminar. Slides may be uploaded (preferably in pdf format) to the "Discuss/Share" space on course [Blackboard page](#)

2. Maker Exercises - Students will complete five "learn-by-doing" activities designed to provide hands-on practical knowledge of computer technology and to assist in the development of basic skills. These maker exercises will be developed, executed, and evaluated during specially designated class meetings. Students who are absent for these lab sessions, will need to complete the work on their own outside class and present the results to the instructor no later than 1 week after the scheduled lab session.

- **Algorithms** - Understand what algorithms are and how they function by writing simple algorithms in the Javascript programming language.
- **Machine Translation** - Construct a basic translation algorithm.
- **Chatbots** - Learn about the Turing Test and the fundamentals of Natural Language Processing (NLP) by programming and interacting with a Chatbot.
- **TemplateNLG** - Write a templateNLG application to produce original, machine-generated song lyrics.
- **TED Talk** - 5 minute performance (live or pre-recorded) addressing the subject: "How to survive the robot apocalypse."

3. Examinations - There will be a comprehensive final examination at the conclusion of the course. This examination will consist of four sections.

Talk the Talk - Define technical terms and acronyms (i.e. AI, Algorithm, NLP, etc.).

It's Who You Know - Identify major figures in the field of AI, robots and communication (i.e. Alan Turing, Warren Weaver, Cynthia Breazeal, etc.).

Short Answers - Provide brief responses to short answer questions (i.e. John Searle's "Chinese Room" is designed to illustrate the difference between "simulation" and the

"real thing." Briefly describe the difference between these two terms and how Searle's thought experiment demonstrates this difference.).

Essay - Write an essay in response to a question. This part of the exam will be written on the computer and students may use both word processing tools (spell check) and Internet resources in constructing their responses.

Questions in the first three parts will be based on course materials and our investigation of these materials in seminar discussions. They will examine your understanding of terminology, people, and basic concepts that are necessary for a working knowledge of AI, robots and communication. The essay question will provoke critical reflection on or assessment of a particular issue previously discussed in seminar meetings. It will assess your ability to reflect critically on a contended issue and your skill in communicating this assessment in writing. The essay part of the exam will be written on the computer and students may use both word processing applications and Internet resources in constructing their responses.

Several days before the examination, an on-line study guide will be published and made available via a link on the course calendar. The study guide will list all elements that need to be reviewed prior to the exam. The best way to prepare for the examination is to complete the study guide. And the only way to complete the study guide is to read the course material, to attend class, and to take notes during discussion. If you read the material and participate in class discussions, you should have no problem with the examination. If you do not read the material and are consistently absent, you should expect to have considerable trouble with the examination.

Evaluation (300 Total Points)

Presentation = 100 points

Exercises = 100 points (5 x 20 points per exercise)

Final Exam = 100 points

Grade Scale

A = 278-300

A- = 269-277

B+ = 263-268

B = 251-262

B- = 239-250

C+ = 232-238

C = 209-231

D = 179-208

Policies

Academic Integrity - Good academic work must be based on honesty. The attempt of any student to present as his or her own work that which he or she has not produced is regarded by the faculty and administration as a serious offense. Students are considered to have cheated if they copy the work of another during an examination or turn in a paper or an assignment written, in whole or in part, by someone else. Students are responsible for plagiarism, intentional or not, if they copy material from books, magazines, or other sources without identifying and acknowledging those sources or if they paraphrase ideas from such

sources without acknowledging them. Students responsible for, or assisting others in, either cheating or plagiarism on an assignment, quiz, or examination may receive a grade of F for the course involved and may be suspended or dismissed from the university.

Classroom Conduct - This course encourages students to form, express, and defend their own ideas. In order to ensure a fair and equitable environment for the open discussion of these ideas, students agree to be respectful and civil in their interactions with each other and with the instructor. Debate and criticism will be directed to ideas and the mode of their expression and not to the individual person who articulates it.

Accessibility - Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). Any student requiring an academic accommodation due to a disability should let his or her faculty member know as soon as possible. Students who need academic accommodations based on the impact of a disability will be encouraged to contact the DRC if they have not done so already. The DRC is located on the 4th floor of the Health Services Building, and can be reached at 815-753-1303 or drc@niu.edu.

Terms & Conditions - The policies, procedures, and responsibilities articulated on this website are considered binding and in full force and effect for the entire academic semester during which a student is enrolled in the course. By registering for the course, students consent to these stipulations and affirm that they have read, understood, and agree to abide by everything contained herein. Only students who officially drop the course or withdraw from the university will be considered to be released of these responsibilities prior to the recording of final grades. Additionally, exceptions to and/or alterations in the policies, procedures, and responsibilities listed on this website will only be considered in situations of extreme hardship, documented learning disability, or medical emergency. In all cases, the instructor will be considered to be the final arbiter of any request for exception.

Calendar

Introduction

29 August - Introduction

- Course Website

5 September - History, Hype & Reality

- [Computer History Museum - AI & Robotics](#)
- Kaplan - *AI: What Everyone Needs to Know* - ch. 1-3

12 September - AI & Communication

- [Turing - Computing Machinery & Intelligence](#)
- [Gunkel - Communication & AI](#)
- [PBS - The Chinese Room \(video\)](#)

19 September - Basic Concepts & Terminology

- Kaplan - *AI: What Everyone Needs to Know* - ch. 4 & 8
- [Steiner - Algorithms Are Taking Over \(video\)](#)
- [Garrett - A World Run on Algorithms?](#)
- [Howard - Machine Learning \(video\)](#)
- Maker Exercise #1 - Algorithms

Applications

26 September - Machine Translation

- [Weaver Memo](#)
- [Gunkel - Machine Translation](#)
- Poibeau - *Machine Translation*
- Maker Exercise #2 - Machine Translation

3 October - Natural Language Processing

- [Weizenbaum - Contextual Understanding by Computers](#)
- [Gunkel - Natural Language Processing](#)
- [RadioLab - Talking to Machines](#)

10 October - Chatbots

- [PandoraBot QuickStart](#)
- [PandoraBot Tutorial](#)
- Maker Exercise #3 - Chatbot Competition

17 October - Computational Creativity

- [Gunkel - Computational Creativity](#)
- [Colton & Wiggins - Computational Creativity](#)
- [Amper \(video\) & Taryn Southern - Break Free](#)
- [Sunspring \(video\)](#)
- [NPR - Cooking with Watson \(video\)](#)
- Maker Exercise #4 - TemplateNLG

24 October - Social Robots

- [Jibo - Promotional Video](#)
- [Breazeal - Personal Robots \(video\)](#)
- [Guzman - Making AI Safe](#)
- [de Graaf - Human-Robot Relationships](#)

Social Opportunities & Challenges

31 October - Social Issues

- Kaplan - *AI: What Everyone Needs to Know* - ch. 6 & 7
- [Halpern - How Robots are Taking Over](#)
- [McAfee - Are Droids Taking Our Jobs? \(video\)](#)
- [PBS - Will Your Job Be Done by a Machine?](#)

7 November - Ethics, Law and Policy

- [Crawford & Whittaker - AI Now Initiative \(video\) / \(transcript\)](#)
- [Knight - The Dark Secret at the Heart of AI](#)
- [Gunkel - Mind the Gap](#)

14 November - Conference

- No Class Meeting

21 November - Thanksgiving

- No Class Meeting

28 November - Machine Question & Robot Rights

- [PBS Ideas - When Will We Worry about the Well Being of Robots? \(video\)](#)
- *The Machine Question*, ch. 1 & 2

Course Conclusion

5 December - Robot Apocalypse •

- Maker Exercise #5 - How To Survive the Robot Apocalypse?
- Course Evaluation
- [Final Exam Study Guide](#)

12 December (6pm)

- Final Examination