



Artificial Intelligence & Law – Theory and Application

2024/ Prof. Arbel and Prof. Holmes

Fall 2024
Alabama Law
Room 283
Wednesdays 5:30-7:20

Contact information:

Prof. Yonathan Arbel

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Faculty Assistant Ms. Henderson mhenderson@law.ua.edu

Office: 308. Office Hours: Monday 1-2.

Anonymous comments can be sent using this [link](#)

Prof. Nathan Holmes

Email: nathan@holmestechologylaw.com

Office Hours (weekly, by Zoom): Thursday 4:00-4:30

Important links:

Class webfolder: <https://github.com/yonathanarbel/AI-LAW>

Class Zoom Link: bit.ly/arbelzoom (password will be given if needed)

The materials will either be on our Github or should be easy to find online; if any issues arise, please alert us.

I. Attendance, Participation, and Laptops

Subject to health-related considerations, all students are expected to meet the following requirements.

- Class attendance, preparation, and participation are required.
 - Attendance is in-person.
- All students have two discretionary classes they may elect to miss – interviews, mental health, physical health, multi-district contract litigation, etc. You need not ask permission or provide a reason if you miss these classes.

- Should a student miss three classes, they are asked to contact us to discuss.
- Students might be called on randomly to discuss the reading materials. I understand that it will not always be possible to be fully prepared for every class—as we will discuss throughout the semester, unanticipated circumstances arise even for the most sophisticated and responsible of individuals. I adopt a simple rule that I expect you to adhere to: As long as you notify me in advance of class that you are not prepared—even if it is two minutes before the class meets—I will not call on you. At the same time, coming to class unprepared without notifying me in advance may result in grade reduction.
- Excessive absences will similarly result in grade reduction.
- Laptops are allowed only for note taking purposes and participating in class “AI” activities, such as coding. You are not allowed to directly or indirectly circulate class materials, slides, or outlines, whether online or offline, with anyone outside our section.
 - You are both allowed and encouraged to share materials with members of your class. Learning is a team effort.

II. Office Hours, Communication, and Individual Meetings Policy

- Prof. Arbel’s office is located in Room 308.
- Prof. Arbel’s faculty assistant is Ms. Marquita Henderson mhenderson@law.ua.edu.
- Prof. Arbel’s office hours are Monday: 1-2. Prof. Holmes’ office hours will be held by Zoom on Thursday: 4:00-4:30.
- If you want to arrange a meeting outside the official office hours, we are happy to do so. Please email Prof. Arbel’s Assistant and Prof. Holmes to arrange a time.
- As a hard rule, all meetings are open-door.
 - If you want to arrange a private meeting, please arrange in advance with my assistant.
- You are also welcome to reach out to us with questions via email. Unless you’d ask us otherwise, we may share a redacted anonymous version of your question with the class.
- Suggestion Box: Feedback, comments, concerns or special questions can be communicated in one of two ways:
 - Email: yarbel@law.ua.edu ; nathan@holmestechologylaw.com
 - Anonymously, through this [link](#). The link is routed via Google and we have no way of identifying you. Naturally, we will not be able to respond directly, but we will read your feedback.

- Any issue relating to schedule, absences, missing materials, etc., please also CC Prof. Arbel's assistant, Ms. Henderson.

III. Examination & Grading

- Final Project (60%): A research paper discussing a novel application of AI to legal issues or, in group settings, develop a new AI application and write a 6-page report.
- Mid Semester Quiz (30%): A 30-minute quiz that tests basic understanding of the topics presented in class.
- Homework Assignments (10%): You will be given small assignments throughout the course. Each one will be evaluated on a pass/fail basis.

IV. On Virtue

- Students are expected to practice the virtues of The Good Lawyer: Professionalism, punctuality, diligence, honesty (yes, honesty), courtesy, collegiality, and tolerance to views even when those are false or offensive.
- I consider learning professional norms of behavior part of the pedagogy: That means that we will expect all of you—ourselves included—to adhere to professional norms of behavior. It also means, however, that the occasional mistake will be treated as a learning opportunity.
- As long as keeping with professional standards, students are expected to critically engage with the materials, do not defer blindly to authority, and express their own values and beliefs, even when those are minority views.
- Plagiarism is strictly prohibited. This only means taking the work of another person and presenting it as your own: AI work, synthesis of ideas from the internet, etc., are all *encouraged*.

V. Make-Up Classes and Cancellations

- It is anticipated that at least one class will be shifted, and a make-up class will be announced.

VI. Accommodations

- The Law School provides appropriate accommodations to students with physical, learning and other disabilities. Students with disabilities are encouraged to contact the Associate Dean for Academic Affairs. In addition, students with disabilities or special difficulties who need special accommodations are welcome to discuss those issues with me.

VII. Readings and Semester Plan

There are no required textbooks for the class. Readings and “Watchings” per class are available on the course webfolder and listed below.

A note on the use of AI: We encourage the use of AI, aside from the midterm quiz.

Course Content with Readings/Watchings by Class:

*Lecture materials are subject to change. And we expect non trivial changes to reading materials and order of assignment, so please bear this in mind.

Meeting 1: Introduction to AI & Machine Learning (ML)

- Overview of AI, ML, LLMs, types of learning, classification vs. regression.
- Basics of natural language processing, embedding algorithms, TF-IDF, topic modeling. Introduction to the Big Data turn and its legal implications.
- Watch:
 - "StatQuest: A Gentle Introduction to ML":
https://www.youtube.com/watch?v=Gv9_4yMHFbI
 - Andrew Guthrie Ferguson, *Big Data and Predictive Reasonable Suspicion*, 163 U. PA. L. REV. 329-336, 376-403 (2015).
 - Peter Salib, *Abolition by Algorithm*, MICH. L. REV. (FORTHCOMING 2024). 41-59
[HTTPS://PAPERS.SSRN.COM/SOL3/PAPERS.CFM?ABSTRACT_ID=4736099](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4736099)

Meeting 2: Teaching Machines to Read: A Gentle Crash Course to Machine Learning

- Watch:
 - "StatQuest: What are Word Embeddings?"
<https://www.youtube.com/watch?v=viZrOnJclY0>
- Prepare in advance:
https://colab.research.google.com/drive/1ok1iz1y5ZTIK51Sr6SeMgZWHL4QcF_9a?usp=sharing

(go to the website and do the exercise. ChatGPT is OK, but only after you struggle a bit)

- Exercise: Implement TF-IDF on a set of legal documents and compare results with other topic modeling techniques like LDA.

Meeting 3: ChatGPT: AI and Legal Interpretation

- Exploration of LLMs and their application in legal interpretation.
- Read:
 - Jonathan H. Choi, *Measuring Clarity in Legal Text*, 91 U. Chi. L. Rev. 7-33 (forthcoming 2024).
 - Yonathan A. Arbel & David A. Hoffman, *Generative Interpretation*, 99 N.Y.U. L. Rev. (forthcoming 2024). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=452621 21-43
 - *Snell v. United Specialty Insurance Company*, 11th U.S. Circuit Court of Appeals, No. 22-12581 (J. Newsom's opinion, after reading the facts, focus on pp. 11-19)
 - Exercise: Use a simple LLM model to interpret legal contracts and compare its output with human interpretation.

Week 4: Doing Stuff with LLMs (RAG, ICL, API, CustomGPTs)

- Hands-on projects including contract simplification, document Q&A, creating custom GPT models.
- Read:
 - Yonathan A. Arbel and Samuel Becher, *Smart Readers* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=374035 6 (pp. 94-114)
 - Noam Kolt, *"Predicting Consumer Contracts"* (103-114) <https://btjl.org/wp-content/uploads/2023/04/0002-37-1-Kolt.pdf>
- Exercise: Create a custom GPT model using available APIs to perform legal document summarization.

Week 5: How Models Work and How They Fail

- Technical deep dive into model training, loss functions, overfitting, and AI biases.
- Watch:
 - Talia B. Gillis, *The Input Fallacy*, 106 Minn. L. Rev. 1175-1263 (2022).
- Exercise: Analyze a model's performance on a legal dataset to identify overfitting and bias.

Meeting 6: Training Machine Learning Models

- Practical implementation of popular ML models.
- Exercise: Fine-tune a pre-trained neural network on a small dataset and evaluate its performance.

Meetings 7+8: hackathon!

A back-to-back meeting on Friday (location TBA) 2-5, where we will focus on your projects and building legal AI applications.

Meeting 9: Introduction to AI Risk

- Exploration of alignment issues, societal risks, and AI safety.
- Read:
 - Yonathan A. Arbel, Matthew Tokson, & Albert Lin, *Systemic Regulation of Artificial Intelligence*, ARIZ. ST. L.J. (forthcoming 2024) pp. 3-43
 - https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4666854
 - Dan Hendrycks, Mantas Mazeika, & Thomas Woodside, *An Overview of Catastrophic AI Risks*, arXiv:2306.12001 (2023).
 - Exercise: Conduct a risk assessment for a hypothetical AI system deployed in a legal context.

Meeting 10: AI, IP, Plagiarism, and Training Data

- Discussion of intellectual property issues related to AI, copyright, patents, and plagiarism.

- Read:
 - "Class action complaint against OpenAI, et al"
 - Selected documents from *The New York Times Company v. Microsoft, Open AI, et al* (to be posted)
 - Brian Frye, "AI Plagiarism"
- Exercise: Analyze a dataset to identify potential plagiarism issues in AI-generated content.

Meeting 11: First Amendment for Robots?

- Peter Salib, *AI Outputs Are Not Protected Speech*, WASH. U. L. REV. (forthcoming 2024) (Univ. of Houston Law Center No. 2024-A-5).
- https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4687558

Meeting 12: Torts & Civil Litigation

- Analysis of AI's impact on tort law, liability, and civil litigation practices.
- Gabriel Weil, *Tort Law as a Tool for Mitigating Catastrophic Risk from Artificial Intelligence*, (Jan. 13, 2024) (Touro Univ. Jacob D. Fuchsberg Law Center, Working Paper, last revised June 6, 2024). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4694006
- Yonathan A. Arbel, *Judicial Economy in the Age of AI*, *Forthcoming Colorado Law Review* (2025) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4873649
- Exercise: Develop a case study analyzing the liability issues in an AI-driven accident.

Meeting 13: Lies, Damn Lies, and AI: How to Lie with Data

- Critical evaluation of data analysis, misuse of statistical methods, and the limitations of AI-driven insights.
- Readings: TBA
- Exercise: Identify and critique examples of misleading AI-generated data visualizations.

Week 14: Is AGI a Threat to Humanity?

- Philosophical and practical discussion on the potential existential risks of AGI.
- Read:
 - Nick Bostrom, *"Superintelligence" (selected chapter)*
- Exercise: Write a policy proposal addressing the potential risks of AGI.

Note: This schedule is subject to change based on class progress and emerging developments in the field of AI and law.