

# Biotechnology & the Law Research

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# What We Will Cover Today

- I. How does gen-AI work?
- II. What gen-AI tools do USD law students have access to?
- III. Using AI tools for legal research
- IV. Using AI tools to improve your writing
- V. How to cite to AI generated content

# I. How does generative AI work?

# Large Language Models

- Large language models (LLMs) are a type of generative AI
- Defined as “a type of artificial intelligence model that has been trained through deep learning algorithms to recognize, generate, translate, and/or summarize vast quantities of written human language and textual data.”  
([Knowledge Centre on Interpretation](#))

The man went to the store to get a gallon of \_\_\_\_\_ for his cereal.

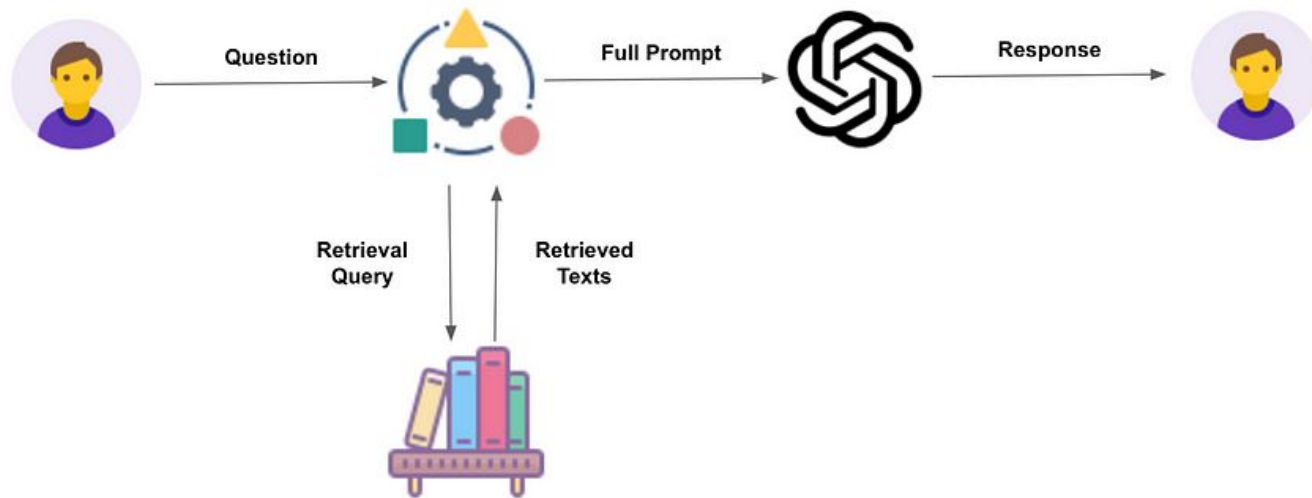
# Strengths

- Generating coherent text based on defined concepts
- Pattern recognition
- Uses
  - Research
  - Editing your writing
    - id typos/grammar mistakes
    - rephrase or change the tone
    - Summarizing

# Weaknesses

- Hallucinations
- LLMs are only as good as their training data
  - Currency
  - Scope
  - Inherent bias
- Confidentiality
  - Legal practitioners should never enter confidential client information.
- Confidence & flattery

# What's RAG?



Retrieval-Augmented Generation (RAG) is a technique that combines traditional information retrieval systems with generative large language models (LLMs) to improve the accuracy of LLMs.

# Why learn about gen-AI tools?

- AI Hallucination Cases
- “Who—or what—is to blame for 2 federal judges' error-filled withdrawn opinions?”, Debra Weiss, ABA Journal, Aug. 7, 2025

# Ethical Guidance

- **ABA Formal Opinion 512**  
*(Issued July 20, 2024)*
- Practical Guidance for the Use of Generative Artificial Intelligence in the Practice of Law,  
*–Issued by the State Bar of California Standing Committee on Professional Responsibility & Conduct*
- Hon. Herbert B. Dixon Jr. et al., Navigating AI in the Judiciary: New Guidelines for Judges and Their Chambers, 26 SEDONA CONF. J. 1 (forthcoming 2025)

# ABA Formal Opinion 512

*(Issued July 20, 2024)*

- Duty of competence (1.1)
- Confidentiality (1.6, 1.9(c), 1.18(b))
- Communication with clients (1.4)
- Supervision of employees & agents (5.1, 5.3)
- Candor toward the tribunal (3.1, 3.3, 8.4(c))
- Reasonable fees (1.5)

## Practical Guidance for the Use of Generative Artificial Intelligence in the Practice of Law,

*–Issued by the State Bar of California  
Standing Committee on Professional  
Responsibility & Conduct (Nov. 2023)*

- Covers points in ABA Opinion 512 but adds risk of bias & duty to comply with laws of other jurisdictions

# How do courts view Gen-AI tools?

Hon. Herbert B. Dixon Jr. et al., [Navigating AI in the Judiciary: New Guidelines for Judges and Their Chambers](#), 26 SEDONA CONF. J. 1 (forthcoming 2025)

- ABA Task Force on Law & Artificial Intelligence

# Guidelines for the judiciary (Sedona Conf.)

## Fundamental principles

- Judicial authority resides in judges, not AI tools
- Judges remain solely responsible for all opinions, orders, & materials issued in their name
- All work product must be verified for accuracy when AI is used

## Judges must be aware of the capabilities & limitations AI tools

- Protect confidential information at all times
- Scrutinize bias and the quality of training data
- Review terms of service for confidentiality, privacy, and security risks

# Guidelines for the judiciary cont.

## Potential Judicial Uses

- Legal research
- drafting routine items: administrative orders, standard court communications
- summarizing motions, pleadings, exhibits, etc.
- editing: proofreading, grammar, spelling
- checking filings for misstatements or omissions of law
- data analysis
- improving accessibility services & assisting self-represented litigants

## **II. What generative AI tools do USD law students have access to?**

# Gen AI Tools at USD Law

- ChatGPT, Claude, Gemini
- Lexis Protégé
- Westlaw
  - CoCounsel Core
  - AI-Assisted Research
  - Search & Summarize tools

# ChatGPT

- Free version
  - LLMs available: limited access to GPT-5,
  - Access to **5 Deep Research** queries/month
- Plus (paid) version (\$20/mo.)
  - LLMs available: GPT-5, 4o
  - Access to **25 Deep Research** queries/month
  - Custom GPTs

# Gemini

- Institutional access free to USD students—**log in with USD credentials**
  - Preferred by USD because of Google’s commercial data protection standards & guarantee not to train model with our data
- Developed from Bard (launched March 2023)
- LLMs: Gemini Flash & Pro
- Deep Research available

# Claude (Anthropic)

- The “constitutional/ethical AI”
- Free
  - Sonnet 4.5, Opus 4.1, legacy models
- Pro (\$20/mo)
  - Sonnet 4.5, Opus 4.1, legacy models
  - higher usage limits

# Lexis Protégé

- LLMs available: combination of OpenAI, Anthropic, and Mistral AI models
- Strong promise of data protection and security
- Skills
  - Ask
  - Draft
  - Summarize
  - Documents

# Lexis Protégé, continued

## Scope of Training/RAG

- Case law
- Statutes/codes
- Regulations and agency decisions
- Some secondary sources (Practical Guidance, Matthew Bender, and select treatises)

# Westlaw

- AI Assisted Research
  - RAG with cases, statutes, and regulations
- Search & Summarize
  - Rutter & Practical Law
- CoCounsel Core
  - litigation & t/a skills

# III. Using AI tools for legal research

# What is Gen AI “research”?

- For the purposes of this presentation we’ve broken down “research” into three main tasks:
  - Generating lists of secondary sources like journal articles, books, and news sources.
  - Generating lists primary sources like statutes and case law.
  - Analyzing material either by summarizing, paraphrasing, or synthesizing.

# A. Choosing the Right Tool

# Secondary Sources

- Claude and ChatGPT have been trained on a diverse range of internet text that includes some secondary sources.
- Lexis and Westlaw are trained on a very limited amount of secondary sources.
- ChatGPT Deep Research and Gemini Deep Research are not trained on data. Rather they use foundational models to browse the internet. Thus, they will have access to some freely available secondary sources.

# Primary Sources

- Lexis and Westlaw are both trained on U.S. primary sources
- Claude and ChatGPT have been trained on case law and statutes but plenty of other material in addition which make them prone to hallucinations.
- ChatGPT Deep Research and Gemini Deep Research again are not trained on data. But they do have access to freely available caselaw (e.g FindLaw) and statutory law via Federal and State legislature websites.

# Upload & Analyze

- **Lexis** - 50 vaults, 500 documents per vault
- **Westlaw** - individual databases (variable max), 200 documents per database
- **NotebookLM** - 100 notebooks, 50 sources per notebook:
- **ChatGPT Deep Research (Using GPT Plus)** - allows individual projects of 20 documents each
- **Gemini Deep Research (Using Gemini Pro)** - 10 documents per prompt
- **Claude** - allows 20 files in a single chat.
- **ChatGPT** - allows a maximum of 3 files per day

# **B. Comparing LLMs [LLM Smackdown!]**

# Generate a list of journal articles

**[Prompt]** Give me a list of the top 10 most influential law review articles regarding [insert issue, e.g. the patentability of transgenic plants]

- Comparing responses:
  - [ChatGPT](#)
  - [Lexis Protégé](#)
  - Deep Research

# Find me publicly accessible data

- **[Prompt]** Find me all matters Sean B. Tipton from the American Society for Reproductive Medicine (ASRM) has testified or spoken about.
- Comparing responses:
  - Deep Research
  - Claude
  - ChatGPT

# Generate a list of cases

- **[Prompt]** Find me recent U.S. Supreme Court decisions, from the last five years, that pertain to Fourth Amendment protections against unreasonable searches and seizures.
- Comparing responses:
  - [Lexis Protégé](#)
  - [Claude \(Sonnet 4.5\)](#)
  - Deep Research

# Upload & Analyze

- **[Prompt]:** Compare the ideas presented in these articles. Identify the main talking points for each article and list them in bullet points. Identify the strongest and weakest arguments that the use of gene editing will positively or negatively impact biodiversity. Highlight any detailed discussion of the Coordinated Framework for Biotechnology.
- Comparing responses:
  - [Lexis Protégé](#)
  - [Westlaw CoCounsel](#)
  - [NotebookLM](#)

# Agentic AI & Deep Research

## Agentic AI

- Agentic AI is supposed to execute end-to-end research by designing research plans, running iterative searches, & generating transparent, comprehensive reports—mimicking the multi-step workflow of a relatively skilled human agent

## Examples:

- OpenAI's ChatGPT (Feb. 2025)
- Gemini (Dec. 2024)
- CoCounsel Legal (coming January '26)

# Deep Research Examples

- Find me recent U.S. Supreme Court decisions, from the last five years, that pertain to Fourth Amendment protections against unreasonable searches and seizures.
- Give me a list of the top 10 most influential law review articles regarding the patentability of transgenic plants. Please hyperlink to the sources you cite.
- Find me all matters Sean B. Tipton from the American Society for Reproductive Medicine (ASRM) has testified or spoken about.

# C. Sample Prompts

# These are just a few examples

- Act as an academic research expert in the area of [insert area of law]. Conduct an extensive search for research papers on [the specified topic]. Your search should prioritize recent publications (within the last 5 years) but also include seminal works that may be older. Provide a comprehensive list of the findings, including the title of the paper, authors, and date.

- After the ruling in *Brown v. Board of Education*, were there any subsequent cases that either challenged or reinforced its stance on school segregation?
- Identify cases that played a significant role in prompting amendments to the Clean Air Act in the U.S. Briefly describe the case facts and their implications.
- I would appreciate a review of the legal text titled [article name]. Highlight its contributions to the field, and discuss its strengths and weaknesses.

- Compare *Kelo v. City of New London*, 545 U.S. 469 (2005) and *Berman v. Parker*, 348 U.S. 26 (1954) in the area of eminent domain, specifically in their interpretation of valid public use under the 5th amendment.
- Summarize the court's promissory estoppel analysis in *Chipokas v. Hugg*, 477 N.W.2d 688 and explain why the court found that there was no clear and definite agreement that the plaintiff could rely upon to his detriment. What specific guidance does the court give regarding when a clear and definite agreement exists? Quote directly from the *Chipokas* case in your answer.

- Compare and contrast the following two cases, highlighting the similarities and differences between them: *Kelo v. City of New London*, 545 U.S. 469 (2005) and *Berman v. Parker*, 348 U.S. 26 (1954)
- Article Review: I would appreciate a review of following article. Highlight its contributions to the field, and discuss its strengths and weaknesses. [upload article]
- Identify the main talking points in this article and list them in bullet points. [upload article]

# IV. Gen-AI Tools for Writing & Editing

# Generative AI tools for editing *(not an exhaustive list)*

- Claude by Anthropic
  - Claude 4.5 Sonnet and Claude 4.1 Opus
- ChatGPT 5.0 by OpenAI
- Google Gemini
  - log in with USD credentials

# Gen-AI Tools for the writing/editing process

- Remember the sandwich method!
  - AI tools ok for brainstorming, outlining, editing
  - **NOT** for your drafting!
- No perfect prompts, just better ones
  - be sure to ask follow-up prompts to tweak

# Principles of Prompt Engineering: RICE

- **R: Role** (assigning a role to the AI)
  - Some legal AI tools, including Lexis and Westlaw tools, do not require the prompt to include a role because the legal role is built into the tool.
- **I: Instructions** (specific tasks for the AI)
- **C: Context** (providing necessary background info)
- **E: Expectations** (clarifying desired outcomes)
  - Constraints/formatting the response should follow
  - Examples of how to complete the instructions

Sarah Gotschall, *A Legal Research Prompting Guide and Generative AI System Comparison Exercise*, AI LAW LIBRARIANS (July 17, 2024),

<https://www.aillawlibrarians.com/2024/07/17/a-legal-research-prompting-guide-and-generative-ai->

# Generative-AI for Editing: Outlining

Draft a comprehensive research paper outline on the regulation of human germ-line gene editing. The outline should be well-structured, starting with a compelling introduction that states the problem or legal question, the relevance of the topic, and the objectives of the article. Create an extensive literature review of cases, statutes, and legal articles, summarizing key findings and identifying gaps in the existing scholarship. Identify main points and subpoints for your legal argument. Discuss the implications of your research for the field and suggest future research directions. Conclude with a strong summary of your research contributions and their significance to the academic legal community. Ensure that all sources are credible and up-to-date. The final product should serve as a roadmap for drafting a full-fledged research paper in a law school class called Biotechnology and the Law.

# Helpful Prompts for Redlining Edits

- **Prompt:** *Please edit the uploaded document for grammar, spelling, and clarity. Redline your changes. Please also provide a summary of your changes.*
- **Alternative prompt:** *Please edit the attached document for clarity. Please keep the narrative style. Please show your changes using strikethrough for deletions and bold for additions. Please also provide a brief explanation of your main edits*
- **If Claude stalls halfway through:** *Please continue generating*
- If all else fails, ask Claude how you should word your prompt!

# V. Citation

# Generating Citations

- At this point, there are no reliable AI tools for generating legal citations.
- There are much better performing citation management systems (without gen AI) like PowerNotes or Zotero.
- Current tools produce significant hallucinations
  - Elements of authors' names changed.
  - Citations where an author and/or a journal exist, but no such article exists.
  - Inconsistencies in executing the same task when offered the same prompt.

# Bluebook Rule 18.3(a)

- (a) Large language models.

The Bluebook requires that authors citing outputs from generative artificial intelligence services, e.g., ChatGPT conversations or Google search results, save a screenshot capture of that output as a PDF to be stored on file. The tailored nature of deep neural networks individualizes the internet such that a URL will no longer suffice for an increasing number of web-based resources.

The prompted responses of large language models such as ChatGPT and CoPilot should be cited by the author of the prompt, the name of the model used (including version number if the model is identified according to version), the exact text of the prompt submission in quotation marks, the date when the prompt was submitted, and a parenthetical indicating where the PDF is stored

# BB 18.3(a) example

- ▶ Luke Cronin, Google Gemini Advanced, “Who would make a better Supreme Court Justice: Beyoncé or Taylor Swift?” (Mar. 29, 2024) (on file with the Columbia Law Review).

**Not:** Luke Cronin, Gemini Advanced, “Who would make a better Supreme Court Justice: Beyoncé or Taylor Swift?” (Mar. 29, 2024), <https://g.co/gemini/share/425174222688>.

# Bluebook Rule 18.3(c)

- (c) AI-generated content.  
Content that has been generated by AI should be cited according to the relevant Bluebook subrule, with the addition of a parenthetical indicating that the content has been generated by AI, and the AI model used to generate the content. When the relevant subrule requires the name of an author, substitute the author name with the name of the individual who submitted the prompt to the AI, if available, or omit the author name when unavailable:

# BB 18.3(c) example

- ▶ Pablo Xavier, Photograph of Pope Francis in a Puffer Jacket, *in This is Not a Real Photo of the Pope in a Puffy Coat*, SNOPEs (Mar. 26, 2023), <https://www.snopes.com/fact-check/not-real-photo-pope-in-puffy-coat/> ;[<https://perma.cc/3EN7-BP4P>] (generated by Midjourney AI).
- ▶ Illustration of a Tornado on the Moon (on file with the Columbia Law Review) (generated by DALL-E 3).

# Questions?