

# 6 Ethical Ways to Use AI in Your Studies

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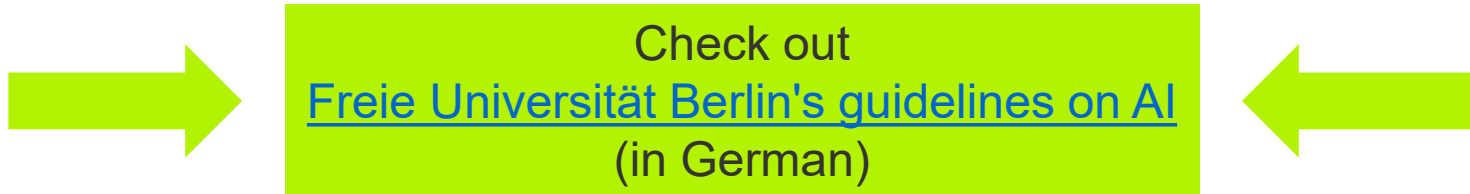
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Slides published here: <https://www.geo.fu-berlin.de/en/bibliotheken/Aktuelles/Coffee-Lectures-2024-S.html>



# FU guidelines on AI

- Always ask your instructor if you're allowed to use AI, and if so, under which conditions.
- You might be required to indicate in your assignment (e.g. in footnotes) which AI tools you have used and how.
- Using AI tools that have not explicitly been approved by your instructor is considered deception.
- Your instructor can not force you to use AI.



## 6 ethical ways to use AI

1. Find relevant literature
2. Understand complex content
3. Create outlines based on real publications
4. Check for typos and grammar mistakes
5. Mass edit content
6. Generate weirdly specific images to decorate your PowerPoint presentations

# 1. Find relevant literature

- a) Get useful keywords for your literature search  
(→ Perplexity, ChatGPT)
- b) Find sources  
(→ Perplexity, OpenRead)

## Get keywords: ChatGPT Prompt

### **[Context]**

*I'm a student of geology looking for literature on how AI can be used to better assess groundwater quality.*

### **[Demand]**

*Identify 2 or 3 important concepts in my research topic and give me for each one a couple of keywords I can use to find literature in a bibliographic database.*



### **ChatGPT**

Certainly! When searching for literature on how AI can be used to assess groundwater quality, there are several key concepts you'll want to explore. Here are three important concepts along with relevant keywords for each:

#### **1. Machine Learning and AI Algorithms:**

- Keywords: Artificial Intelligence, Machine Learning, Deep Learning, Neural Networks, Support Vector Machines, Random Forest, Classification Algorithms, Regression Algorithms

#### **2. Groundwater Quality Assessment:**

- Keywords: Groundwater Quality, Water Quality Assessment, Contaminant Analysis, Hydrogeochemistry, Groundwater Pollution, Water Contamination, Aquifer Contaminants, Groundwater Monitoring

#### **3. Data Sources and Integration:**

- Keywords: Remote Sensing, GIS (Geographic Information Systems), Sensor Networks, Big Data, Data Fusion, Multisource Data Integration, Spatial Data Analysis, Time Series Analysis

## Find sources: Perplexity Prompt

### [Context]

*I am a student of geology.*


### [Demand]

*Give me recent, peer-reviewed sources that explain in a simple way how to identify and analyze laboratory errors.*


*Keywords: random errors, systematic errors, scattering, etc. Sources can be in English or German.*

### ☰ Sources

Total Clinical Chemistry Laboratory Errors and...

 dovepress · 1

Review of Medical Errors in Laboratory...

 academic.oup · 2

The Nature, Causes, and Clinical Impact of Errors...

 ncbi.nlm · 3



View 2 more

### ✳ Answer

## Identifying and Analyzing Laboratory Errors

Based on the provided search results, here is a summary of how to identify and analyze common laboratory errors in the field of geology:

### Types of Laboratory Errors

The main types of laboratory errors that can occur in geological research include:

1. **Environmental Errors:** Errors caused by changes in environmental conditions like temperature, humidity, or magnetic fields that can affect measurements <sup>1</sup> <sup>4</sup>.
2. **Procedural Errors:** Errors due to not following proper experimental protocols or sample collection procedures <sup>1</sup> <sup>4</sup>.

## 2. Understand complex content

Ask AI to...

- summarize or explain a text  
(→ Perplexity, ChatGPT, OpenRead, Explainpaper, SciSpace, etc.)
- explain a diagram  
(→ Perplexity)



Check for updates

## Article

# Gentrification, Geography, and the Declining Enrollment of Neighborhood Schools

Urban Education  
2020, Vol. 55(2) 183–215  
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journals.sagepub.com/home/ue  
SAGE

Francis A. Pearman, II<sup>1</sup> **Abstract**

This study examines patterns and relations between gentrification and urban schooling across U.S. cities using longitudinal data from 2000 to 2014. The first section presents new statistics on the incidence and distribution of gentrification occurring around urban schools in the United States as a whole. Of the roughly 20% of urban schools located in divested neighborhoods in the year 2000, roughly one in five experienced gentrification in their surrounding neighborhood by 2014. However, there exists considerable heterogeneity in the prevalence of gentrification across U.S. cities, with exposure rates ranging from zero in some cities to over 50% in others. The second section finds evidence that gentrification is associated with declining enrollment at neighborhood schools, especially when gentrifiers are White.

**Keywords**

gentrification, urban schools, demographic change, urban education, geographic information systems

One of the notable shortcomings of educational research on cities, neighborhoods, and schools is the lack of careful attention to matters of neighborhood change. This oversight is notable given that many low-income, central-city

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Paper Espresso ▾

**Background and context:**

The paper examines the patterns and relationships between gentrification and urban schooling across U.S. cities using longitudinal data from 2000 to 2014. It builds on the existing literature on gentrification, which has identified three key dimensions: a period of divestment, the displacement of economically disadvantaged residents, and the transformation and upgrading of the housing stock leading to increased property values. The paper notes that while qualitative evidence on the relationship between gentrification and urban schools is available, quantitative evidence at a national scale is limited.

**Research objectives and hypotheses:**

The study addresses four research questions:

1. Are communities surrounding urban schools more likely to experience gentrification in certain U.S. cities?
2. Does the composition of neighborhood schools change if their surrounding neighborhood gentrifies?
3. Do these changes depend on whether incoming gentry are White?
4. Is neighborhood gentrification associated with changes to the demographic composition of neighborhood schools?







reiterate that the analytic sample for the regression models is restricted to



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Urban Education 55(2)

schools located in divested neighborhoods at baseline. This restriction is motivated by the fact that there must be a basis of comparison to the schools around which gentrification did not occur (Freeman, 2005). This is accomplished, in part, by restricting the analytic sample to schools located in divested neighborhoods at baseline.

Table 3 shows results from bivariate regressions (odd columns) and multivariate regressions (even columns) of gentrification on the demographic composition of neighborhood schools. Columns (1) and (2) refer to total enrollment, Columns (3) and (4) to the number of White students, Columns (5) and (6) to the number of Black students, Columns (7) and (8) to the number of Latinx students, and Columns (9) and (10) refer to the number of economically disadvantaged students. As indicated in Bivariate Models (1), (3), (5), (7), and (9), relative to schools that did not experience gentrification in their surrounding neighborhood between 2000 and 2013-2014, schools that experienced gentrification in their surrounding neighborhoods during this period had, during the 2013-2014 school year, 50 fewer students overall ( $p < .001$ ), 56 fewer Latinx students ( $p = .003$ ), 71 fewer low-income students ( $p < .001$ ), and 13 more White students ( $p = .070$ ). No evidence was found in bivariate models that gentrification was associated with the number of Black students attending neighborhood schools.

Although these models indicate that schools located in neighborhoods that underwent gentrification between 2000 and 2013-2014 had, during the 2013-2014 school year, fewer students overall, fewer Latinx and economically disadvantaged students, and more White students than schools located in neighborhoods that did not experience gentrification during this period, it is unclear whether these associations would persist after accounting for baseline differences. For instance, although it was observed that gentrification had a marginally significant (and positive) pairwise correlation with shares of White students at neighborhood schools, it is unclear if this association would persist after accounting for the possibility that higher-SES households may be less likely to gentrify low-income neighborhoods as the share of non-White students at the neighborhood school increases. Likewise, it is unclear whether gentrification would continue to correlate negatively with the share of economically disadvantaged students after accounting for the fact that gentrification may be less likely in the most economically depressed areas of



Paper Q&amp;A ▾



around urban schools in the United States. It shows that roughly one in five urban schools located in divested neighborhoods in 2000 experienced gentrification in their surrounding neighborhood by 2014. Moreover, the exposure rates of gentrification varied considerably across different cities, ranging from zero in some cities to over 50% in others.

References:

What is meant by "Bivariate and Multivariate Results"?

"Bivariate and Multivariate Results" refers to analyzing the relationship between gentrification and changes in demographic composition of neighborhood schools using both simple (bivariate) and more complex (multivariate) regression models, controlling for various factors like school characteristics, neighborhood features, district attributes, and city-level differences. These analyses aim to provide a comprehensive understanding of how gentrification impacts the demographic makeup of schools in urban areas.

References: 1 2 3

Ask now



Explain this figure: <https://geoenvironmental-disasters.springeropen.com/articles/10.1186/s40677-023-00250-9/figures/1>

### Sources

Can sediments play a role in river flood risk...  
[geoenvironmenta... · 1](#)

Holdings: Geoenvironmental...  
[libcat.wellesley · 2](#)

Geoenvironmental Disasters: Home page  
[geoenvironment... · 3](#) [View 3 more](#)

### Answer

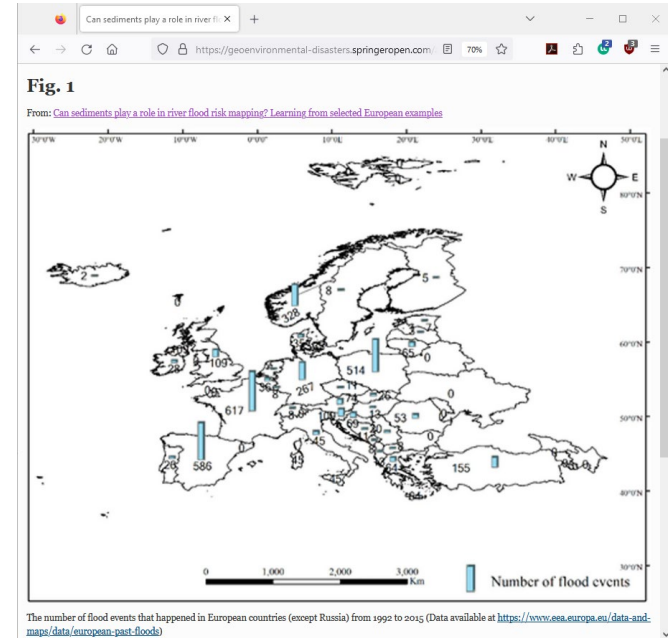
The figure shows the number of flood events that occurred in European countries (except Russia) from 1992 to 2015 <sup>1</sup>. It is a bar chart that displays the total number of floods for each country during this 24-year period.

The countries with the highest number of flood events are:

- Italy with over 200 floods
- France with around 150 floods
- Germany with around 150 floods

Other countries like Spain, Poland, and the United Kingdom experienced between 50-100 floods each during this time frame.

The figure provides a high-level overview of the flood risk and frequency across Europe over more than two decades. It highlights the countries most prone to flooding, which can help inform flood risk management strategies and disaster preparedness efforts in these regions <sup>1</sup>.



Ask Perplexity to explain a figure you found in an online paper.

# 3. Create outlines based on real publications

→ Perplexity, ChatGPT, etc.

## ChatGPT Prompt

### **[Context]**

*I'm a student writing a scientific paper abstract.*

### **[Demand]**

*Based on these three examples, what kind of information should I include in my abstract?  
[...]*

## ChatGPT

Based on the provided examples, your abstract should include the following elements:

1. **Purpose/Objective:** Clearly state the purpose or objective of your study. This could involve introducing a new measure, exploring recent developments in a field, or analyzing a specific phenomenon.
2. **Methodology/Approach:** Briefly describe the methods or approaches used in your study. This could include developing new indicators or measures, employing machine learning techniques, or analyzing existing data sets.
3. **Key Findings/Results:** Summarize the main findings or results of your study. This could involve demonstrating the effectiveness of a new measure, predicting future trends or changes, or identifying patterns in urban development.
4. **Significance/Implications:** Discuss the significance or implications of your findings. This could involve highlighting the importance of your study for understanding a particular phenomenon, suggesting future research directions, or discussing potential real-world applications.

## 4. Check for typos and grammar mistakes

Have your chatbot correct your mistakes or list them so you can make the corrections yourself.

→ Perplexity, ChatGPT, etc.



### ChatGPT

Here are the typos and grammar mistakes corrected:

#### ChatGPT Prompt

*List all typos and grammar mistakes you find in this text.*

*[...]*

1. "neighbourhood's" should be "neighborhood's"
2. "it's" should be "its" (to denote possession)
3. "comunicative" should be "communicative"
4. "in earlier years and with more parsimonious data" could be revised for clarity, perhaps "in earlier years and with more parsimonious data sets."

(Worried about AI using your intellectual property as training data? Just change your settings in your Perplexity account.)

### AI Data Usage

This feature allows us to use your search data to improve our AI models. Turn this setting off if you wish to exclude your data from this process.



## 5. Mass edit your bibliographic references

→ Perplexity, ChatGPT, etc.

### ChatGPT Prompt

*Capitalize all surnames in these bibliographic references, and replace the dot with a colon after the publication year.*

*[...]*

### ChatGPT Prompt

#### **[Context]**

*Here is a bibliographic reference in my preferred citation style: [...]*

#### **[Demand]**

*Adapt these bibliographic references to my preferred citation style: [...]*

→ Caution: This prompt is a little risky. Important information may be erased from your bibliographic references.

## 6. Generate weirdly specific images to decorate your PowerPoint presentations

→ Stable Diffusion, Microsoft Designer, Craiyon, starryai, etc.



### Craiyon prompt

Watercolor painting of a blue bear dancing on the top of a mountain in a winter night.



### Stable Diffusion Prompt

Pixel art illustration of a student holding a globe in his hand, sitting on a beach lounge chair.

# Thank you for your attention!

- [Freie Universität Berlin's AI Guidelines](#) (in German)
- [ChatGPT 3.5](#)
- [Perplexity](#)
- [OpenRead](#)
- [ExplainPaper](#)
- [SciSpace](#)
- [Stable Diffusion](#)
- [Microsoft Designer](#)
- [Craiyon](#)
- [starryai](#)

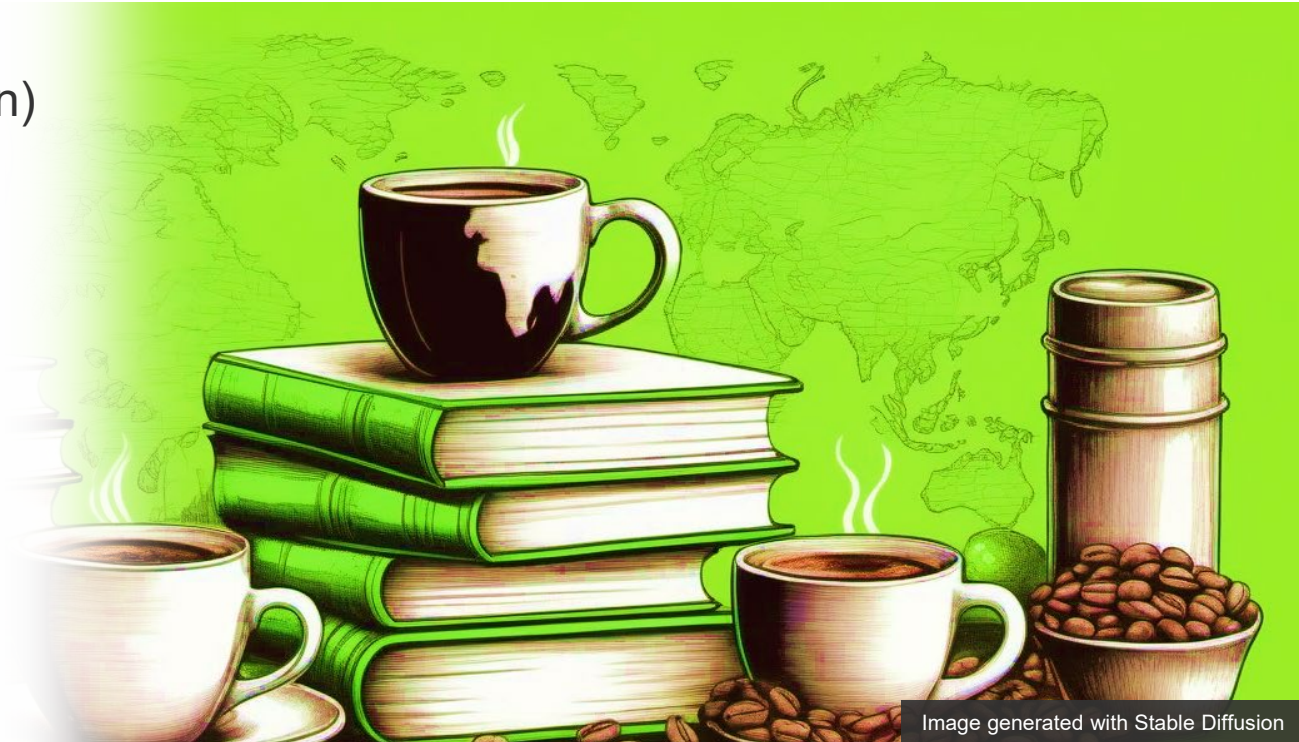


Image generated with Stable Diffusion