

Week 1: Introduction to Academic Writing

Lesson 4: Leveraging AI and Module Summary

Course Video 1: Leveraging AI and Module Summary

Study Notes

Study Notes: Summary of the Module + Leveraging AI in Academic Writing

1. Purpose of Academic Writing

Primary Uses

- Writing examinations
- Preparing assignments
- Creating academic reports
- Producing research papers, theses, and scholarly work

Audience

- Members of a specific academic community
 - Example: Engineers write for engineers
 - Doctors write for the medical community
 - Computer scientists write for people in CS

Topics

- Focus on academic or discipline-specific subjects
 - e.g., Big Data, AI applications, medical technologies, linguistic theories

2. Purposes of Academic Writing

Academic writing helps you:

- **Inform**
- **Explain**
- **Analyze**
- **Persuade**
- **Evaluate** information

These functions appear across science, engineering, humanities, and social sciences, though the approach may vary by discipline.

3. Types of Academic Writing

- **Descriptive** – describing situations, processes, theories
- **Analytical** – breaking ideas into parts, comparing, classifying
- **Persuasive** – arguing for a viewpoint using evidence
- **Critical** – evaluating strengths, weaknesses, assumptions

In science and engineering, descriptive and analytical writing are most common; persuasive and critical writing appear more at advanced levels such as PhD.

4. Key Features of Academic Writing

Objectivity

- Focus on facts, not personal opinions

Thesis-Driven

- Make a claim and support it with evidence

Convention-Driven

- Follow discipline-specific formats, structures, citation styles

Evidence-Based

- Claims must be supported by:
 - Empirical data
 - Research literature
 - Facts and validated findings

Complexity & Formality

- Specialized terminology
- Strict formal tone
- Meant for trained audiences

Originality

- Adds novelty or value to the field
- Can build on previous work, identify gaps, and contribute new insights

Literature-Based

- Must engage with existing research
 - Must identify and address gaps through arguments, experiments, and data
-

5. Plagiarism in Academic Writing

What Counts as Plagiarism?

- Presenting someone else's ideas/findings as your own
- Not following citation norms (e.g., incorrect APA formatting)
- Not citing because you assume "everyone knows this"
- Taking 100–150 words directly without permission
- Self-plagiarism (copying your own previous work without citation)
- Using ghost-writing services or paid agencies

Two Types

- **Intentional** – knowingly using others' ideas without credit
 - **Unintentional** – due to lack of awareness about norms
-

6. How to Avoid Plagiarism

1. **Know intellectual property rights laws**
 - Understand when to cite
 - Understand when to seek permission
2. **Learn paraphrasing and summarizing skills**
 - Change words, structure, order
 - Understand the original meaning fully
3. **Master citation & referencing norms**
 - APA, MLA, Chicago, IEEE, etc.
 - In-text citations + reference list
4. **Keep track of all sources**
 - Maintain notes or reference managers
 - Never rely on memory alone

7. Intellectual Property Rights (IPR)

What Can Be Copyrighted?

- Images
- Tables
- Figures
- Poems, stories
- Lyrics
- Audio/video clips

When You Need Written Permission

- When using copyrighted visuals/figures
- When quoting beyond a specific word limit (e.g., >45–60 words)
- When the material is explicitly marked as copyrighted

When You Do NOT Need Permission

- When quoting small portions within limits
- When citing correctly
- When the material is **copyright-free**, such as:
 - **Project Gutenberg**
 - **Creative Commons licensed content**

8. Copyright-Free Materials

Sources include:

- **Project Gutenberg**
- **Creative Commons libraries**
- Various websites offering CC-licensed text, audio, images

Check:

- The type of license
- Whether attribution is required
- Whether modifications are allowed

9. Leveraging AI Tools in Academic Writing

Common AI Tools

- ChatGPT
- Copilot
- Google Gemini
- Grammarly
- Perplexity
- AI tools built into databases (Elsevier, Springer, Taylor & Francis)

Choose tools you:

- Are comfortable with
 - Have been trained to use
 - Find practically helpful
-

10. Purposes of Using AI in Academic Work

A. Understanding Complex Concepts

- Ask AI to simplify a difficult theory or idea
 - Must double-check accuracy
-

B. Getting Immediate Feedback

AI can help check:

- Grammar
- Structure
- Coherence
- Content clarity
- Organization

Useful when teachers are unavailable.

C. Scanning Research Databases

- Identify relevant papers
 - Filter articles
 - Review downloaded PDFs
 - Perplexity is strong for database scanning
-

D. Summarizing Research Papers

- Summarize entire papers
 - Extract key ideas, methods, results
 - Highlight important sections
 - Scan for specific information
-

E. Identifying Research Gaps

- Compare multiple papers
 - Identify what has *not* been done
 - Helps refine research problems (must verify manually)
-

F. Data Analysis

Quantitative

- Suggest appropriate statistical tests
- Explain steps for t-tests, ANOVA, regression
- Provide examples

Qualitative

- Help with coding and categorizing data
 - Assist in identifying themes
-

G. Generating Images and Videos

AI can create:

- Illustrations
- Diagrams

- Animations
- Video clips

Useful for teaching, presentations, posters, and reports.

H. Organizing References

- Generate reference lists
- Convert citations into APA/MLA/IEEE
- Format in-text citations

Always verify — AI can produce errors.

11. Ethical Use of AI in Academic Writing

A. Transparency

- Declare openly what AI tools you used
- State the purpose (summarizing, feedback, grammar help, etc.)

B. Avoid Unfair Advantages

- If AI use is banned in a class, do not use it
- Ensure equal opportunity for all students

C. Responsibility

- You are responsible for verifying AI-generated content
- You cannot blame AI for mistakes

D. Data Privacy

- Do not upload confidential data
- Adjust settings to avoid data sharing
- Learn data privacy rules

E. Plagiarism Risk

- Blindly using AI text can lead to plagiarism
 - Must edit, verify, and cite sources properly
-

12. Final Takeaways

- Academic writing has rules, conventions, and a specific audience
 - Plagiarism is a serious offense (intentional or unintentional)
 - Copyright laws determine when you must seek permission
 - AI tools can support academic writing but must be used ethically
 - Verification, transparency, and data privacy are essential
-