






GPH 381

Geophysical Reports

Grading:

■ 1 st Exam	20%		= A
■ 2 nd Exam	20%		= B
■ 3 rd Exam	20%		= C
■ Final Exam	40%		= D
			= F

Attendance:

- Never to be late more than (10) minutes.
- Never play with your cell phone.
- Never talk to your friend.
- Never miss more 25% of the total lectures.

Participation:

- Involve in all group discussions and activities.
- Write down all important information in your notebook.



- Join a study group.
- Make study schedule.
- Arrange your time.
- Do your best.
- Seek advice.
- Learn from mistakes.
- Be patient.



Tips and
Advice



(GPH 381) Geophysical Reports

A scientific paper is a written and published report describing original research results.

- MUST BE WRITTEN IN A CERTAIN WAY.
- MUST BE PUBLISHED IN A CERTAIN WAY.
- MUST MEET THE TEST OF VALID PUBLICATION.

Importance of Scientific Research

- Discover facts.
- Solve problems.
- Answer questions.
- Explain unclear phenomena.
- Modify incorrect facts.

Concept of Scientific Research

Scientific research is a systematic, logical, objective, accurate, and results based on the foundations and evidence, (a set of rules used to reach the truth in science).

Fundamental of Scientific Research

- Define a problem.
- Define objectives.
- Apply procedures.
- Collect data.
- Data analysis.
- Have results.

Rules of Scientific Research

- Select a topic.
- Prepare a plan.
- Collect sources and references.
- Collect scientific material (data).
- Document and write the research.

Keep in Mind

- Novelty.
- Accuracy and clarity.
- Details.
- Complete all plan's elements .
- Document the content correctly.
- Variety of recent references.

Types of Scientific Writing

- Review Paper.
- New Idea.
- Incremental Improvement.
- Negative Contribution.

Types of Scientific Writing

- Poster.
- Workshop Paper.
- Conference Paper.
- Journal Paper.

Types of Scientific Writing

- Abstracts.
- Books.
- Thesis/Dissertation.
- Research Proposals.

Scientific Report

A scientific report is a systematic, well organised document which defines and analyse a clear purpose that describes the process, progress, and results of a scientific research problem.

Importance of Scientific Report

The purpose of a scientific report is to inform, not to impress the reader with how much you know or have read, or to gloss over what you don't know. Your priority is to communicate your information clearly.

Difference Between:

- **Scientific paper.**
- **Research paper.**
- **Essay.**

Scientific Paper

A written and published report describing original research results, have pictures and diagrams, has peer review, and published in a journal within the scientific community.

Research Paper

A research paper is an essay in which you explain what you have learned after exploring your topic in depth. It includes any gathering of data, information and facts for the advancement of knowledge.

Essay

A short piece of writing written from an author's personal point of view, it presents an argument, always needs references, rarely uses graphics.

Research Proposal	Research Report
Describe what the researcher intends to do and why he intends to do it	Describe what the researcher has done, why he has done it, and the results he has achieved.
Written at the beginning and before the research project actually begins	Completed after the completion of the whole research project
Contain sections such as introduction/background, literature review, research questions, methodology, aims and objectives	Contain sections such as introduction/background, literature review, research questions, methodology, aims and objectives, findings, analysis, results, conclusion, recommendations and citations
Shorter in length	Longer than research proposals

Structure of Scientific Paper

Introduction

Body Section

Discussion

Structure of Scientific Paper

Introduction

- Background contextual information:
 - What is being investigated.
 - The significance of your research.
 - What previous studies have found in this area.
- Aims and hypothesis.

Structure of Scientific Paper

❑ **Body Section**

- ❑ **Methods:** a precise and concise explanation of what you did. It is important that this is written in such a way that it could be replicated by other researchers.
- ❑ **Results:** present your findings with appropriately and clearly presented graphs, tables, charts, and explanations.

Structure of Scientific Paper

❑ Discussion

- ❑ The discussion is an important section of your report and is often the most challenging to write. This is where you present the analysis of what your findings mean.
- ❑ The final paragraph of your discussion is the conclusion which is a brief summaries of the findings and may reemphasise the key message of your report.

Abstract	Summary
Is a concise summary found at the beginning of a research article	Is a brief statement or account of the main points of a longer work
Is a type of a summary	Can be synopsis, abstract or an executive summary
Should contain the research purpose, methods, results, conclusion and recommendations	Should contain the focal points of the original work

Key Stages in Scientific Writing

- ❑ Define the purpose, title and readership of the report.
- ❑ Design a suitable structure with appropriate headings and sub-headings.
- ❑ Gather all the relevant material and note down the main points under the appropriate headings and subheadings.

Key Stages in Scientific Writing

- ❑ Think about appropriate diagrams to illustrate the text; prepare draft versions of these before starting to write .
- ❑ Write a rough first draft as quickly as possible; it is good idea to do this directly on PCs – writing things out long-hand is time-consuming.

Key Stages in Scientific Writing

- Write the final version, carefully checking all facts, references, figures, etc.; make sure that the text flows smoothly; check that you have used paragraphs appropriately; check for spelling mistakes; check that you have used correct grammar and punctuation.

Key Stages in Scientific Writing

- ❑ Write an ABSTRACT or EXECUTIVE SUMMARY; this should be done last and should summarize the main issues and conclusions of the report.
- ❑ Get a friend or colleague to read through the report to see how clear and comprehensible it is.

Characteristics of Good Scientific Writing

- ❑ Clarity: avoid unnecessary detail.
- ❑ Simplicity: avoid complicated sentences.
- ❑ Impartiality: avoid making assumptions and unproven statements.

Characteristics of Good Scientific Writing

- ❑ Structured logically: express ideas in a logical order.
- ❑ Accurately: avoid vague and ambiguous language.
- ❑ Objectively: statements and ideas are supported by appropriate evidence.

Before You Write

Whenever you read or research material for your writing, make sure that you include in your notes, or on any photocopied material, the full publication details of each relevant text that you read. These details should include:

- Surname(s) and initial(s) of the author(s).
- The date of publication.
- The title of the text.
- If it is a paper, the title of the journal and volume number.
- If it is a chapter of an edited book, the book's title and editor(s) the publisher and place of publication.
- The first and last page numbers if it is a journal article or a chapter in an edited book.

Contents of Scientific Paper

- Abstract.
- Introduction.
- Geological Setting.
- Methodology.
- Results.
- Discussion.
- Conclusion.
- Acknowledgments
- References.

Abstract

- ❑ A very short, clear, and concise summation of the entire paper.
- ❑ The abstract should include:
 - A statement of the problem.
 - The methods used to deal with it.
 - Results obtained.
 - Conclusions reached.
 - Recommendations made.

Abstract

- ❑ A brief version of the academic thesis that does not include any equations or references. Starts with the importance of the research (between 250 and 350 words).
- ❑ The main results are listed and the research methodology used is mentioned.
- ❑ Include the following questions: What is the question to be asked? What are the results? What is the answer to the question posed?

Introduction

- It reveals the purpose of the paper and main conclusions, starting broadly and narrowing down to a specific thesis or research question.
- Provide a brief summary of the results.
- Include aim and importance of the study.
- What are the questions that aim to answer them?

Introduction

- ❑ Should answer the following questions:
 - ❑ What was the nature of the investigation?
 - ❑ Why has the subject been investigated?
 - ❑ What is the background of the problem or task that has been tackled?
 - ❑ Where is the location? Refer to a map and outline the geological and geographical setting.

Geological Setting

- ❑ Description of the geological structures and geological history of the study area.
- ❑ Use geological maps.

Methodology

- ❑ A set of instructions explaining what was done and how it was done.
- ❑ It includes data collection, field equipment, mathematical calculations that have been applied or any written computer program, it may be appropriate to include it in the appendix at the end of the paper.
- ❑ Clearly outlines how the study/experiment was carried out.

Results

- Objectively presents key results without interpretation in an orderly, logical, sequence. includes text, graphs, statistics, etc.
- Results should support the goals of the study.
- Focus on what has been achieved and accomplished (results give facts, not opinions).
- Never write explanations here.

Discussion

- ❑ The discussion contains the substance of the report and must be a strong section
- ❑ Interprets results and to explain new understanding of the problem after taking found results under consideration.
- ❑ Discuss the results logically.
- ❑ Will show how to relate the results to the explanations.

Conclusion

- ❑ Reinforces major claims or interpretations. The authors will try to indicate the significance of the major claim/interpretation beyond the scope of the paper.
- ❑ A short final statement providing a summary of the entire study.
- ❑ Plan and look carefully at your results. Make sure your conclusion is completely clear.

Acknowledgments

- ❑ A short paragraph written that acknowledge anyone who has contributed substantially by advice, discussion, or reviewing your manuscript.
- ❑ Thanks include:
 - ❑ Collecting data or assisting in analysis it.
 - ❑ General supervision or substantial facilities.
 - ❑ Funding research or providing some of the research materials.

References

- ❑ Should contain: author(s) name, title of the research, name of journal, publisher, year of publication, page numbers.
- ❑ List in alphabetical order.

Introduction (WHY): What was the question?

Methods (HOW): How did you try to answer it?

Results (WHAT): What did you find?

Discussion (SO WHAT): What does it mean?

Steps to Write a Scientific Report

- Choose a Topic.
- Do Library Research.
- Narrow Your Topics.
- Read Actively and Make Notes.
- Plan.
- Write and Revise.
- Document Your Sources.
- Proofread.

Choose a Topic

- Select a topic covered in the course or assigned by the instructor.
- Discuss with your instructor any questions about an appropriate topic.

Do Library Research

- ❑ Look for a variety of sources, such as books, periodicals, and Internet sites.
- ❑ Books give a broad perspective, while recent articles provide up-to-date information.
- ❑ You can search for articles from many newspapers, magazines, and scholarly journals.

Narrow Your Topics

- ❑ As you do research, you may form a question that you want to answer or find that a lot of information is available about a particular aspect of your topic.

Read Actively and Make Notes

- As you read your sources, highlight and make notes in the margin.
- Write summaries of the main points in your own words, noting the source of each summary.

Plan

- ❑ Decide how to organize your paper, and make an outline that will help you stay on topic and present your ideas in a logical order.

Write and Revise

- ❑ Do not expect to write a finished paper all at once. First, get your ideas down on paper in a rough draft. Read it over and revise, trying to improve the content and organization.
- ❑ Ask someone else to read it and give you feedback.

Document Your Sources

- ❑ In addition to citing your sources in the text of your paper, the last page will be a list of sources.
- ❑ Use the documentation style that your instructor assigns.

Proofread

- Read over the whole paper slowly and carefully, checking for errors in grammar, punctuation, capitalization, and spelling.
- Use the spelling checker on the computer, but do not depend on it.

What makes a great researcher

- Great knowledge.
- Good ideas.
- Good writing.
- Good plan.
- Great communication.

Useful Tips

- ❖ Choose regular hours per week for writing and stick to it, pick the most appropriate time for you.
- ❖ Exchange opinions with colleagues and specialists in your field.
- ❖ Read the most recent scientific articles related to the subject of your research.

Useful Tips


- ❖ Avoid long paragraphs and sentences. Try to write paragraphs easy to understand.
- ❖ Read the final version of your research several times, and benefit from the comments and responses of your fellow researchers and other specialists.

“Students should have a work plan to follow, including the time frame and expected outputs from the project.”

No	Task	Start	Finish	Duration	% Complete


How to Read a Scientific Article

1. Read the abstract.
2. Read the conclusion.
3. Read the first paragraph or the introduction.
4. Read the first sentence of every paragraph.
5. Read the rest of the article.


1 **Read the abstract** 

An abstract is a summary of the article, and will give you an idea of what the article is about and how it will be written. If there are lots of complicated subject-specific words in the abstract, the article will be just as hard to read.


2 **Read the conclusion**


 This is where the author will repeat all of their ideas and their findings. Some authors even use this section to compare their study to others. By reading this, you'll notice a few things you missed, and will get another overview of the content.

3 **Read the first paragraph or the introduction**

 This is usually where the author will lay out their plan for the article and describe the steps they will take to talk about their topic. By reading this, you will know what parts of the article will be most relevant to your topic!






4 **Read the first sentence of every paragraph**

These are called topic sentences, and will usually introduce the idea for the paragraph that follows. By reading this first, you can make sure that the paragraph has information relevant to your topic before you read the entire thing. 

5 **The rest of the article** 

Now that you have gathered the idea of the article through the abstract, conclusion, introduction, and topic sentences, you can read the rest of the article!

To review:

 Abstract  Conclusion  Introduction  Topic Sentences  Entire Article