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DSC3114 Scientific writing, reporting and publishing

BSCS31, BSDS 3:1

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Structure of today's Lecture

- Details about the course
  - Course Objectives
  - Key Learning Outcomes
- Indicative Content outline
- General Introduction to scientific writing
- Scientific writing in IMRaD Structure

Course Goal

To equip students with skills to **write**, critique, and **publish** scientific work effectively, while practicing clear communication, critical reading, and professional presentation.

Learning outcomes

Upon completion of this course, students should be able to:

1. Write clear, structured scientific documents.
2. Critically read and review scientific literature.
3. Use correct referencing and citation styles.
4. Create scientific posters and presentations.
5. Publish a peer reviewed paper in a scientific journal.

Course indicative content

- Module 1: Introduction to Scientific Writing
- Module 2: Structure of a Scientific Paper
- Module 3: Reading and Critiquing Scientific Articles
- Module 4: Referencing and Citation Styles
- Module 5: Writing Formal Documents
- Module 6: Peer Review Process
- Module 7: Visual & Oral Communication
- Module 8: Publishing in Scientific Journals

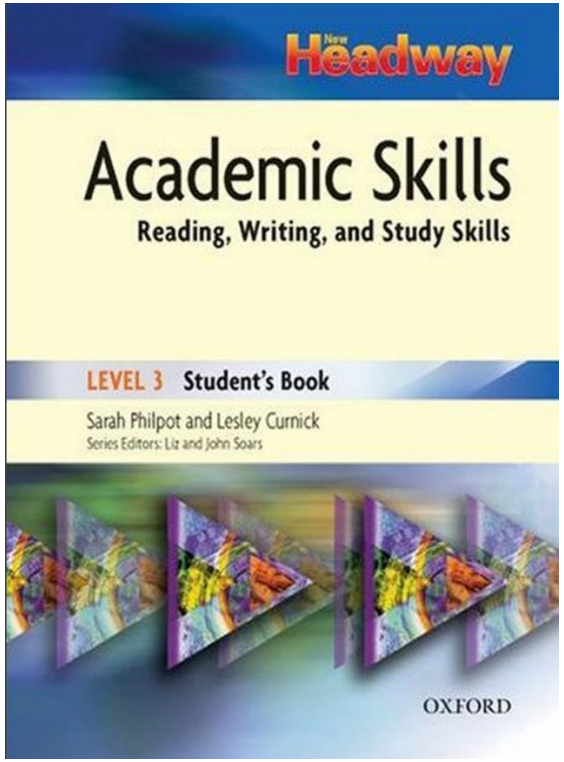
Assessment

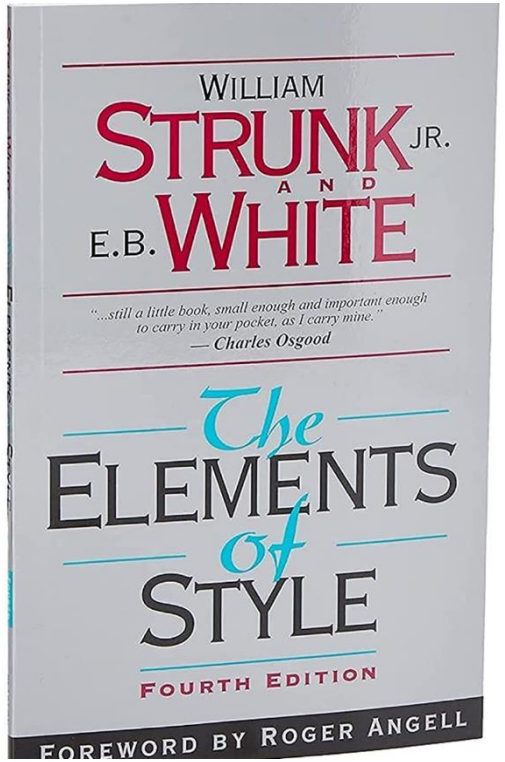
- Writing Assignments(50%)
- Regular Personal Blogs (Tech Topics) (10 %)
- Review Paper (30)
- Poster and Presentation (10%)

Reference documents

- Ejournals & Online Databases
  (https://library.ucu.ac.ug/ejournals-online-database/)
- United Nations Sustainable Development Goals (https://sdgs.un.org/goals)
- Uganda Vision 2040 (https://npa.go.ug/vision2040/vision.html)
- National Development Plan 3(NDPIII)
- National Data Strategy ()

Reference documents





So What is Scientific writing??

- A specialized form of writing used to communicate research findings, ideas, and knowledge in a clear, precise, and objective way. It is the **standard style** used in **research papers**, theses, dissertations, **technical reports, and journal articles.**
- In simple terms
- A Scientific writing is a way of reporting **what you researched, how you researched it, what you found, and why it matters**—in a clear, structured, and objective manner.

Normal Writing (Casual Style) VS Scientific Writing (Formal Style)

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❑Normal Writing (Casual Style):

❑I wanted to see if plants grow better in sunlight or in the shade. So, I put one plant on the window where the sun hits directly and another plant in the corner of the room. After a week, the one in the sun grew taller and looked healthier, while the shaded one was weaker.

❑Scientific Writing (Formal Style):

❑This experiment investigated the effect of sunlight on plant growth. Two identical plants were placed under different conditions: one exposed to direct sunlight and the other kept in a shaded environment. After seven days, the plant in sunlight exhibited greater height and healthier appearance compared to the shaded plant. These results suggest that sunlight promotes faster and healthier plant growth.

Differences you can notice:

- Normal writing → casual, personal ("I wanted to see…"), uses everyday words.
- Scientific writing → objective, formal, avoids "I" unless necessary, emphasizes method and results.

Main features of scientific writing

❑Clarity and Precision

- Language must be straightforward, unambiguous, and exact.
- Avoids vague expressions and unnecessary complexity.

❑Objectivity

- Focuses on facts, evidence, and logical reasoning rather than personal opini
- Uses data and references to support claims.

❑Structure and Organization

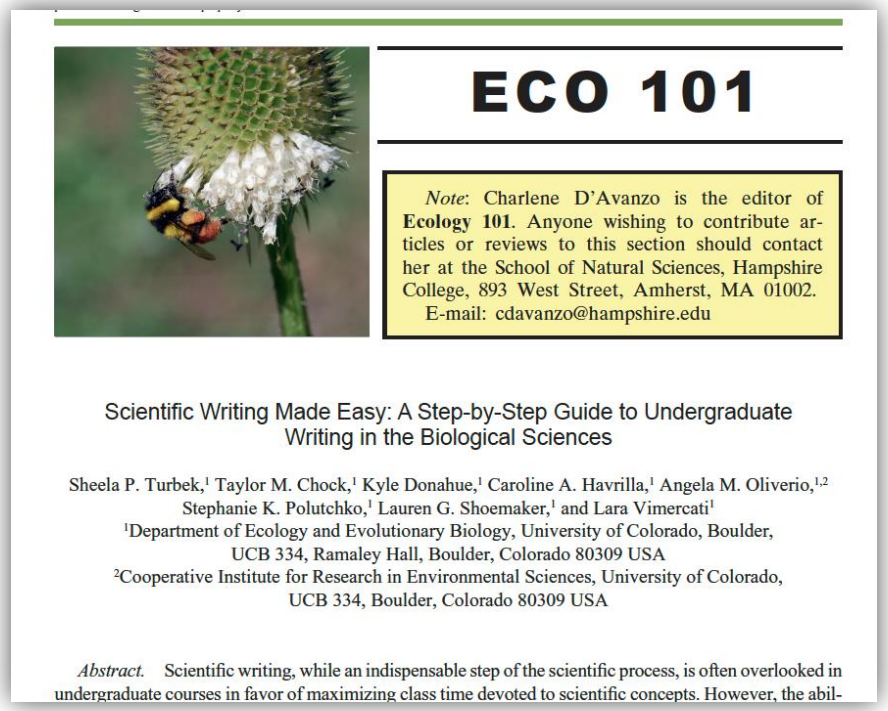
- Usually follows a logical structure such as **IMRaD: Introduction, Methods, Results, and Discussion.**
- Helps readers understand what was done, why, and what was found.

Main features of scientific writing

- **Evidence-based**
  - Every claim or statement must be supported by data, citations, or reference previous work.
- **Formal Tone**
  - Avoids slang, casual language, and overly emotional wording.
  - Uses precise vocabulary relevant to the scientific field.
- **Conciseness**
  - Expresses ideas in as few words as necessary without losing meaning.
- **Consistency and Accuracy**
  - Uses consistent terminology, units, symbols, and formatting.
  - Ensures accuracy in reporting numbers, results, and citations.

Class Activity(in groups of 2)

- Read the paper "*Scientific Writing Made Easy: A Step-by-Step Guide to Undergraduate Writing in the Biological Sciences*"
- Identify the main features discussed
- Download and read any journal paper on the topic of your choice
  - Identify sections that make up the IMRaD structure
  - write a half-page abstract.



ECO 101

Note: Charlene D'Avanzo is the editor of **Ecology 101**. Anyone wishing to contribute articles or reviews to this section should contact her at the School of Natural Sciences, Hampshire College, 893 West Street, Amherst, MA 01002.
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Scientific Writing Made Easy: A Step-by-Step Guide to Undergraduate Writing in the Biological Sciences

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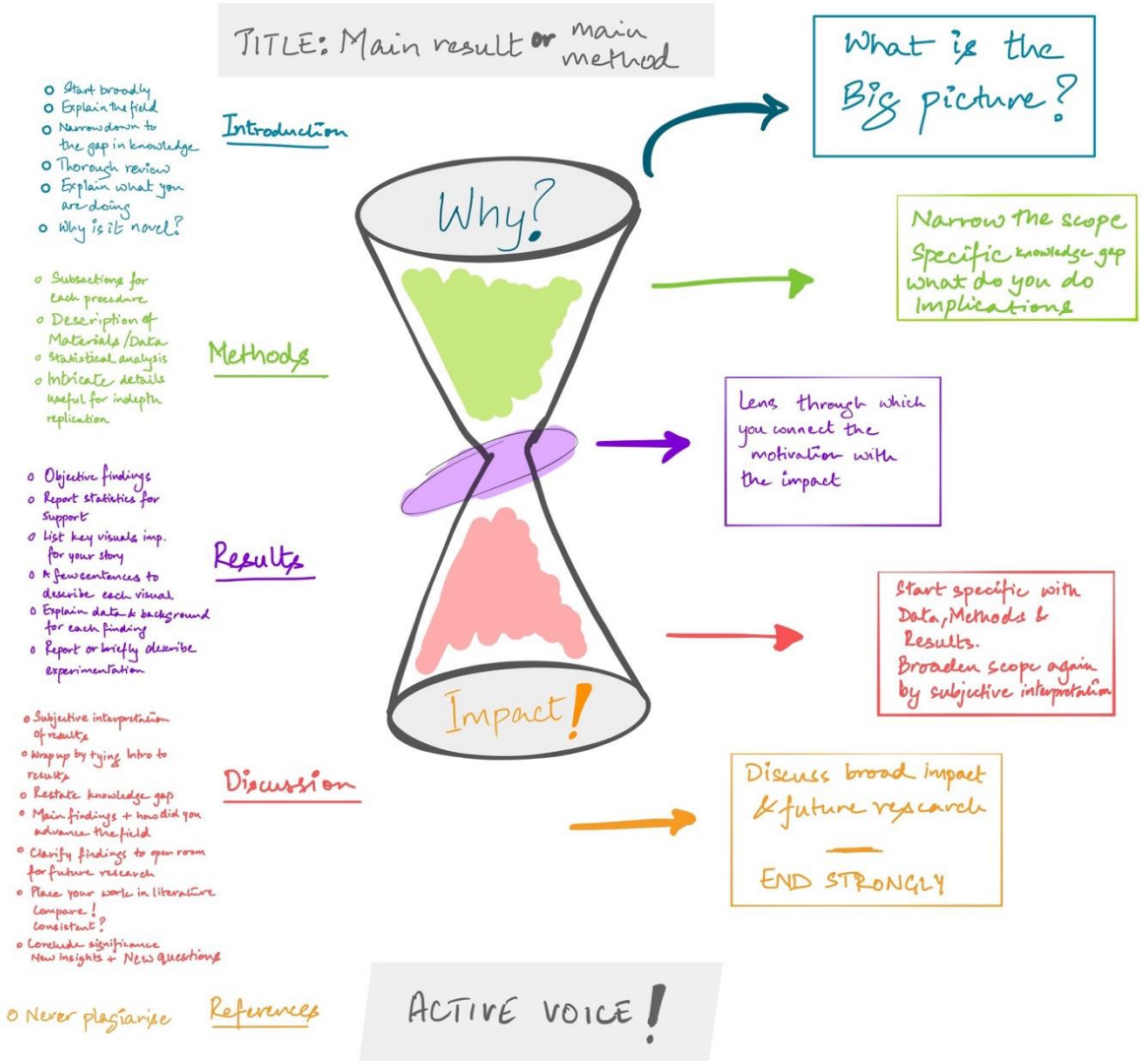
Abstract. Scientific writing, while an indispensable step of the scientific process, is often overlooked in undergraduate courses in favor of maximizing class time devoted to scientific concepts. However, the abil-

Do you recognize the hour glass structure



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