SCIENTIFIC ENGLISH

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Course 8: Writing scientific texts

Why we need to master scientific writing?

- It is indispensable that students in scientific fields have to develop their scientific writing skills, because the scientific production is one of the most important criterion of a good scientists.
- More specifically, biological sciences require to effectively communicate research findings; for this reason, it is crucial for graduate students to have writing skills to success in their field.
- Then, It is crucial to know that it exists different types of scientific texts you can communicate your ideas and findings with.

Types of scientific writings:

1. Primary research articles (aka “original research articles” or just “research articles”)
2. Review articles
3. Editorials/Opinion/Commentary/Perspectives
4. Trade publication articles
5. News
6. Blog posts
7. Article comments (formal, reviewed, online, with or without moderation)
8. Technical Reports
9. Pre-print/Post-print
10. Field Trip guides
11. Maps
12. Conference proceedings
13. Books
14. Dissertations/Thesis

1. Original research articles

- Original research is considered as a primary source.
- An article is considered original research if:
  - ➢ It is the report of a study written by the researchers who actually did the study.
  - ➢ The researchers describe their hypothesis or research question and the purpose of the study.
  - ➢ The researchers detail their research methods.
  - ➢ The results of the research are reported.
  - ➢ The researchers interpret their results and discuss possible implications.

2. Review article

- A review article can also be called a literature review, or a review of literature. It is a survey of previously published research on a topic. It should give an overview of current thinking on the topic. And, unlike an original research article, it will not present new experimental results.
- We write a review article to:
  - ➢Provide a comprehensive foundation on a topic
  - ➢Explain the current state of knowledge
  - ➢Identify gaps in existing studies for potential future research
  - ➢Highlight the main methodologies and research techniques

3. Editorials/Opinion/Commentary/Perspectives

- An article expressing the authors view about a particular issue. This may be an issue of science policy ("The NSF needs to…") or urging a particular research agenda ("More scientists need to study X…") or even taking a side in a particular scientific dispute ("These authors are right, the other authors are wrong").
- These articles can be well researched and include a lot of citations to the peer reviewed literature, or simple items without citations.
- They can appear in peer reviewed journals, in trade publications, or in popular publications (although the items that appear in trade or popular publications are often easier for students to recognize as not-primary research articles.)

4. Trade publication articles

- A trade publication is a regularly published collection of articles that address topics of interest to members of a particular profession.
- These are variously referred to as trade magazines or trade journals.
- Trade journals might also include editorials, letters to the editor, photo essays, and advertisements that target members of the profession.
- These publications are often aimed at medical professionals (Vaccine Weekly) or particular disciplines (Chemical and Engineering News).
- Articles in these publications may be several pages long and include a few references, but they are usually summarizing research published in other publications or reporting on industry news. They can be helpful for keeping up with your discipline or finding a research topic.

5. News

- Science news articles can be found in a wide variety of publications. Popular newspapers and magazines, trade publications and scholarly publications can all have science news articles. These articles often will refer to a recent study published as a primary research article.

6. Blog posts

- A blog post is any article, news piece, or guide that's published in the blog section of a website. A blog post typically covers a specific topic or query, is educational in nature, ranges from 600 to 2,000+ words, and contains other media types such as images, videos, infographics, and interactive charts.
- Blogs can be a great way to get involved in the scientific community, and many scientific blog posts can point you back to the peer reviewed literature.
- While some scholars continue to dismiss blogs as a scholarly medium, other have embraced their potential for communicating science quickly and effectively.

7. Article comments (formal, reviewed, online, with or without moderation)

- They are criticisms of a published journal article submitted in a comment formal reviewed by editors or possibly peer-reviewers, and published in a subsequent journal issue.
- Now that almost every journal is online, a link to a formal comment is often included on the site for the original article, however, we have to know that it is difficult to get a comment published.

8. Technical Reports

- A technical report is a formal report designed to convey technical information in a clear and easily accessible format.
- It is divided into sections which allow different readers to access different levels of information.
- Reports from the World Health Organization or the USGS can provide vital information to scientists. These reports can be found in scholarly databases and on the web.

9. Pre-print/Post-print

- The *pre-print* is the author's manuscript version of the publication that has been submitted to a journal for consideration for publication. While the authors may have sought help from their colleagues in selecting data analysis techniques, improving manuscript clarity, and correcting grammar, the pre-print has not been through a process of peer review. It typically looks like a term paper - a double spaced .doc file with minimal formatting.
- A *post-print* is a document that has been through the peer review process and incorporated reviewers comments. It is the final version of the paper before it is sent off the the journal for publication.

10. Field trip guides

- More common in geology than in other scientific disciplines, these guides are often considered a part of the gray literature. They may be produced locally or published more widely. Field trips are often a major part of large and small conferences.
- Field trip guidebooks are books that show the geology of a specific area. They are a stop-by-stop guide containing detailed information, maps and special information not typically found in other resources. They are typically small paperback publications that are only distributed to those who attended a specific field trip.

11. Maps

- Thematic maps can be an important part of many scientific disciplines.
- They can be published as stand alone publications, supplements to journal articles or books, or parts of technical reports from government agencies or NGO’s.
- Scientific thematic maps often include several pages of prose describing the methods used to create the maps, the data that inform the results, and the interpretations that result from the data.

12. Conference proceedings

- A conference proceeding is the **published record of a conference, congress, symposium, or other meeting** sponsored by a society or association, usually **but not necessarily including abstracts or reports of papers presented by the participants**.
- When the entire text of the papers presented is included, the result is called transactions.
- Conference proceeding are a way to engage with leading edge research prior to official journal publication.
- They may include: findings, innovations, best practices, or new methodology
- Conference proceedings allow researcher to explain their research in a less formal setting than peer reviewed journals.

13. Books and book series

- Scientific books are not considered as ‘primary research’. In general, they describe and interpret the primary research published in the journal articles.
- In some fields, there are book series, thay publish individual chapters that could be considered primary research articles. These individual chapters are cited and indexed individually, which can occasionally be confusing for students trying to find them. In addition, these items can sometimes look a lot like journals – they may have volume numbers and a series title that looks like a journal title.

14. Dissertations/Thesis

- They are the final products that result from research conducted for a PhD or a Masters degree.
- These items can often be very long, going into great detail about methods and with lots of appendices of data.
- The literature review sections can also be exhaustive. Thesis and dissertations have become easier to find in recent years as many libraries post complete copies of completed dissertations online.
- Dissertations or thesis are often cited later on by their authors in future journal articles. While they undergo exhaustive review by academic advisers and committee members, they wouldn’t be considered “peer-reviewed”.