

## Biol 3030W

### Scientific Writing – Scientific Communication



**Course outline:**

Bio 3030W will introduce students to different types of scientific writing related to Biology. Analysis of experimental data from the biology scientific literature, from lay-person literature, or analysis of unpublished data will be the basis for executing writing assignments. Each writing assignment **MUST** include at least one draft that will be critiqued by the instructor and revised by the student before the due date.

*Submitting rough drafts for all assignments is 20 % of your grade. **We learn how to write...by rewriting!***

**Prerequisites:** Biology 1002 and English 2

**Writing objectives for Bio 3030W:**

Ability to express ideas clearly in writing, which will include reader psychology, clarity, cohesion, conciseness, word choice, word order, sentence structure and placement, and paragraph composition and placement. Student will reflect on one's learning and understand difficult material, draft and revise written material, organize according to a pattern appropriate to the discipline and communicate complex scientific ideas and scientific findings in a succinct and lucid manner.

**Method of evaluation and assignments:****Assignments:**

1. **Comparison** of a recent (within 3 years) **layperson science article** related to Biology (New York Times, Sci American) *to the original peer-reviewed scientific publication*
2. **Layperson's report** on a scientific article uploaded to Black Board
3. **Scientific abstract** (short, but hardest assignment by far), based on paper from #2.
4. A **review article** on recent developments in a biological field, based upon at least 5 recent peer-reviewed **scientific** articles on the subject you choose.
  - a. **This is broken into 4 sub-assignments with due dates.**
5. **Optional:** You can rewrite one of your prior assignments if you did not like your grade. Submit your rewrite with your ORIGINAL draft with grade.

Drafts will be marked for clarity, cohesion, conciseness, content accuracy, organization and theme development, communication of the underlying scientific thought, grammar, and syntax. *For all assignments I can help you find the scientific papers*

*We also have in-class exercises and sometimes out-of-class exercises.*

### Grading Rubric:

**You are primarily graded on your REWRITES of original drafts of each assignment.** Did you use tools learned in lecture? Did you use constructive feedback and advice and not merely make suggested changes? Assignments are graded for accuracy of understanding of scientific concepts, for clear exposition of a thesis, and clarity of communication of the underlying scientific ideas. Clarity, Cohesion, and Conciseness are key.

Each of your 4 (5) assignments must go through **at least 1 round of rewrites** by the DRAFT due date. Your final submission after rewriting is your FINAL DRAFT, submitted on the FINAL DRAFT due date. You will submit your first draft, I will send back comments and advice, and your improved rewrite (s) based upon my feedback are what contribute to your FINAL-DRAFT grade.

1. **Getting at least ONE rough draft in for each assignment *on or before* the rough-draft deadline is 20% of your grade. That is 2 letter grades.**
2. Your improved final rewrites of projects 1-4 will be 50% of final grade.
3. The **review paper**, with revisions, will be 30% of the final grade.
  - a. **Milestones of Review Paper 1.5, 2.5, and 3.5 are included in your DRAFT grade for Assignment 4.**

**Cheating and/or plagiarism** will result in a grade of F and a report to the Dean of Student's Office. See <http://web.gc.cuny.edu/provost/pdf/avoidingplagiarism.pdf>.

### **Bibliography (get these online; it is less expensive!), not required but very helpful:**

- The Elements of Style, Fourth Edition by William Strunk, J. and E.B. White.
- Scientific Writing and Communication, Second Edition, by Angelika H. Hofmann, Oxford University Press. ISBN 978-0-19-994756-0
- Selected research articles pertaining to your area of interest.

## **Bio 3030W, Scientific Writing**

### **Tentative Lecture Syllabus**

Lecture 1: Course outline, expectations
Lecture 2: Reader psychology and expectations
Lecture 3: Verbs and Action
Lecture 4: Verbs and Action II
Lecture 5: Verbs and Action III
Lecture 6: Cohesion and Clarity
Lecture 7: Concision
Lecture 8: Coordination of Ideas: Sentences and Paragraphs
Lecture 9: Coordination of Ideas: Sentences and Paragraphs
Lecture 10: Research Articles
Lecture 11: Research Articles
Lecture 12: Research Articles
Lecture 13: Review Articles
Lecture 14: Review

**Bio 3030W: Scientific Writing**

**Assignments and DUE DATES – each due by 5pm on the date listed.**

***At least 1 rough draft is required on or before the Draft Due Date.***

**Writing Assignment 1:** *Science Times Report:* Find an article of interest related to Biology from the Tuesday NY “Science” Times, or Scientific American, or another high-quality non-science publication. The article should be no more than 3 years old. After reading it, find the original scientific article upon which it is based, and write:

1. A 1 page summary of the non-science article,
2. And a 1-2 page comparison with the actual science paper.
3. Was the lay-person writer effective in conveying complex ideas without over-simplifying? How do the papers differ and/or relate to one another?
  - a. This should be a **real critique** -- not just reporting “there are more numbers and graphs in the science paper”.
  - b. These writings are meant for different audiences, so of course there will be mechanical differences in style.

**Due dates, Assignment 1 (Spring):**



4. **Feb 23:** Rough drafts due on or before Feb 23, 2023, 5pm.
5. **Feb 23:** Milestone 1.
  - a. **Topic for Assignment 4 due:** *for example, you can even expand on the scientific article you used for the NYTimes assignment.*
  - b. **List initial scientific paper with summary paragraph.**
6. **March 2:** Final draft due March 2, 2023.
  - a. **Send via email.**

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### Writing Assignment 2:

1. Layperson's report: You have received a copy of a scientific paper posted to BB, containing an introduction, materials and methods, results, and discussion (**on Blackboard**). Write a 400-600 word layperson's report for the public (non-science background, like the NY Times/General articles you read). What is important here is ease of reading, being correct with not a lot of jargon, and getting the point across with limited detail. You are telling a story!

### Due dates, Assignment 2:



2. **March 16: Rough drafts due on or before March 16, 5pm.**
3. **March 16: Milestone 2.**
  - a. List scientific papers 2 and 3,
  - b. Summarize each paper with a paragraph.
4. **March 23: Final draft March, 23, 2023**

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### Writing Assignment 3: This is the most difficult assignment. Give it time. Short does not = easy!

1. Scientific Abstract: Using the same article on BB from Assignment 2, write a Scientific Descriptive Abstract for the paper, as it is "missing" from the article. Word limit is 200-300.

### Due dates, Assignment 3:



2. **April 4: Rough drafts due on or before April 4.**
3. **April 4: Milestone 3 – BASIC QUESTION addressed by your 3 articles summarized.**
  - a. **Examples:** e.g., what parts of the covid virus seem to change most often? Evidence for genetic/epigenetic contributions to Lupus? Changing temperature in Gulf of Mexico - evidence of climate change? What is most recently known about one of the Long Covid effects?
4. **April 25: Final draft, April 25, 2023.**

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### Writing Assignment 4:

1. **Review article:** This is an article that summarizes the most recent papers on a given subject. You are letting other scientists know what “we know so far” right now and “what questions remain”. It is a summary of the current state of a question in Biology. You should use at least 3-5 recent papers.
2. Using your **three selected** recent peer-reviewed scientific articles (milestones 1-3) from the original scientific literature write a REVIEW ARTICLE of up to 10 pages (and no less than 5) that includes the following sections: 1) Abstract, 2) Biological Problems addressed in each research article, 3) Experimental approaches used in each article, 4) Interrelationships among the biological problems investigated, 5) relationship of the three papers, and 6) conclusions and suggestions for further experimentation in this area of study.

**Due dates, Assignment 4:**



3. **May 5:** Rough drafts due **ON OR BEFORE May 5, 2023.**
4. **May 12:** Final draft due **May 12, 2022.**

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**Writing Assignment 5 (Optional):**

1. **Optional Rewrite final draft:** *TBA, Finals Week.* **SEND YOUR ORIGINAL GRADED DRAFT IN WITH THIS REWRITE.**
2. *If you are not satisfied with one of your grades, rewrite one of your earlier assignments using my feedback and what you have learned in the course Please submit final draft with the original, graded draft of the assignment.*