

# Syllabus

## ICES Training Course on Scientific writing and publishing for marine scientists

Copenhagen, May 30 - June 1 2023

### Course objective

To help students improve their skill in writing manuscripts for peer reviewed journals (including ICES Journal of Marine Science) and in understanding the scientific publishing environment, including insights from the perspectives of a research journal [editor](#) and the [author](#) of a very successful [book](#) about scientific writing, both of whom have also published several hundred peer reviewed articles.

### Instructors

- [Howard Browman](#), Institute of Marine Research, Norway
- [Jan Pechenik](#), Biology Department, Tufts University, USA

### Course syllabus

#### Part 1 – How to tell your story

##### Part 1.1 - Preparing to tell your story

- I. **Introductory orientation:** Your objectives as a writer of technical documents. In everything you write, you are making arguments. What are reviewers and editors looking for?
- II. **Summarizing information:** the art of summarizing information

##### Part 1.2 – Telling your story

- III. Your goals as a writer; what is your story (?!) and how best to tell it; the most effective order of writing a manuscript; writing a first draft; some basic principles of scientific writing.
- IV. Parts of the research paper and deciding where to start. Starting with Methods and Results sections. Thinking carefully about your goal in writing the Introduction section. Writing the Abstract and Title last. How to write the different sections of your manuscript - writing exercises; how to be clear and succinct; using passive vs. active voice; effectively using the topic and stress positions of a sentence; logical flow of information and arguments; transitions.  
  
Writing the Methods section in a way that helps to organize ideas for writing the Results. What to include and what to avoid. Making the rationale for key steps (and seemingly arbitrary decisions) clear.
- V. Writing the Results section: Designing good figures and tables, writing good captions, effectively presenting the results. How to make your graph and table captions self-sufficient, so that readers will be able to tell the question asked, how the study was

done, and what the key results were, just by looking at the figures and tables. How to properly format your graphs for publication in the targeted journal. How to write about statistics. Using text to highlight the most important trends, but leaving the details of the data on the graphs and tables. Making the results –not the statistics--the star of the show.

- VI. Writing the Introduction section. Where to start, and how to set up the general context for the study. Linking sentences together in a logical way, to make the rationale for your study clear and convincing.
- VII. Writing the Discussion section. Discussing results in the context of expectations and previous data. How to avoid HARKing (Hypothesizing After the Results are Known).
- VIII. Writing a good Title
- IX. Fine-tuning issues—the importance of revising. The final goals: Say what you mean, being specific when possible; avoiding weak verbs; making the organism the agent of the action; eliminating excess prepositions; using punctuation to avoid ambiguity; keeping your readers moving forward--never make readers back up. Always remember your goal: to communicate clearly and concisely, and in an interesting way.
- X. Best strategies for revising: Understanding exactly what you want to say, being sure that you've actually said it, and that you have said it as clearly and as concisely as you can.
- XI. Giving and receiving feedback: reviewing the work of others – manuscripts and grant proposals.
- XII. Emerging trends in article style and presentation (the article of the future?).
- XIII. If time permits: How to write a peer review; Artificial intelligence as a tool in manuscript writing (best practice and ethics).

### **Part 1.3 – Sample homework assignments**

Rewriting sample sentences so that they say what the writer intended and do so clearly and concisely.

Building a logical Introduction.

Designing effective figures, tables, and captions.

Students will prepare a draft of one section of a paper they are working on (Introduction, Materials and Methods, or Results) and submit copies to exchange with other students for discussion.

### **Go over homework from part 1.3**

### **Part 2 – How to get your story published**

Behind the curtain - everything that nobody ever told you about scientific publishing, journal editing and how accept/reject decisions are made; editorial boards (who is on them and how did they get there?); peer review models; rejection rates and how they relate to "prestige"; the game of science publishing, including the "counting culture", +++

- I. An introduction to resources about scientific publishing and publication ethics.
- II. What do Editors expect from authors?
- III. What are editors and reviewers looking for?
- IV. How to select an appropriate journal and how this relates to writing a manuscript? What about "high-impact" journals?
- V. How to submit a professionally prepared manuscript.
- VI. Writing a good cover letter and how to interact with journal editors; responding to reviewers; challenging a rejection decision.
- VII. Peer review models and how editorial decisions are made under each. The relationship between peer review models, business model (e.g. open access vs. subscription) and rejection rate. How are "desk reject" decisions made? How are reviewers selected? How do editors decide when the reviews are contradictory? Who are the editors and how are they selected?
- VIII. Insights into the game of science publishing. Understanding scientific publishing as a business. Assessing journals using the impact factor and other metrics; what do altmetrics tell us? What is "quality"? What is the relationship between quality and selectivity (i.e. rejection rate)?
- IX. Ethical issues in science publishing (authorship; plagiarism; the many and disturbing forms of malfeasance...). What is an expression of concern? Under what circumstances do journals retract an article?
- X. Emerging issues in scientific publishing and dissemination: cognitive bias and other forms of bias; predatory journals, preprints, use of artificial intelligence in generating data, text, and by journals to assess statistics, select reviewers+++, open access; open data; open science; transparency; reproducibility; diversity, equity and inclusivity; social media; the perils of interacting with journalists in a fake news world.