Assignments

Note: when you hand in assignments, please email to me as either Word or PDF. Please turn on line numbers. Name the file according to this convention: A + assignment number + your last name…. so for instance, Helen Jones’ 3rd assignment would come to me as A3Jones.docx (or A3Jones.pdf). Thanks!

“TSGTW” indicates a page-number reference in The Scientist’s Guide to Writing.

A1: Story summary. Write a story summary (TSGTW 66) for your intended writing project. If you do not yet have your data, make up a plausible result (and label it clearly “simulated”).

A2: Methods draft. Write a complete draft of the Methods for your writing project. It is OK to have some gaps (for instance, in statistical analysis) where details are not yet set. Indicate these clearly (for example, “I tested this hypothesis by ***regression or chi2 test depending on frequency of zeroes in the data***”). Follow best practices as laid out in TSGTW (Chapter 11).

A3: Results draft. Write a complete draft of the Results for your writing project, including tables and/or figures as appropriate. Tables and figures may be hand-drawn drafts. If Results are not yet completely available, make up some plausible results (and label them clearly “simulated”) so you can work on the presentation; real results can be substituted once you get them. Follow best practices as laid out in TSGTW (Chapter 12).

A4: Introduction draft. Write a complete draft of the Introduction for your writing project. Mark in the margins text associated with each of the 6 standard functions of the Introduction (TSGTW 84-87). Include a closing statement of your main result (simulated if need be). Follow best practices as laid out in TSGTW (Chapter 10).

A5: Introduction peer review. You will receive an Introduction draft from a peer-group member. Write a peer review, addressed to a journal editor who is (hypothetically) handling the submission (ignore the fact that you have only an Introduction and not a full paper). Follow good practices as outlined in L11 and TSGTW 242-244.

A6: Discussion draft. Write a complete draft of the Discussion for your writing project (hand in the Results again with it, either revised or not). Where discussion is based on simulated data, so indicate. Mark in the margins text associated with each of the 4 standard functions of the Discussion (TSGTW 121-124). Follow best practices as laid out in TSGTW (Chapter 13).

A7: Complete paper draft and Response to Reviews. Submit a complete draft of your paper, incorporating revisions as a result of the comments you’ve had from me on earlier drafts (of Introduction, Methods, Results, and Discussion). As a “complete” draft, this should have a title page, Abstract, Acknowledgements, References – everything you would submit, if you sent it to a journal. Also submit a Response to Reviews document (TSGTW 225-230) explaining the changes you’ve made (or not made), written as if you were resubmitting to a journal.
I will not grade the paper’s content. Instead, a good grade will accrue to a paper draft that is complete, that is compliant with writing principles discussed in the course, and that shows evidence of improvement from earlier drafts in response to feedback. Note: the intent here is to grade writing process rather than content. For students working on a manuscript that will become an undergrad Honours thesis, grading for content is part of the Honours thesis course, so this avoids double-counting of the same work.

A8: Blog post. Choose a scientific paper published in the last 2 years – or if you prefer, the as-yet-unpublished paper/thesis you’ve been writing up in this course. Working from that paper, write a 500-800 word blog post (TSGTW 244-245) for the lay public. Your post must be related to the paper, but it does not have to simply retell or translate the paper – it can explore a connection between the paper and recent news, for example. If you use a paper other than the one you’re working on for this course, please submit a PDF along with your blog post.
**Workshop Exercises**

**Workshops:** This time will be used for small-group breakout sessions with assigned exercises. Peer groups will be set up in our first meeting, and will consist of 3-5 students. Most times, workshop time will be followed by brief presentations by peer groups to the full class, or by discussion of the group’s work. Be ready to present or discuss your work during any meeting.

“TSGTW 50” (e.g.) is a page number reference to *The Scientist’s Guide to Writing*.

**W1: Peer group get-to-know you.** Please spend the time getting to know your peer-group members. Each member will have 5 minutes to talk. In your 5 min, you should explain (1) your academic background (where you came from, your degree program, your emphasis within that degree program); (2) your career goals (where you see yourself working in 10 years, and the next step or steps that can get you from here to there); and (3) your current research interests (your Honours or thesis project). #3 should take the form of a science-friendly “elevator talk”: ~2 minutes, pitched for understanding by a typical 2nd-year undergraduate. After each member’s talk, each other group member should ask at least one question. **ALSO:** each peer group to suggest one Canadian charity to which textbook royalties might be donated. Students will vote on these suggestions, by secret ballot, at next class meeting.

**W2: Outlining 3 ways.** Choose (as a peer group) one of the provided papers, and read it (superficially – the point here is not to absorb every detail). Next, write a 2-sentence minisummary (TSGTW 59-60). Now develop two of the following outlines (TSGTW 66-67) for a paper reporting the same work: (1) story summary; and (2) subhead outline OR (3) topic-sentence outline. **Note: the summaries won’t be comprehensive, and you aren’t trying to recreate the actual paper – you will likely make different choices than the authors did. If you don’t understand every detail of the paper, that’s OK – make up something plausible.**

**W3: Tip sheets.** Each peer group will prepare a “tip sheet” based on their own experience. It will include at least 3 tips for productive writing behaviour, at least 3 examples of bad habits that impede productive writing, and a strategy for controlling each bad habit. Base these on your own behaviour – this is not about summarizing the book, it’s about sharing your own writing selves!

**W4: Finding IMRaD.** Each peer group will take one “non-canonical” (non-IMRaD) paper example from those available, and using colour-coded highlighters or other labelling, will identify text playing functions of Introduction, Methods, Results, and Discussion (TSGTW 76). Using a second copy, scissors, and glue, rearrange to create an IMRaD paper (this version will of course be quite rough). Which organization do you prefer? Identify at least one advantage and a disadvantage of each structure.

**W5: Methods detail.** Each peer group will work with the “Energy Flow II” experiment from the lab manual for Biology 1006, and will draft a Methods section for a conventional IMRaD paper (leaving out the Data Analysis section, just to save time). If some necessary details are
missing, make them up. Now list at least 5 methods details that you omitted from the draft Methods, and explain why they’re omitted. At least one of these should be a detail that isn’t given in the manual either, but that you’d expect to do when actually executing the methods). One group will project their draft, and we’ll look for and discuss differences among the group versions.

**W6: Figure/table draft.** Groups will work with a set of data provided on D2L (rat weight/mortality experiment). Each group will prepare a figure to show the weight data (hand-sketch or in Powerpoint; no need for precise representation of the data). All decisions about what to emphasize and how to display it are yours! Each group will then prepare either a figure or a table to show the mortality data (same lack of rules). Class discussion will follow, focusing on differences among groups in figure/table-making decisions.

**W7: Results critique.** Groups will work with the Results section from a paper, provided. Read the Abstract, the last paragraph of the Introduction, and the Results. Work through the Results Critique Worksheet, which considers the following issues: (1) text that belongs in Methods or Discussion, not results: (2) identity and placement of main vs. supporting results; (3) table design; (4) figure design; (5) references/pointers to figures and tables; (6) significant digits.

**W8: Introduction markup.** Each peer group will be given a paper with a short Introduction. Label the following elements: (1a) general context of the work (yellow); (1b) narrower research area, and its importance (orange); (2a) identification of knowledge gap (blue); (2b) specific research question to close that gap (green); and (3a) summary of approach to answer the research question (pink). Some Introductions also have (3b) announcement of principal findings. Does yours? If yes, remove them (if needed, replace with concise statement of question). If no, draft 1-2 sentences to play this function (if the Results are complex, just make something up) and append them. Which way is better?

**W9: Literature searching and reference management.** *Workshop designed by guest presenters from UNB Libraries.*

**W10: Discussion markup.** Groups will work with the Discussion section from a paper, provided (it’s efficient to work with the same paper chosen for the Introduction markup). Highlight text serving each of these five functions: (1) Interpret results to answer research question (yellow); (2) consider possible weaknesses (orange); (3) relate to previous literature (blue); (4) consider broader implications (green); and (5) consider prospects for future progress (pink). On a second copy, highlight hedges. Are they excessive? What is the function of the last 3 sentences – summary, major conclusion, or something else? What change would you make to the Discussion?

**W11: Paragraph markup.** Each peer group will be given a short Discussion or Introduction section with a few paragraphs identified for markup. Label the following elements: (1) topic sentence(s); (2) end-paragraph power position; (3) incidences of parallelism and repetition; (4) transitional expressions within the paragraph; (5) transitional expressions that connect paragraphs; (6) if any, sentences or phrases that don’t fit the declared topic; (7) if any, phrasing that creates overstrong dependency on material outside the paragraph. In addition, identify the
within-paragraph organizational scheme: temporal, spatial, general to specific, etc. Finally: is
the paragraph coherent? Unified? Distinct? Suggest a revision to improve one or more of these
characteristics.

**W12: Methods/Results peer comments.** Exchange Methods and Results drafts among peer-
group members. Each student will comment (in writing) on the Methods/Results draft they
receive. Comments should be specific and constructive, and concern the writing (not the
science). While the bulk of the work of reviewing should be individual, you are welcome to
consult peer group members, including the author, if you are unsure of something. We’ll take
two workshop sessions to do this. At the end of the second one, email your comments to the
instructor, with a copy to the author of the draft.

**W13: Deep reading.** Workshop designed by guest presenters from UNB Libraries

**W14: Titles.** (A) Each peer group will receive the Table of Contents from a recent journal issue.
Rate each title (excellent/good/fair) for: (i) clarity, (ii) specificity; and (iii) engagingness. Choose
the best and worst titles, and record the reasons for your choice, for reporting to the class. (B)
Each peer group will receive a short paper with its title removed. For this paper, generate: (i) an
overly vague title; (ii) a good, precise assertive sentence title; (iii) a good, precise, non-assertive
title; and (iv) an amusing or provocative title. Which do you prefer, and why?

**W16: Response to reviews.** Each student will have received peer comments on their Methods
and Results (W18). Each of you will write a brief segment of a Response to Reviews. It will
outline changes to the manuscript, in response to reviewer comments (you don’t have to actually
make the changes now; just pretend you have). It should include one or more responses in each
of these categories: (1) change made as suggested; (2) change not made as suggested, but another
change made to solve the identified issue; and (3) change not made because you disagree with
the change. Note that if you did not receive a comment genuinely fitting category 3, it’s OK to
pretend to disagree with something; it’s your presentation of the argument, not the argument
itself, that matters. Before workshop ends, show your R2R to your reviewer, and discuss their
reaction.

**W17: Bloat and cut.** Peer groups will be given a short excerpt from a paper, and a longer
excerpt from a paper draft. First, each group will work with the shorter excerpt to make it as
unnecessarily long as possible (without adding new information). These long versions will be
read aloud to the class. Then, each group will work with the longer excerpt to make it as concise
as possible (without removing important information).

**W19: Evaluating journals.** Each group will receive a list of 10 journal titles. Using resources
on the web, fill out the journal evaluation worksheet. First, identify any fake/predatory journals
on the list. Then, for remaining entries, classify the journals as society vs. for-profit and
subscription vs. open-access vs. hybrid. Find the cost to publish, assuming no grant/waiver, and
a recent Journal Impact Factor (note: finding the JIF does not imply that you consider it
valuable).
W20: Blog critique. Work in pairs for this one. Each pair will consider a recent blog post (not a conventional media article) written by a scientist to explain science to a non-specialist audience. (You can use an example I provide, or find your own). Each pair will critique the post (using the blog critique worksheet), considering structure, writing level, engagingness, graphic/text design, provision of sources, etc.

W21: Simulated interview. Student pairs will conduct mock radio interviews, 4 minutes each. The “guest” will be interviewed about their research, and so should begin by giving the “host” a written 1-paragraph summary of the work (so have this ready!). The instructor will play “producer”, keeping time and sometimes passing suggestions (written notes) to the host. When signalled (by the producer, with 15 seconds to go), host and guest should attempt to wrap up on time with a take-home message at the end. The interview should be aimed at a local and general-public but reasonably well-informed radio audience. [An alternative model for this workshop: a single person with media experience, if one is available, can act as host/interviewer for all students.]

W23: Jargon. Each group will be given an Introduction or Discussion excerpt. Highlight (in yellow) terms that would be unfamiliar to your (hypothetical) non-biologist roommate. Highlight (in orange) terms that would be unfamiliar to a biologist outside the subfield of the writer (ecology, cell biology, ornithology, etc.) Which terms should be replaced (and with what)? Which terms need to be retained for precision? Which could be used once and then given a simpler replacement, as in “Gnorimoschema gallasolidaginis (henceforth, spindle-gall moth)”?
W6: Rat growth data for figure/table construction

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<th>Rat body weight (g)</th>
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<td>Time (days):</td>
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<td>Mortality at day 12</td>
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<td>WR2: 32/90; Xbr: 75/83; Alpha: 4/77; T': 51/91</td>
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W7: Results critique worksheet

Name: ______________________

1. Highlight in pink any text that really belongs in Methods; highlight in blue any text that really belongs in Discussion. Would the Results be improved with less, or more, mention of methods?

2. Highlight in green the main/principal result(s). Other results are subsidiary or supporting results. Is the relationship among results clear? Where is the main result located in the text?

3. Table design: How many tables? How well are they designed? Suggestions to improve?

4. Figure design: How many figures? How well are they designed? Suggestions to improve?

5. References to figures and tables: Are they specific? Can you suggest additional “pointers” to make them more so?

6. Significant figures: Where numbers are reported, are they given to reasonable precision?

7. Other suggestions for improving the Results? Other interesting features of the section?
W19: Journal evaluation worksheet

Name: ______________________

Work with ONE of these two lists:

<table>
<thead>
<tr>
<th>Journals to check out: Eco/Evo</th>
<th>Journals to check out: Cell/Molec</th>
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<tbody>
<tr>
<td>3. Oceanologia</td>
<td>3. Genes &amp; Cancer</td>
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<tr>
<td>5. Ecological Genetics and Genomics</td>
<td>5. Brain Multiphysics</td>
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<td>8. Journal of Evolutionary Biology</td>
<td>8. BMC Molecular and Cell Biology</td>
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</table>

Journal Evaluation:

Fill out the table on the next page.

1. Mark an “F” under “Fake?” for any journal that you think is a fake journal. In this space, if you labeled one as fake, indicate why you think so.

2. Mark each journal as either “S” for “society” or “P” for “for-profit”.

3. Mark each journal as either “S” for “subscription”, “OA” for “open-access”, or “H” for “hybrid”.

4. Find the cost to publish a paper in the journal. Is it a flat rate for publication (“APC”) or a per-page “page charge”?

5. Find a recent “Journal impact factor” (and note what year it’s calculated for).

6. If you had to submit your paper to one of these 8 journals, which one would you pick, and why? (Assume that if subject-matter match isn’t quite right, they can make an exception for you. If you’re working on this in a group, pick any ONE of your papers.)
<table>
<thead>
<tr>
<th>Journal</th>
<th>Fake?</th>
<th>Society or for profit?</th>
<th>Subscription, open-access, or hybrid?</th>
<th>Cost to publish (assuming no waiver), and how is it assessed? (APC vs. page charges, etc.)</th>
<th>Journal Impact Factor</th>
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W20: Blog critique worksheet

Blog post title: __________________________________________________________

1. Who is this post written for? (e.g. kids, scientists in another field, high-school grads, etc.)

2. What’s the structure?
   
   Hourglass
   Pyramid
   Pyramid-and-kicker
   Hook-story-kicker
   Other (explain):

3. Vocabulary:

   Identify a part where the vocabulary is too technical (for audience in #1)

   Identify a part where the vocabulary is “dumbed down” too far
4. Knowledge presumption:

What does a reader need to already know, in order to understand the post? Is this a reasonable requirement?

5. Engagement

Identify at least 3 features of the post that are there to engage audiences.

#1

#2

#3

Suggest at least one edit or addition to improve audience engagement.