Scientific Writing & Ethics, Zoology 587
Syllabus Summary

Week 1. Designing your plan for writing

Week 2. Starting your article

Week 3. Holiday

Week 4. Advancing your argument and selecting a journal

Week 5. Reviewing the literature

Week 6. Strengthening your structure

Week 7. Results and discussion sections

Week 8. Opening and concluding your article

Week 9. Getting and giving feedback

Week 10. Wrapping up your article

Note: The following sections detail the plans and discussions week-by-week for the 2012 version of the course. The same structure will apply in future years, but the content of discussions will vary.
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Week 1

At our first class meeting on 7 Jan we laid the groundwork for our writing projects. After introducing ourselves, we discussed surprising issues raised in the introduction of the workbook (W. Belcher, *Writing Your Journal Article in 12 Weeks* ...). One of these surprises was the author’s admonition that the workbook is not intended as a guide for writing scientific articles. We decided to proceed anyway, supplementing the advice and plans as necessary to adapt them to writing for the natural sciences. We discussed the class assignments for this week, beginning with those for Day 1. We began by discussing the workbook assignment of listing our feelings about writing. As we went around the room, several themes emerged: issues of self-confidence, the struggle to resist perfectionism, the problem of getting started, submitting to a disciplined program of work, and marshaling the courage to face criticism. Next, we turned to the status of our writing projects. Status ranged from outlines that need major revision to actual manuscripts in various stages of completion. Most participants planned to work on co-authored articles with 3-4 co-authors.

We laid plans for the structural aspects of the course. We agreed to meet each Monday from 3-5 pm in 3030 Cordley Hall. Grades for the course will be based on attendance and participation in class. At each Monday meeting we will have completed the task for Day 1 of that week. At each meeting we will devote the first part of the meeting to discussing progress and problems from the week before, as well as issues we confronted in completing the task for Day 1 of the current week. In the second part of the each meeting, we will break into 3 groups of 3 to 4 people so that we can critique and discuss a sample of each other’s writing from the past week. The groups will be assembled anew each week, so that over the course of the term everyone will read everyone’s writing. Each participant will bring 4 copies of a one-page sample of writing to class each time so that comments can be written on those copies in class and returned to the author on the spot.

In preparation for class next time, Week 2, we agreed to deviate slightly from the workbook assignment. We will complete the workbook assignments for Week 1, but to have a writing sample for class discussion in groups, we will each devise a title and write an abstract for our article. These elements should be arranged on a single page that will resemble the first page of a published article. In other words, you should include your name and the names of your co-authors after the title and before the abstract. The idea in producing this draft of a first page is to break out of the blank page situation and get something down on paper. With that aim in mind, a string of key words will do for the title and a very rough draft will do for the abstract.
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Week 2

At our second class meeting on 14 Jan we reviewed our work for Week 1 and laid plans for Weeks 2-4. We began by listening to reports about the status of writing projects from participants who missed our last meeting. In the vein of reviewing work from Week 1, we went around the room and reported our positive feelings about writing, as counterpoint to last week’s circuit in which we identified our negative issues about writing. Examples of positive feelings included: pride in expressing results in a new way, getting in touch with results, the triumph of closure, pleasure in seeing a pdf of the published article, pleasure in tinkering with revision, and having fun working on graphs. Next we turned to Belcher’s formidable inventory of 28 obstacles to writing. The point here was to identify our personal obstacles so that we can overcome them. Examples included: getting past the view that only large blocks of time will suffice for writing, the problem of establishing a working site where distractions will not intrude, mastering the technique of skipping past unknowns (results, citations, etc.), taming the beast of perfectionism, conquering the worry that our ideas aren’t good enough, and coping with the anxiety that a fatal flaw will be revealed that will cause our entire project or thesis to collapse. Finally, we made the point that now is the time to alert our co-authors of our work in progress, so that they won’t be surprised later when we ask for help on particular parts of the article.

In the second hour of our meeting we broke into three groups of 3-4 and critiqued each other’s abstracts. We discussed and formulated a plan for setting up groups at future meetings (groups formulated beforehand using a random number generator). A consensus emerged on the point of devoting more than 15 min per critique. To spend more time on each person’s writing sample, we proposed expanding the entire block of time from 60 to 90 min and making 4 groups of 3 each, so that we might spend 20+ min per critique.

We also discussed our plans for work in Weeks 2-4. We’ve already accomplished a main task for Week 2, which was the drafting and review of an abstract. According to our workbook, our main task for Week 3 is to work on the main argument for our article. We agreed to expand the scope of that task to include drafting 1-2 pages of introduction. The introductions to most scientific articles consist of a first part which is devoted to presenting the main argument, including background information that supports it. The second part of the introduction commonly bridges to the Materials and Methods section. This second, shorter part summarizes the main aims of the article and briefly describes how they will be accomplished. Our assignment for our next meeting, aside from following the steps in the workbook, is to bring a rough 1-2 page version of our introduction. If possible, this version should include the two parts just described.

Our Week 3 meeting on 21 Jan falls on a holiday, which means that our next class meeting will be at the start of Week 4, on 28 Jan. I’ll email you about the possibility of meeting next Wed, 21 Jan. Alternatively, we may devote a full 2 weeks to composing our drafts of an introduction.
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Week 4

We didn’t meet on Week 3 due to a Monday holiday. At our meeting on 28 Jan we reviewed our work for Week 3 and laid plans for Week 5. We began by making a circuit of the room and discussing our progress over the past two weeks. Most participants concentrated on making at least a draft of their Introductions. Reports of problems and triumphs emerged during the discussions: indecision about how to cast the introduction, success in juggling two writing projects, and wrestling with the usual solution of going from the general to the specific (i.e., how to include both conceptual and empirical issues). Most participants reported that they now had their projects on a roll.

We next turned to the issue of choosing a journal for submission and again made a circuit of the room. We used a sample of ISI journal impact factors as a point of departure. While general agreement emerged that impact factors should be taken into account in weighing alternatives, two other considerations were raised. (1) Some journals are more highly regarded in particular disciplines than impact factor would indicate. (2) The main issue for some articles is publication, not impact factor (e.g., a minor article that is nevertheless crucial to a larger project, a negative result of interest to a small constituency).

Finally, for the last 70 min we broke into groups of 3 and critiqued each other’s drafts of introductions.

We ended with a brief discussion of our plans for the rest of the current week. One emerging perspective on the course workbook is that it does not provide a complete plan for work each week. Rather the workbook encourages us to focus on a key issue each week (e.g., journal selection, literature review), but lets us decide how to focus the bulk of our effort each week. With this role of the workbook in mind, each of us needs to decide where we will place our effort each week. Whatever you decide to work on in the coming week, plan to bring copies of a 1-2 page draft to class next week for your group-mates to read and critique. One suggestion is that you incorporate comments from yesterday on your Introduction.

Most of us need to hone the main argument for our article, making sure that it is clearly laid out in the Introduction. Given the importance of the article’s argument (rationale), another week’s work seems a good investment. One way to open your Introduction is to give a short one paragraph overview of your argument. Most arguments can be cast into the following form: (1) make a statement about an important development relevant to your article, (2) point out an important limitation or problem with that development, (3) finally, state how your article will solve that limitation or problem and move the field forward in the process. Try to accomplish each of these 3 steps in just one or two sentences each. In the remainder of the Introduction, present a longer version of each of the three steps. In the final paragraph of your Introduction, list the specific aims of your article in a way that bridges to the upcoming Materials & Methods, Results, and Discussion sections.
At our meeting on 4 Feb we reviewed our work for the past week and laid plans for Week 6. We started by making a circuit of the room and discussing our journal choices. About half the class now has a particular journal in mind. The other half is still deliberating for a number of reasons (e.g., waiting for input from co-authors). We did a second circuit and discussed what we’d accomplished over the past week. Most participants continued to work on their introductions. My sense from these reports and from the critique session that followed is that a number of participants stalled out during work on their introductions. Rather than continue to hammer away at that same section, I suggest a switch to some other section of your choice (e.g., Material & Methods, Results).

We also discussed reference managers, since a main topic in Week 5 was reviewing the literature. Participants reported satisfaction using both Zotero and EndNote. Some preferred Zotero because it is freeware. We also compared our reactions to the Workbook section (pp. 149-150) on the work routines of prolific writers such as E. O. Wilson. If you haven’t read this section yet, you might be surprised by some of the techniques discussed there. Finally, the same Workbook chapter has an important section on plagiarism (pp. 160-163). We touched on this topic briefly, but will explore plagiarism in depth at our next meeting, so please read this short section beforehand.

Please bring 1-2 pages of text for our critique session next time. Choice whichever section will help you the most at this point, which as I’ve argued above may not be your Introduction. The important point is to keep your writing project rolling along! Finally, think about the following ethical dilemma so that we can talk about it next time. A graduate student is assigned the task of writing the first draft of a paper based on a collaborative project. Unfortunately the draft is a failure and another member of the project, a postdoc, writes a new version from scratch. Should the grad student retain position as first author or should that position now go to the postdoc?
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Week 6

At our meeting on 11 Feb, we began by discussing the topic of plagiarism, which was left over from last week. The seriousness of plagiarism is highlighted by recent examples in the news. In the first example, two members of the current German government were asked to resign after instances of plagiarism were reported in their doctoral theses. In the second example, two students scanned a published engineering article and successfully submitted it for publication in an online journal. This example has gained notoriety not only because of the students’ audacity but because the veracity of the journal’s review process was called into question.

Referring to the workbook discussion on pp. 160-163, we zeroed in on borderline cases of plagiarism and self-plagiarism. Belcher (2009) makes the point that a paraphrased section can count as plagiarism even if it is correctly attributed to the author. A case in point lifts an argument intact and paraphrases each of three or four sentences, clause by clause. We discussed a variety of writing approaches that can be used to avoid inadvertent as well as intentional plagiarism. The topic of self-plagiarism provoked a lively discussion. Some argued that the term itself is a non-starter, while others responded that self-plagiarism is indeed possible and should be avoided. We agreed to research the topic further and continue discussion at our next meeting. We spent the second half of our meeting critiquing two-page samples of our writing.

The main workbook topic for Week 6 is improvement in article structure by outlining. Once again we discussed whether the order of the topics in the workbook is natural. Belcher (2009) reports that she’s tried alternative orders with equal success. The important point in using the workbook is to keep writing so that you maintain momentum with your project. Even if you outlined your article long before now, the lesson plan for Week 6 provides an opportunity to examine and improve the structure of your article.

For our next meeting, please bring copies of a 1-2 page section of your writing for the critique session. The choice of a section is up to you.
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Week 7

At our meeting on 18 Feb, we began by making two circuits of the room to report on progress towards reaching the goal of submission at the end of the term and on writing activity during the past week. Most participants felt that they would be close to submitting their articles by the end of term, although few expressed confidence that they would actually meet that goal. Over the past week, participants worked on a variety of sections in their articles, as well as on overall structure. Many participants worked towards completion of their Results section, and a few worked on the Discussion section. The difficulty of launching and completing the Discussion reflects the fact that this section requires synthesis and original thinking. One way to get his section started is to make a simple, unstructured list of the anticipated paragraphs. If one starts with a list of bullets, one for each paragraph, just a few keywords can be used for each bullet. On subsequent passes, phrases and finally sentences can be added, until finally both the shape and content of the paragraph begins to emerge.

We spent some time discussing self-plagiarism, referring to a couple of white papers that are available online and posted on Blackboard. In an extreme case, you self-plagiarize by publishing an article by you that has already been published, without noting or acknowledging that previous publication. As in the case of ordinary plagiarism, the act is deceitful because credit is not given. How much re-publication constitutes self-plagiarism? The re-use of your own phrases and arguments is certainly a normal and expected part of academic publication and does not constitute self-plagiarism. If whole sections are re-published (e.g., Methods), you should acknowledge the reuse by citing your own article, but in this case you are edging into dangerous territory.

We also discussed some issues that arise from co-authorship. Even in the case of dozens of co-authors, usually only one or two primary authors are responsible for the first draft. Because some co-authors are inevitably out of the first writing loop, it’s good practice to give your secondary authors notice that the first draft will arrive at some date in the future, so that they can arrange their schedules or let you know that they won’t be able to make comments. Notification a couple of weeks in advance will usually be sufficient to get your co-authors synchronized. The coming week is probably a good time to do this kind of notification, if you haven’t already.

Order of authorship is a topic that deserves discussion with your co-authors. Usually the first (lead) author has played the major role in conducting the research and writing the article. While this rule appears simple, numerous complications can arise. We discussed a hypothetical case in which one participant bungled the first draft, which then had to be re-written by a co-author. Whether that co-author now has a claim on lead authorship depends who did most of the research and how much of the original first draft was discarded. In some fields (e.g., molecular biology), being the last author signifies a major role, such as heading up the laboratory in which the work was done. Finally, we noted that being a co-author should not be merely honorific. In addition to participating in the research and writing, a co-author should be able to recount and defend the main argument of the article.
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Week 8

At our meeting on 25 Feb, we started by making a circuit of the room to report progress during the past week. Everyone maintained momentum but in different ways. The workbook plan for Week 7 was to work on evidence presentation, which for most of us translates into working on our Results sections. Some of us discovered that progress is inevitably nonlinear in the sense that the route to conclusion may be A, B, A, B, C, B, done rather than A, B, C, done. In particular, some participants had to return to statistical analysis after consultation with coauthors or advisors. One of us reported that an iteration back through data analysis had little effect on conclusions. This revelation raises an important point. Keep your overall confidence intact even though setbacks arise. It is easy to blow diversions out of proportion and imagine that they threaten your progress. Often they do not!

After our circuit, we turned to a general discussion of new and lingering issues. Began with a discussion of Malmgren et al. (2010) and talk by one of the co-authors, Luis A. Nunes Amaral (“From the three R’s to the three C’s: Complexity, Creativity, and Collaboration”, http://mtsms.unm.edu/Mediasite/Play/7cb65f6014f8478b87f709a49a54a75c1d?catalog=fe4c458d-cdd9-432f-ada7-85d9556d6020). Amaral makes a number of provocative points in his talk. For example, he presents evidence that mentors are most likely to produce professionally successful students early in their careers. We discussed alternative causal interpretations for this trend. Amaral also makes the point that creative insights are more likely to emerge from ephemeral than from long-lasting collaborations. Again, alternative explanations were offered. Next, we turned to the problems that can arise when senior off-campus collaborators demand more of our time than we can deliver. Soliciting cover from on-campus advisors and directly negotiating a time extension were discussed as solutions. Finally, we considered the problem of creating and maintaining trust between collaborators that have never met. A request to “Show me the data!”, for example, can be easier to deliver in person than by email. When trust is the issue, visiting the other lab or huddling at a scientific meeting can clear the air.

The Workbook plan for Week 8 is to work on the opening and closing parts of your article. For example, if you raise an issue at the start of your abstract, you can emphasize that point by bringing it up again at the very end of your article. Whether you follow the Workbook plan or not, maintain momentum and bring a 1-2 page excerpt to class next week.

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Week 9

At our meeting on 4 March, we started by making our usual circuit of the room to report progress during the past week. At this point in our projects, participants responded to different demands: editing in response to critiques by classmates, advisors, or collaborators; pushing forward with data analysis; and organizing references and citations. Some participants are working on two writing projects and, in the past week, put down one project to work on the other.

Next we turned to a discussion of how to respond to manuscript rejection by a journal editor. One participant had received such a rejection by email, one week after submission. The editor argued that the implications of the article were not general enough for the journal and consequently had not sent the manuscript out for review. A range of responses are possible in this situation. At one end of this range, one might accept the editor’s argument and submit to another journal, with or without revision. At the other end, you do have the option of standing your ground and arguing with the editor. The example of Professor X at Y University was presented for discussion. Professor X always presents a counter-argument to an editor who rejects his manuscript. We wondered whether the Professor’s reputation had suffered as a consequence of this aggressive behavior. On the upside, arguing with the editor might be an efficient way to proceed, because a written battle may take less time than reformatting and submitting to another journal. The example of extreme aggressive response is illuminating because it shows what is possible, but that response might not be right in the case of a particular manuscript or as a automatic mode of behavior. As a general rule, it is best to carefully weigh the editor’s argument before reacting. Auto-aggression may be an option, but it may also be at odds with your personality, personal ethics, and best interests. You do have to live with yourself!

The Workbook plan for Week 9 is to give and receive feedback on your writing. We have integrated these activities into our weekly schedule, but the plan for Week 9 reminds us that we need to keep our co-authors in the loop. Because we are rapidly approaching the submission stage, now is a good time to email your co-authors and bring them up to speed on the status of your project. Even though you may not be ready to circulate a draft, you can notify your co-authors of your intent to circulate a draft at some specific future date (e.g., a week or two from now). That notification will give your co-authors an opportunity to schedule time for work on the project. Alternatively, they can let you know that your planned time horizon for feedback is not going to work, giving you an opportunity to adjust your plans accordingly.

For our next meeting, please bring a 1-2 page sample for your classmates to read. If you don’t have a new or appropriate writing sample, you might be able to bring figures or tables for your critique group to discuss.
At our meeting on 11 March, we reported on the status of our writing projects and then turned to a discussion of various issues. A common – if not universal – theme is that new data or results have complicated our simple linear plans to complete our projects this quarter. We stressed the point of keeping momentum in the face of such complications. The need to cogitate should not be used as an excuse to stop writing. Some participants kept working by switching to compilation of references or even to other writing projects. The point is to keep one or multiple projects moving along, whatever the means! Because this is our last meeting, we discussed a set of issues that needed attention.

One such issue is the problem of dealing with disagreements among co-authors. Sometimes problems are highlighted by a co-author to make sure they are considered, not because they definitely need a solution. Secondly, when disagreements are substantial, a conversation in person or by phone will usually be better than seeking resolution via email. If the disagreement persists after co-author discussion, the lead author may need to propose a solution. In such circumstances, diplomacy may be needed to keep the collaboration intact. You don’t want to sink the ship because you can’t agree on the color of the sails.

We also discussed the problem of referring to results that have not been published. When the result is the property of someone else, you can use an attribution that takes the form (so-and-so personal communication or pers. comm.). In the example discussed in class, the result was in an unpublished article by one of the co-authors. An easy solution in this case is to reference the article in the normal way, taking care to accurately describe the stage of publication in the bibliography. This last point led to a discussion of stages of publication.

Readers, reviewers, editors, and members of promotion committees assume that you have accurately reported the stage of publication in your bibliography or resume. A detailed hierarchy of terms is commonly used:

- **In preparation (in prep.).** - A problematic category because it can mean almost anything from a title recently conceived to a written article about to be submitted.
- **Submitted.** - A completed manuscript has actually been mailed or emailed to a journal. If this event has not taken place, the article is in prep.
- **In review.** - You have been notified by journal editor or staff that your article has been sent out for review.
- **In revision.** - You have been notified that your article will be considered for publication once you submit a revision along the lines described by the editor and reviewers.
- **Accepted.** - You have been notified by the editor that your revision has been accepted for publication.
- **In press.** - You have received and corrected page proofs for your article, sent them back to the appropriate editor and have been notified that your article is in a queue for publication.
Exaggerating the stage of publication is a serious violation of academic ethics, because you have lied about the outcome of a review process. The best policy is excruciating honesty. If, for example, the editor tells you that your manuscript is not accepted but you may resubmit, you should drop the journal’s name from your bibliographic entry and refer to the article as “in prep.” Once you send in the revised article, you can update the journal’s name in your bibliographic entry and call the article “submitted.”

We also discussed conflicts of interest (COI) that can arise in suggesting reviewers to editors or in acting as a reviewer. Some journals describe their COI policy. If they don’t, you can use the policy of an established agency such as the NSF. COI policies usually have the following elements. You have a conflict of interest with a person who is an actual relative (including spouses) or an academic relative. In the latter case, COI applies to first degree relatives (academic parents, offspring or siblings) but not to cousins or more distant relatives. You are in conflict with people at your home institution, whether they reside in your own department or another department. You have a COI with someone with whom you share a financial interest (e.g., a business partner). You have a COI with collaborators and co-authors. If your professional relationship as a partner, co-author, or collaborator ends, your COI remains in place for some period of time (commonly 5 years) and then disappears.

Some journals and funding agencies give you the option of suggesting or black-balling potential reviewers. Editors and editorial boards are usually aware of prominent scientists so they do not need to be included on your list. You should instead list especially knowledgeable and appropriate reviewers, avoiding of course COIs. If you know that someone is favorably disposed towards your work, it is fair to include them on your list of potential reviewers. Conversely, if you know someone is unfavorably disposed or likely to be biased, you can include them on your list of reviewers to avoid. Usually you will not be asked to describe why you have put someone on the ‘avoid’ list. It is also fair to list COIs on your ‘avoid’ list, especially if they are non-obvious.

Finally, we discussed the cover letter that you should include when submitting your article for publication. This topic is discussed in the Workbook Chapter for Week 12. The key element to include in this letter is a brief statement of the rationale for your article. This statement should be only 2 or 3 sentences long. You should not be shy about stating the novelty and importance of your article, but you shouldn’t exaggerate. Be sure and read the instructions-to-authors statement for your journal, since you may need to assert that your work is original and unpublished in the cover letter. Editors are busy, so the entire letter should be a page or less in length. If you can cover all the bases in a few short paragraphs, so much the better.