

Teaching Students to Read, Interpret, and Write about Scientific Research: A Press Release Assignment in a Large, Lower-Division Class

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Abstract

A central skill in any science discipline is the ability to read, understand, and discuss the primary literature of the discipline. However, teaching this skill presents unique challenges within large, lower-division courses. To assess our course's learning objective 'Interpret current primary literature, and communicate key findings in writing,' we developed a new writing assignment. The assignment, developed in consultation with a science communication educator, is a press release for a nonexpert audience, similar in style to press releases authored by universities and scientific journals. Prior to this assignment, students develop the component skills through a variety of instructional activities: dissecting the structure of a press release as homework; dissecting the structure of a press release and completing a short online self-assessment; interpreting an article as homework and discussing with their peers in a tutorial setting; comparing a press release with the original scientific article in a tutorial led by the teaching assistant; and finally reading a second article, completing a homework worksheet, and then writing their own press release. This paper includes a full lesson plan and materials to run this assignment. Our context is a large-enrollment cell biology course, but the assignment is easily adaptable to a variety of course contexts, disciplines, and writing formats. We also discuss the strategies we used to implement this assignment, the scaffolded structure throughout the semester, the additional value of graduate teaching assistant training, and ideas for implementation in other courses.

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Supporting Materials: S1. Press Release Assignment – Paper Selection Criteria; S2. Press Release Assignment – Rubric; S3. Press Release Assignment – Prep assignment 1 with quiz; S4. Press Release Assignment – Overview; S5. Press Release Assignment – Prep Assignment 2; S6. Press Release Assignment – In-Tutorial Workshop; S7. Press Release Assignment – GTA Notes for Workshop; S8. Press Release Assignment – Tutorial Slides; and S9. Press Release Assignment – Prep Assignment 3.

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Learning Goal(s)

Students will:

- interpret current primary literature, and communicate key findings in writing.
- distinguish between communicating with a scientific audience and a lay audience.

Learning Objective(s)

Students will:

- interpret the main conclusions and their supporting evidence in a primary research article.
- concisely communicate the significance of scientific findings to an educated nonspecialist audience.
- identify the components of a primary research article and the components of the "inverted pyramid" press release structure.
- identify the central figure in a primary research paper and describe its key finding.
- demonstrate an understanding of intellectual property by giving appropriate credit to other people's original work.

INTRODUCTION

Rationale and Goal

As outlined in the recent Vision and Change Report (1), undergraduate science/biology education must foster scientific literacy in all undergraduate students, with the goal of cultivating engaged and informed citizens. Two of the report's six core competencies include communication about research with other scientific disciplines and about the relationship between science and society. These communication skills first require the ability to interpret scientific research and second to convey that research to another audience. While the higher-level goals of evaluation and critique are also central to scientific literacy, these cannot be accomplished without first having a strong grounding in communication. Thus, in our lower-division course, we focus on developing solid foundational skills, working towards the learning objective '*Interpret current primary literature and communicate key findings in writing.*' To prepare our students to meet this learning objective, we developed an assignment that has components distributed throughout the term. This minimizes the challenges of a large-enrollment course by using our resources strategically to support both student and graduate teaching assistant (GTA) development.

Several useful approaches to introducing students to the primary literature have been described (2-12), including dedicated journal clubs, seminar approaches, and structured inquiry. These papers describe a variety of scenarios – from single one-time activities to entire courses – often focusing on long (multipage) writing assignments in small-enrollment courses. These approaches can present challenges for developing expertise in large-enrollment courses. For example, providing repeated opportunities for practice necessary for mastery or having adequate grading support for long assignments may not be possible. In our course of roughly 1200 students per semester, we sought to obtain some of the benefits of student interaction with research articles under the constraints of class size, time within the course, and GTA grading hours. Additionally, we wanted an assignment that developed skills for communicating with nonexpert audiences, so that it would be valuable to students with a broad range of interests and career paths. We therefore designed an assignment that challenges students to write a press release based on a research article. As a medium for the goal of science communication, we chose a press release for authenticity, defined audience, and standardized format.

Developing Mastery by Scaffolding Smaller Assignments Throughout the Course

Reading, interpreting, and then communicating research to general audiences are complex tasks that require a developed mastery (13). In general, forming mastery has three key elements: 1) acquiring a set of necessary component skills, 2) integrating these skills in the complex task, and 3) knowing when to apply what has been learned (13). As our course provides one of the early writing opportunities in the biology program's curriculum, we supported the development of mastery in student writing by asking students to first read a journal article, interpret the results and key figure(s), and identify the main conclusion. They then read a press release, compare the two types of writing, recognize the appropriate vocabulary and structure for a given audience, and then apply

these skills to their own writing. These components appear as small assignments through the course (homework worksheets, online quiz, discussion groups in tutorial, and graded written work; see Table 1). In this way, we aimed to help build the students' mastery around science communication.

Intended Audience

This assignment is appropriate for a broad range of courses, as the framework of the assignment could be used to interpret any primary literature that was chosen by the instructional team. We feel that it is highly amenable to any science or science communication course and would be ideal for both majors and nonmajors. At our institution, it was used in "Fundamentals of Cell Biology," a large 200-level undergraduate course with ~1200 students across 5 lecture sections (each with their own lecture instructor) and roughly 50 tutorial sections (with students from all sections mixed together in the tutorials). This is a core course that serves as a prerequisite to several upper-division classes and is a required course in several programs that span three different faculties; more than half of the students are taking the course as part of their major.

Required Learning Time

The press release assignment is threaded throughout the semester-long course, including components that were assessed online in our learning management system, discussed in tutorial groups, and graded by GTAs. Aside from time spent on homework outside of class, this press release assignment took one full tutorial (50 minutes) as well as brief discussions (<10 minutes) during 2 or 3 other tutorials. Based on self-reported data of the amount of time spent marking the press releases, the GTAs spend 8.5 hours per tutorial section (15-25 student papers).

Prerequisite Student Knowledge

Since the assignment can be used in a broad range of courses simply by changing the primary research articles used, the prerequisite student knowledge required is largely dependent on the course topic. In our context, this course is the first opportunity for substantial, discipline-specific student writing with feedback; we did not assume students had previously completed a university-level writing-intensive course. We intersperse this press release assignment with other writing (stating and defending a thesis, providing a scientific argument and evidence-based support, and solving problems using experimental data), but this is not necessary for other use-cases of this assignment.

When considering prerequisite content knowledge, the required foundational knowledge can also vary between tutorial sections, each of which is working with a different primary research article. Thus, in some cases, the students needed to somewhat broaden their understanding outside of the central content or experimental methods of the course, and they were supported in this by GTAs who were experts in that area.

In our specific case, the required foundational knowledge consisted of cellular structure/function relationships and interpretation of standard cell/molecular biology methods (e.g. electrophoresis, FRAP, microscopy). As a second-year course, we had two prerequisites (introductory cell/molecular biology and introductory chemistry).

Prerequisite Teacher Knowledge

Instructors should have (or develop) an understanding and appreciation of the difference between writing in formal scientific literature and science writing for broader, nonexpert audiences. While we used this assignment to teach our students to interpret scientific literature, it could easily be used as part of a science communication course. Depending on the focus of the course, a stronger background in science communication may be beneficial, but is certainly not necessary. We also recommend choosing scientific papers related to the area of expertise of the GTA/instructor, to reduce the amount of time required from the GTA/instructor to understand the original content (Supporting File S1. Press Release Assignment – Paper Selection Criteria). This approach is strengthened by giving the GTAs agency to choose the paper used for the assignment, which also serves as an opportunity for them to explore the idea of pedagogical content knowledge.

SCIENTIFIC TEACHING THEMES

Active Learning

This assignment aligns directly with the theme of active learning. During tutorials, student work is facilitated in small groups with significant feedback from peers and GTAs. Individual writing is assigned as homework as well as in the tutorial.

Inclusive Teaching

The lesson here aligns with principles of universal design and inclusive teaching by providing multiple means of engagement and expression. Student work on this assignment includes a diverse set of modes: independently reading text and interpreting figures, communicating findings in writing, and discussing a research paper's conclusions with a group. These pieces are structured throughout the semester and grading rubrics are posted in advance, thus aligning with the inclusive teaching goal of providing clear expectations for success. Because the goal is to write a press release for a nonexpert audience, the assignment encourages inclusive thinking about the value of science – one need not be a research scientist to connect with science research. Additionally, as structured here, this lesson includes a vast diversity of scientific research – each tutorial section reads and interprets a different paper, chosen by that section's GTA. The large group of GTAs, who are very diverse in terms of cultural identity as well as scientific focus, provide a variety of role models to our equally diverse student body. While each student sees only their own GTA and research article, it is still an improvement over one article chosen by the instructor for the whole group. Finally, for the group work across the course, the GTAs are coached on a student-centered approach to small-group facilitation.

Assessment

Because this assignment is scaffolded throughout the course, there are several opportunities for formative assessment. The initial assessment is graded automatically online and students are given feedback. In addition, students receive verbal feedback from peers and GTAs on multiple occasions in class. To minimize marking load, the initial components are graded for completion only. However, students are given general feedback overall, as well as specific verbal feedback from peers and GTAs. As a summative assessment, students

are graded on their final press release using a rubric (provided to them at the start of the semester, Supporting File S2. Press Release Assignment – Rubric) which includes both content and structure components.

LESSON PLAN

Overall Approach and Student Work

This lesson focuses on supporting students in developing the component skills required to read, interpret, and write about primary literature for a nonexpert audience. The final assignment (a press release) integrates these skills. Overall, the assignment follows this structure:

1. Prep Assignment #1 (Supporting Files S3. Press Release Assignment – Prep assignment 1 with quiz; S4. Press Release Assignment – Overview): Homework, pre-tutorial quiz, and brief in-tutorial discussion. Read the assignment and rubric to understand the assignment goals and deadlines. Read a press release to understand the content, structure, and audience. Tutorial discussion is focused on any major student issues that arose from the quiz results.
2. Prep Assignment #2 (Supporting File S5. Press Release Assignment – Prep Assignment 2): Structured reading homework, to hand in at tutorial. Read a primary research article to understand the content, structure, and audience. Write individual statements for a lay audience summarizing the key findings. *Note: This prep assignment used one research article for the entire course. We used a paper by Tedeshi et al. (14) but we suggest finding a suitable article with local interest or one that is particularly current/notable for your purposes.*
3. In-Tutorial Workshop (Supporting Files S6. Press Release Assignment – In-Tutorial Workshop, S7. Press Release Assignment – GTA Notes for Workshop and S8. Press Release Assignment – Tutorial Slides): Discussion of the press release for the article in Prep Assignment #2. Students work in groups on a worksheet and participate in discussion facilitated by the GTA. They compare the scientific article they read as homework to its published press release in terms of content, structure, and audience. *Note: The press release for the article we used is referenced below (15).*
4. Prep Assignment #3 (Supporting File S9. Press Release Assignment – Prep Assignment 3): Structured reading homework, checked by the GTA at tutorial for completion. Students read and interpret a second research article with a structured set of prompts. *Note: Each tutorial section worked with a different research article, chosen by the GTA and approved by the instructor.*
5. Final press release: Students individually write a press release about the research article from Prep Assignment #3 (Supporting File S9. Press Release Assignment – Prep Assignment 3). Feedback (summative) is given via a grading rubric (Supporting File S2. Press Release Assignment – Rubric) and a mark. The assignment is also uploaded to TurnItIn (<http://www.turnitin.com>) to reinforce academic integrity.

Other tutorial weeks also included time for introduction of the assignment and its logistics. The detailed plan for this lesson is shown in Table 1; an administrative schedule for instructor preparation is also included. All assignments, presentations, GTA/instructor notes, and the rubric are included in the supporting material.

Instructor Preparation, Administration Time, and Paper Selection

The instructor's main roles in this lesson plan are preparing and delivering assignment components to students and GTAs, guiding GTAs in choosing appropriate papers, preparing for their tutorial sections, and supporting their understanding of the assignment purpose/structure. As such, the instructor generally needs to prepare for this assignment by proactively following the recommended timeline shown in Table 1. All assignment material was designed to be as sustainable as possible with minimal changes from year to year, with the exception of choosing new research articles. This task was performed by the GTAs and supported by the instructor.

In the first year running this assignment, there was an additional challenge of finding an appropriately challenging scientific article and corresponding well-designed press release for Supporting File S5 Press Release Assignment – Prep Assignment 2. Using our institution's public affairs website was extremely helpful in this regard.

Roles of Teaching Assistants

One benefit of a large teaching team such as ours (five instructors, including one coordinator, and ~20 GTAs), is that this is a fantastic opportunity to share operational decisions with and support professional development of GTAs. As such, we assigned each GTA the task of choosing one article for each of their tutorial sections. Supporting these GTAs is crucial in the success of this assignment as the GTAs report that choosing an appropriate paper can be challenging and the criteria (Supporting File S1. Press Release Assignment – Paper Selection Criteria) for the choice are not easily searchable (i.e., they must cover some aspect of the course content, use techniques taught in class, and not be a review article or a techniques paper). In addition, new GTAs did not always have a good grasp of what research would be considered accessible for a second-year student, or what constitutes the difference between a review paper and a primary article. We provided guidance by 1) asking GTAs in advance to shortlist a set of three papers and giving them specific constraints – notably, a list of topics, experimental methods, and keywords that were *not* appropriate for our course level and 2) having subsequent individual discussions with these GTAs to select the most appropriate paper (Supporting File S1. Press Release Assignment – Paper Selection Criteria). These issues may not be relevant in a smaller class, or a course where the instructor simply chooses one paper for the whole course. However, while the management of GTA paper selection was time consuming, this aspect of the course was highly valuable for GTA buy-in and professional development, as well as fostering GTA understanding of the student population in our course.

In addition to inexperience with paper selection, many GTAs do not have experience with the goals and practices of science communication to a nonspecialist audience. Thus, we targeted one of our weekly two-hour GTA meeting times to support

GTA understanding and development of these skills. We also provide ongoing guidance with tutorial discussion facilitation and marking, as needed. The instructor prep time for this was largely in the one-time cost of developing the meeting materials, plus the ongoing use of one full GTA meeting on the topic. Of course, if GTAs are not used in this assignment (e.g. for a small class), this GTA training time would not be required.

TEACHING DISCUSSION

Student engagement with the primary literature has long been a significant component of our course, but historically it has been a challenge to balance the relevant learning goals with the practical constraints of the large class size and limitations on GTA hours. We found that implementing this assignment and its scaffolding was a positive experience and we consider it successful on several counts: improving science literacy of our students, scaffolding of component skill-building, minimizing grading time without reducing the challenge of the assignment, and supporting skill development for the GTAs.

Assignment Length and Level of Difficulty

This press release assignment replaced a 1200-word essay based on a current scientific “controversy” (e.g., Should you take more than the recommended dose of Vitamin D?). Because the new assignment was considerably shorter (750 words), some members of the teaching team expressed concern that this would make the assignment too easy for students, but this was not the case. We did not observe any grade inflation. Grades for the essay were $78 \pm 4\%$ (SEM) compared with press release grades of $76 \pm 4\%$ (SEM) and we observed no shift in the overall grading distribution (Figure 1). Indeed, if there was a shift, the students found writing at this level slightly more challenging to achieve excellence: only 11% of the class achieved a grade of >90%, compared with 15% of students receiving this grade on the longer controversy essay.

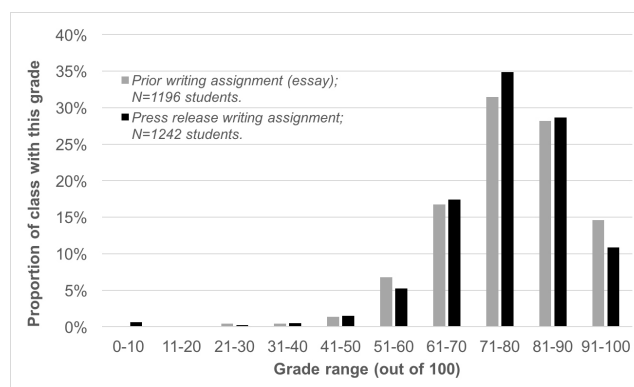


Figure 1: Student performance on press release assignment, compared to scientific controversy assignment from previous years.

Shortening the writing length adds the additional cognitive skill of evaluation. From a cognitive challenge perspective, more stringent word limits require students to first write, then critically evaluate which words and ideas are most important to the message – a central skill of good scientific writing and good communication in general. Anecdotally, several students

commented that this constraint made the assignment more challenging and authentic than a longer essay-style writing passage. Thus, in shortening the writing, the assignment is still appropriately difficult for students at this level. By explicitly encouraging conciseness and clarity in the rubric and in prep assignments/discussions, we removed the crutch of additional “flowery” language and instead focused on communicating the critical research findings in logical statements.

Challenges and Benefits of Providing Formative Feedback

One instructional challenge in any writing assignment is the ability to provide adequate support and useful feedback to students, in a finite amount of grading time. Our solution to this issue included three main pieces. First, the initial prep assignment was mostly automatically graded, being a multiple-choice quiz on our learning management system. Second, the prep assignments were generally marked for completion, with students receiving general feedback as a class from their GTAs and specific feedback from their peers during the tutorial sessions. Despite a lack of correctness marks, we observed that students generally took the prep assignments seriously and were kept accountable for their work; these completion marks also did not inflate the grade (see above and Figure 1). This absence of grade inflation is supported by studies showing that students may learn more and incorporate feedback better when grades are not assigned (16,17). Providing students at the outset with the assignment overview, schedule, and rubric emphasized the cohesiveness of the overall assignment. Third, we made the final assignment short (750 words). This made the grading more manageable in such a large course, without losing the challenge level and critical opportunity for ongoing formative feedback.

Student Perspectives

Students responded to this assignment very positively (particularly as compared to the essays that they previously wrote for this course). GTAs reported that students thought that the assignment was challenging, but that it increased their appreciation for the how difficult it is to accurately communicate scientific research to a general audience. Many students also reported anecdotally that this was the first time they had ever “gotten” a scientific research article. Since this assignment was initially developed in 2012, students who have completed the course previously have often contacted the course coordinator (REY) to ask for further guidance on communicating science, both within their courses and within the context of their own research that they are trying to promote.

Teaching Assistant Perspectives and Skills Development

The GTAs were integral to the success of this assignment, as they selected the papers for their tutorial sections, led discussion on the literature and press releases, and graded the final written work. This assignment was very well-received by the GTAs: they reported feeling empowered to take ownership of the assignment and excited to share research from their own field of study or even their own project. They were knowledgeable in the subject area which helped facilitate discussions; the number of GTA complaints was highly reduced because it was not a paper that had been assigned blindly to them.

Another critical aspect that promoted GTA involvement was the prep meeting devoted to science communication (in the week prior to the in-tutorial workshop). The materials for this training session were developed in conjunction with a science communication educator (EWJ) and supported GTA preparation for the assignment as well as professional development around science communication. We found the meeting prompted broader discussions around the role of communication in science and the goals of communicating with different audiences. The very first year in which this assignment was used, following this training session, the instructor received a very positive email from a GTA, indicating that in her “*many years of TAing (even at another university), no one went to the extent of incorporating information like this into prep meetings. I really appreciate it because not only does it allow us to be better TAs/understand the assignment, it also gives us the chance to step outside of our comfort zones and question our own approach to learning as well as teaching.*” Over subsequent years, we have happily found that there are some GTAs who have already been asked to produce press releases for their own research, which highlights the authenticity of this assignment to both the students and the GTAs. We work to incorporate their experiences into our training session, and encourage GTAs to talk about their own experiences when working with students.

Suggestions for Possible Modifications

Science literacy is a central goal for all undergraduate students. This assignment is applicable in a variety of science disciplines and at variable course levels and sizes. It has been developed here for a second-year undergraduate cell biology course serving both majors and nonmajors. Minor modifications would allow it to be used in a large first-year course or a small upper-division course. The schedule and supplemental materials are easily modifiable to fit the needs of a variety of courses and term lengths. We do strongly recommend including the scaffolding throughout the semester: the goals, audiences, and styles of press releases are quite different from academic scientific writing. It takes repeated practice to support student skill-building in these areas.

In keeping with principles of inclusive teaching, universal design, and student choice of expression, several modifications spring to mind. This assignment could be tweaked to make the final submission a different format: a wiki page, a blog post, a video summary, a graphical abstract, or any other social media reporting. This would further tie into the students as producers framework, where students authentically publish their work in a format that can be accessed and used by future classmates or the general public.

Adaptations for Other Courses and Online Environments

This is a highly flexible assignment that can be used broadly; all it requires is a learning goal related to working with primary literature.

For smaller classes without a tutorial/discussion section, the in-tutorial worksheet could easily be included in a large lecture where the students work in groups. Some of the worksheet questions could potentially be developed into clicker questions. If GTAs are able to be present to facilitate the discussion, it would be helpful to support them using

the In-Tutorial Workshop material (Supporting Files S6. Press Release Assignment – In-Tutorial Workshop, S7. Press Release Assignment – GTA Notes for Workshop and S8. Press Release Assignment – Tutorial Slides). If undergraduate learning assistants (LAs) are part of the in-class support, they may need the additional support material in the first year, but this could be eliminated in future years, as long as the LAs are alumni of the course and have completed the assignment. As the other prep assignments are marked for completion, they can be summarized to give general feedback to the group during lecture. To illustrate the breadth of science research, and to empower GTAs, we had one paper chosen per ~25 students. However, finding and reading papers does take significant time; if there is a lack of GTA support, fewer papers could be selected for the entire class without impacting the overall assignment.

The assignment has been successfully used in an online-only (distance-learning) course. The only modification required was that the in-class workshop was transformed into a group assignment that students discussed and submitted online.

In addition, the assignment was modified and added to a collection of free, online, self-paced activities called “Sky Water Earth” (<https://www.lrng.org/university-of-british-columbia-faculty-of-education/playlist/scientific-communication-writing-for-the-public-3>). For completing activities, students receive badges and points that can be used to gain access to educational or professional experiences.

SUPPORTING MATERIALS

- Supporting File S1. Press Release Assignment – Paper Selection Criteria. These criteria are used to select primary research articles. The file is given to the GTAs to help them select appropriate articles for the assignment.
- Supporting File S2. Press Release Assignment – Rubric. The rubric used for grading of final Press Release Article written by students. It is given to them very early in the term to help them understand what is expected of them.
- Supporting File S3. Press Release Assignment – Prep assignment 1 with quiz. This is a Word document describing an online quiz, deployed in our Learning Management System (Blackboard). Students do this quiz after reading the rubric (Supporting File S2. Press Release Assignment – Rubric) and the assignment (Supporting File S4. Press Release Assignment – Overview. The quiz is due early in the term to help students understand what is expected.
- Supporting File S4. Press Release Assignment – Overview. This file is given to the student to introduce them to the scenario of the assignment and lay out due dates and components. They will read this and then complete a short quiz online (Supporting File S3. Press Release Assignment – Prep assignment 1 with quiz) to make sure that they understand what is expected of them.
- Supporting File S5. Press Release Assignment – Prep Assignment 2. This is a prereading assignment for students to complete, based on Tadashi et. al paper referenced below (14). This component was designed to encourage the students to read the paper in advance, in order to explore the different ‘parts’ of a primary

research article and to interpret them effectively. It also asks them to complete some introductory exercises that help them to start thinking about the difference between science writing and science communication. This assignment will become an important component of the In-Tutorial Workshop.

- Supporting File S6. Press Release Assignment – In-Tutorial Workshop. These questions form the basis for the 50-min workshop run by GTAs in the tutorial. Students work in groups of four to discuss each question and make decisions. Their work is handed in as a single group assignment, along with their individual copies of the prep assignment 2 (S5. Press Release Assignment – Prep Assignment 2) at the end of class.
- Supporting File S7. Press Release Assignment – GTA Notes for Workshop. This document is given to the GTAs during the weekly prep session in order to prepare them for what to expect. It is based on the ideas introduced by the science communication educator (EWJ) in the training session. If a training session is not possible, this document can be used to prepare the GTAs instead (along with the Supporting File S8. Press Release Assignment – Tutorial Slides).
- Supporting File S8. Press Release Assignment – Tutorial Slides. Tutorials in this course are generally guided by PowerPoint slides. This PowerPoint helps to guide the GTA through the material, with pauses for discussion built in. It also provides additional guidance for the GTAs on how best to deploy this workshop and what they may encounter. It is based on the In-Tutorial Workshop (Supporting File S6. Press Release Assignment – In-Tutorial Workshop) and incorporates additional elements from the GTA training session facilitated by EJW.
- Supporting File S9. Press Release Assignment – Prep Assignment 3. This is the final assignment prior to the submission of the completed Press Release. It is similar to prep assignment 2 but the students complete it for their assigned primary research article. This is due two weeks in advance of the Press Release. This encourages students to discuss their article with their colleagues and GTAs and start working on their final press release well in advance of the deadline. Students are encouraged to work together as they develop their understanding of the paper, despite the fact that the final assignment must be done individually.

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Table 1. Student schedule and administrative responsibilities

| Pre-Class Assignment | Estimated Time for Students | In-Class Activities | Weekly 2h Prep Meeting Discussion* | Estimated Time for Graduate Teaching Assistants (GTAs) |
|--|--------------------------------------|---|---|--|
| Week 1 | | | | |
| None | | None | <ol style="list-style-type: none"> 1. Introduce press release assignment, and discuss overall plan and timeline. 2. GTAs asked to choose articles that their sections will write press releases about, and given selection criteria. Papers must be submitted for approval to ensure appropriateness. | 1-2 h for paper section, but this can be extremely variable. |
| Week 2 | | | | |
| Prep Assignment #1 (Supporting Files S3, S4) <ul style="list-style-type: none"> • Students read assignment criteria, and some brief introductory information about the press release format, prior to completing an online quiz. • Quiz is low-stakes (worth 1%, marked for completion over correctness). • It is useful to include a question about what the students found challenging, so that TAs can address these issues in class | 1-2 h online | <ol style="list-style-type: none"> 1. GTAs assign selected paper to students. 2. Brief discussion of online quiz & student feedback on what they found challenging. Total time: 5-10 min of in-class time | Discussion of the Quiz results, and the student feedback, to prepare GTAs for providing feedback to their own classes. | 15-30 min outside of prep session to look over quiz results & student feedback |
| Week 5 | | | | |
| None | | Students briefly reminded of upcoming In-Tutorial Workshop, and told to complete Prep Assignment #2 (Supporting File S5) | GTAs are also asked to complete Prep Assignment #2 prior to the following week's prep session | 1-2 h outside of prep session depending on length of paper. |
| Week 6 | | | | |
| Students complete Prep Assignment #2 (Supporting File S5) | 2-5 h depending on length of paper | In-Tutorial Workshop (50 min of class time, Supporting Files S6, S7, S8) | GTAs are walked through Tutorial workshop. TAs may require additional mentorship on the differences between a press release and scientific writing. | 2 h of prep session time. |
| Week 7 | | | | |
| Students complete Prep Assignment #3 (Supporting File S9) | 2-5 h, depending on length of paper. | GTAs verify completion of Prep Assignment #3 at start of tutorial. | GTAs must be prepared for marking: Discussion of rubric and marking goals; if possible, look at some examples of student work from prior term. | 1-2 h of prep session time. |
| Week 8 | | | | |
| Final Press Release Assignment due | 8-12 h | Students hand in final press release (this can be done online instead). | Discussion with GTAs about ongoing marking, any challenges that have arisen, so that consensus on how to deal with them can be reached. | 20-30 min of prep session time, GTAs should strive for marking time to be ~20 min per paper or less. |