

PROFESSIONAL INTEGRITY: BEST PRACTICES FOR PUBLISHING YOUR RESEARCH

Overlapping Publications

Christina N. Bennett, PhD and Marsha Lakes Matyas, PhD

Collaborating Partners





Biomedical Engineering Society

BMES



Society for Biological Engineering

Overlapping Publications

Christina N. Bennett, Ph.D. Associate Publisher, Ethics and Policy and Marsha Lakes Matyas Ph.D. Director of Education Programs American Physiological Society

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This module is part of a series of seven teaching modules designed to promote best practices in publication ethics for life scientists and biomedical engineers who publish research papers. All materials in this module have been peer-reviewed by both the Advisory Board (below) and a panel of Responsible Conduct of Research

(RCR) course instructors. They also were field-tested with graduate students in physiology. The modules were developed with support from the National Science Foundation (NSF) (#SES - 1238368) and in collaboration with staff and members of the American Physiological Society (APS), Biomedical Engineering Society (BMES), and Society for Biological Engineering (SBE). The modules represent the views of the authors and do not necessarily represent the views of NSF, APS, BMES, or SBE. The information in these modules is designed to represent a summary of best practices and advice at the time of publication. They are not meant to serve as legal advice or publisher policy and do not in any way guarantee protection from professional ethics charges. For more information on how the materials were developed and tested, please contact the authors: Marsha Lakes Matyas: <u>education@the-aps.org</u>; Christina N. Bennett: <u>apsethics@the-aps.org</u>. American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814, <u>www.the-aps.org</u>.

Project Staff

Principle Investigators

Marsha Lakes Matyas, Ph.D., APS Christina N. Bennett, Ph.D., APS Jerry Collins, Ph.D., BMES June C. Wispelwey, SBE/AIChe

Society Directors

Martin Frank, Ph.D., Executive Director, APS Edward L. Schilling, III, Executive Director, BMES June Wispelwey, Executive Director, AIChE

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I. Pedagogy

This module is designed to promote best practices in publication ethics for life scientists and biomedical engineers who publish research papers. The goal is for students to not only understand professional standards of practice in research manuscript development but also to be able to apply these standards to their own work AND to be prepared to teach them to their own students in the future. Toward that end, this module employs student-centered learning strategies that engage students across the spectrum of Bloom's taxonomy (see below). For best impact, students should not simply sit and listen or read and answer questions. Instead, we encourage you to use multiple teaching methods and activities that engage students in actively exploring the topic. Some suggestions you will find in this module include:

- Interactive Lecture: The lecture slides and notes include a number of places to stop and engage students in working out a problem, discussing a policy, or reviewing a case study.
- **Think/Pair/Share:** Often part of an Interactive Lecture, students are given a problem to address first on their own, and then they are asked to share their responses with a partner, followed by sharing with the whole class.
- Voting Cards: Particularly when discussing ethics issues, students prefer not to raise their hands to indicate their answer to a group question. Consider using voting cards with a simple large-print "Yes" on one side and "No" on the other. Everyone raises their hands and votes and you can quickly visualize the class response. An alternative is "thumbs up/thumbs down" but this is harder to see.
- **My Best Practice Checklists:** These are working documents each student develops to use now and in the future as their personal checklists of best practice in publication ethics.
- **PASS IT ON:** As part of their My Best Practice Checklists, students should make a plan for teaching publication ethics to their future trainees.

Instructors can pick and choose which activities and resources they want to use from the module. However, we encourage you to consider using the Learning Cycle approach because of its rich opportunities for student-centered learning. Alternatively, the Homework/Interactive Lecture/Activities (HILA) approach can be used when class time is limited. Both approaches are outlined below.

Learning Cycle

- **Engage**: Piques students' interest in the topic and poses questions or issues that capture their thinking. *Examples:* News articles on ethics violations and examples of manipulated figures.
- **Explore**: Students explore and ask questions, investigate via inquiry, make observations, and test hypotheses. Students should generate additional questions by the end of the exploration phase. *Examples:* Case study that students must try to resolve individually or in groups without additional information on professional standards of practice (these would be readdressed in the elaborate phase below), compare CV's of researchers, interpret letters from editors including comments/questions from reviewers, or write a letter to the editor describing figure manipulation in a manuscript to be submitted.

- **Explain**: Students and instructors use questioning/discussion, reference materials (print and online), expert presentations, and other resources to gain a better understanding of the key principles of the lesson and how they apply to the questions raised by students in the explore phase.
- **Elaborate**: Students apply what they have learned to real scenarios. *Examples:* Students revise their response to the explore phase case study using the principles and knowledge gained in the explain phase, and then do the same for a new case study or, ideally, their own work. Create a personal action plan or checklist for professional standards to use in the future.
- **Evaluate**: Evaluation occurs through each phase, with evidence collected of both student understanding of key principles and information and their ability to apply it to new situations and problems. *Examples:* Changes in approach to case study before and after the explain phase. Personal action plan/checklist addresses the key principles of professional practice. Key principles are applied appropriately to new case studies. Can also include quizzes or tests of content knowledge of professional standards of practice.

Homework/Interactive Lecture/Activities (HILA)

Homework activities are discussed either during the Interactive Lecture or during follow up activities.



Bloom's Taxonomy

Bloom's Taxonomy (established 1956, revised 2001) helps educators more effectively structure their teaching, student learning, and assessment of skills and knowledge. Organizing learning objectives by Blooms Taxonomy helps educators assure that lessons do not focus solely on memorizing basic knowledge but also challenge students to apply what they learn, evaluate new situations, and create solutions to challenging problems. Higher level objectives engage students in learning situations that are more complex and abstract. Overall, the professional ethics lessons in this series of seven modules focus strongly on the higher Bloom's levels (5 – Evaluating (20%) and 6 – Creating (21%)) in addition to including objectives for basic knowledge (Level 2 – Understanding (30%)) and application (Level 3 – Applying (14%)).



Student Handouts

The student section of this guide is formatted for easy duplication. This guide is also available as an MS Word (.doc) file (See References). We encourage you to provide both printed and .doc formats to students. The lessons are designed to help students create a personalized guide for their future work; developing their notes and best practices plans in a .doc format will help students use as well as modify their plans in the future.

II. Module Objectives

Students will be able to:	Bloom's
Students will be able to:	Levels
1. Describe what overlapping publication is and recognize examples of it.	2
2. Describe the reasons/criteria that justify publication of previously published information and evaluate specific situations using those criteria.	2, 6
3. Recognize and describe how overlapping publication can affect co-authors, journals, readers, researchers, and the public.	2
4. Develop courses of action to avoid overlapping publications.	5
5. Compare the benefits and drawbacks of using social media to share scientific research.	4

III. Instructor Guide

Target Audience

The module can be used with both graduate students and undergraduate students. It was initially designed for early career graduate students in biological science, medical science, or biological engineering graduate programs. Graduate students are likely to be somewhat aware of the academic publishing process but may not have had first-hand experience. Undergraduate students engaged in research and scientific writing may also find the materials useful.

Instructor Tips

- 1) Select the objectives and related activities that you want to address. Edit the PowerPoint Presentation to include the activities and objectives selected.
- 2) The script/key points for the presentation are provided in a separate table. You may want to provide a copy of these notes to students after the Interactive Lecture.
- 3) We encourage you to share 1-2 min personal stories, when appropriate. Keep the stories positive (i.e., "I had a dilemma and I utilized a best practice...dilemma resolved").
- 4) Allow students to reach conclusions on their own. You are their guide through this class. Facilitate discussion to keep them on task and within time limits.
- 5) Be sure to include the "My Checklist" activity in each unit. This is the major "take away" lesson where students integrate what they have learned to develop: 1) their personal checklists for ethical writing; and 2) their plans for teaching publication ethics best practices to their future trainees.

Teaching Approaches

Learning Cycle and Homework/Interactive Lecture/Activities (HILA) approaches are outlined below.

Evaluation Rubrics and Test Questions

Evaluation rubrics for assignments and test questions are available on request from the authors (email: education@the-aps.org).

Overlapping Publications Learning Cycle

Engage	• Students complete Activity C : My Overlapping Publications Checklist, Part 1 and discuss their answers in small groups.
Explore	 Students complete Activity A: Evaluating Journal Guidelines on Overlapping Publications and read two articles ("Heart pulls sodium Meta- analysis" and "An introduction to social media")
Explain	 Present Interactive Lecture. DO NOT do Activity B: "Should the Data be Republished?" Case Studies during the lecture.
Elaborate	 Do Activity B:"Should the Data be Republished?" Case Studies with students
Evaluate	 Students complete Activity C: My Overlapping Publications Checklist. Quiz/test questions and answer keys are available from the authors.

Overlapping Publications Homework/Interactive Lecture/Activities



Activity A Evaluating Journal Guidelines on Overlapping Publications

- **Purpose** This "Think-Pair-Share" activity will allow students to identify and compare overlapping publication policies in journals. It also includes two readings on overlapping publications and using social media in science. After completing this activity, students will be able to evaluate journal guidelines on overlapping publications and recognize the main expectations for best practice.
- **Objectives** 1. Describe what overlapping publication is and recognize examples of it.
 - 2. Describe the reasons/criteria that justify publication of previously published information and evaluate specific situations using those criteria.
- Procedure Learning Cycle: Students complete the Activity A worksheet as an Explore activity. Instructor discusses their responses during the Interactive Lecture. HILA: Students complete the Activity A worksheet before coming to class and review their answers during the Interactive Lecture.

With a partner, participants should read the overlapping publications criteria provided on the student sheet and answer the questions that follow.

Students should also be assigned the following readings:

- Blog entry: "Heart pulls sodium meta-analysis over duplicated, and now missing data." May 2, 2013, Retraction Watch, <u>http://retractionwatch.com/2013/05/02/heart-pulls-sodium-meta-analysisover-duplicated-and-now-missing-data/</u> (Accessed 1/26/17).
- Bik HM, Goldstein MC (2013) An Introduction to Social Media for Scientists. PLOS Biology 11(4): e1001535. doi: 10.1371/journal.pbio.1001535. <u>http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.10015</u> <u>35</u> (Accessed 1/26/17).

Activity B "Should the Data be Republished?" Case Studies

Purpose In this group activity students will apply overlapping publication best practices to common scenarios. After completing this activity, students will be able to able to evaluate common scenarios and determine how best to address concerns regarding reuse of previously published material.

Objectives 1. Describe what overlapping publication is and recognize examples of it;

- 2. Describe the reasons/criteria that justify publication of previously published information and evaluate specific situations using those criteria;
- 3. Recognize and describe how overlapping publication can affect co-authors, journals, readers, researchers, and the public; and,
- 4. Develop courses of action to avoid overlapping publications.
- **Procedure** Learning Cycle: Activity B should be done in the Elaborate phase following the Interactive Lecture. It can be done as homework before the lecture if preferred.

HILA: Activity B should be done during the Interactive Lecture. It can be done as homework before or after the lecture if preferred.

The instructor should introduce the topic by reviewing the questions to be considered and then reading the scenario. Participants will answer the questions by voting yes or no (Use Voting Cards, if preferred). Areas where responses differ should be explored further. Participants should explain their reasoning.

Answers for the Instructor are provided in *italics*.

Introduction and Questions to be Considered

Concerns of overlapping publication are often brought to the attention of journal editors. Editors usually contact the authors to clarify whether data or other content has been published before and whether there is a scientific reason to include the information again. Editors have to consider the ethical guidelines of the journal (the standards) as well the specific facts related to the manuscript in order to determine how best to address the matter.

The two main questions to consider are:

- 1. Is the reuse scientifically justified? (Yes or No)
 - a. Are the data used to answer a novel question?
 - b. Can the data be referenced, rather than included, without affecting the conclusions? Is the manuscript easier to interpret if the data are included?

- 2. Is the reuse declared in the manuscript? (Yes or No)
 - a. Is there a scientific explanation for the reuse in the Methods and/or Results section?
 - b. Is the prior publication referenced in the manuscript?
 - c. Has permission to reuse the material been granted by the copyright holder?

Scenario 1: Photo Reuse

Mark is a second-year graduate student in Dr. Mac's lab. Dr. Mac has just submitted Mark's first first-authored paper for publication. The manuscript describes a new biopsy procedure on a mouse model that they regularly use in the lab. In Figure 1, Mark includes a picture of a mouse that was taken from one of the lab's previous publications because it is a good visual aid for the experimental setup. However, he does not reference the original work or note that the picture has been previously published. A reviewer recognizes that that picture has been published before and alerts the editor.

1. Is the reuse scientifically justified? (Yes or No?)

Maybe. The reuse may be scientifically necessary if it helps clarify a complex experimental setup. If the experiment is not particularly novel, however, the reuse may not be justified.

2. Is the reuse declared in the manuscript? (Yes or No?)

No.

3. Should the editor recommend that the picture be removed?

Possibly, since the picture is already published and readers could reference the original article to see the experimental design. Of course, an argument could be made that, for ease of interpreting the experimental design in this article, the image should be included.

4. If the picture is not removed, what, if any, corrections should be made to the manuscript?

Figure 1 in the manuscript should be revised to declare that the image has been previously published and the reference to the original work must be included. Also, the authors must seek permission from the publisher or copyright holder to reuse the figure.

5. How could Dr. Mac have prevented this situation in the first place?

Dr. Mac should clarify policies on reuse of published materials with his students and collaborators. At minimum, this should be a question on his checklist before submission.

REMINDER: Encourage students to note ideas they want to add to their My Overlapping Publications Checklist.

Scenario 2: Figure Reuse

Maria is a new postdoc who has just published a manuscript in a journal that is prestigious in her area of research. In the new publication, she included three figures (Figures 1-3) from a paper that she published last year. She thought this was a good solution because the data are really important but, since they were published in a journal that not many researchers in this field read, it didn't get the attention that she thought it deserved. The prior publication is referenced in the new manuscript, but the reuse is not declared. Figures 4 and 5 are new data and validate the results in Figures 1-3.

Jacob, an author on the previous publication, read the new paper with much interest but was surprised to see the prior data in the new paper. He contacts Maria, requesting an explanation.

1. Should Maria have included the previously published data in the new manuscript?

No. Maria should not have included the previously published data in the new manuscript. The data are already published and should NOT be published again as new findings.

2. Would simply adding the other author to the paper resolve the issue?

No. The data should not be republished as new findings even if the other authors approved.

3. Is the reuse scientifically justified? (Yes or No)

No. Readers can find the data in the first publication.

4. Is the reuse declared in the manuscript? (Yes or No)

No.

5. How should Maria resolve the issue? Explain.

Maria needs to contact the journal and explain her error. Likely the work will have to be retracted.

6. What about Jacob? Was he treated professionally and fairly in this situation? What would be his concerns about collaborating with Maria in the future?

No, he was not treated professionally or fairly because his work was being republished without his knowledge or consent. Answers will vary about future collaboration.

7. How could Maria's research advisor have prevented this situation in the first place? He or she should clarify policies on reuse of published materials with his postdocs. At minimum, this should be a question on his or her checklist before submission.

REMINDER: Encourage students to note ideas they want to add to their My Overlapping Publications Checklist.

Scenario 3: Data Reuse

Diane and Carrie have just published their third manuscript derived from a huge data set on the factors that affect the incidence of heart disease in single men. They have at least two more manuscripts to prepare. Because this is such a big data set, they have included in the methods section of all the manuscripts a paragraph that describes the entire study and how they have divided the data analysis into a number of studies, with the prior publications referenced. They also include the same table, which describes the general health characteristics of the subjects, in every manuscript to make it easier for the reader to interpret the rest of the data. The publication in which the table was first published is referenced.

1. Is this appropriate use of previously published table? (Yes or No)

Yes. This is an appropriate use of the previously published table. The information on the table is important for all three manuscripts.

2. Is the reuse scientifically justified? (Yes or No)

Yes. This information included on the table is relevant and necessary for all three manuscripts.

3. Is the reuse declared in the manuscript? (Yes or No)

Yes. The reuse is fully declared and justified.

REMINDER: Encourage students to note ideas they want to add to their My Overlapping Publications Checklist.

Activity C My Overlapping Publication Checklist

- **Purpose** Students will develop a checklist based on course material that they can use now and in the future to guide ethical text preparation in terms of overlapping publications. They should use materials from the activities, readings, and Interactive Lecture. After completing the activity, students should have a checklist for overlapping publication considerations AND a plan for teaching best practices to their students.
- **Objective** 4. Develop courses of action to avoid overlapping publications.

Procedure Learning Cycle: Part 1 of Activity C should be done in the Engage phase; Part 2 should be done in the Elaborate phase.
 HILA: Activity C should be done after the Interactive Lecture.

Part 1: Students should, without prior reading or study, write down their opinion and why they think that. If possible, allow students to discuss their opinions in small groups before moving into the Explore phase or to the Interactive Lecture. In Part 1, students will state their opinion on whether republishing the same data or information is ever justified in a journal manuscript. They will describe the reasons for their opinion.

Part 2: Using what they have learned in the unit, students will develop a checklist of questions for themselves and colleagues to assure that manuscripts do not contain any previously published data or information and, if it does, that the proper permissions have been obtained and justifications have been provided in the manuscript and to the editor. They also should include definitions of the following terms.

Definitions a	nd Resources to Remember
ICMJE definition of overlapping publications	 Duplicate submission Redundant publication Acceptable secondary publications Manuscripts based on the same database
Duplicate submission	Submitting the same manuscript for review to more than one journal at the same time (i.e., concurrent submission)
Redundant (duplicate) publication	Publishing the same information (data, results), in part or in whole, in more than one publication.
"Salami-slicing" manuscripts	Publishing practice whereby a complete study is divided into mini-manuscripts and published separately. In other words, into the least (smallest) publishable units.
Manuscripts based on the same dataset	 Same dataset may be interpreted differently by separate research groups or the same research group More than one line of scientific questions can be generated from the dataset (baseline data repeated) (Dataset or patient population or animal population)
Acceptable secondary publication	 The reuse of previously published data is scientifically necessary. The reuse of previously published data is declared and justified in the cover letter to the editor. The reuse of previously published data is described AND REFERENCED within the manuscript, wherever the reuse occurs. Permission to republish data is granted from the original publisher.

Presentation Slides





















🌣 🔶 BMES 🥭	Professional integrity: Best Practices for Publishing Tour Research Overlapping Publications
Secondary I	Publications are Only Acceptable if:
The reuse of previous of pr	ously published data is scientifically necessary
The reuse of previ in the cover letter	ously published data is declared and justified to the editor
The reuse of previ REFERENCED with	ously published data is described AND in the manuscript, wherever the reuse occurs
 Permission to repute holder 	ublish data is granted from the copyright













Embargo Definition: a request by a source (journal publisher) that information or news (new article defails) provided by the source (to a journalist) not be advertised until a certain date and time. "Material submitted to Nature journals must not be discussed with the media, except in the case of accepted contributions, which can be
Definition: a request by a source (journal publisher) that information or news (new article details) provided by the source (to a journalist) not be advertised until a certain date and time. "Material submitted to Nature journals must not be discussed with the media, except in the case of accepted contributions, which can be
"Material submitted to Nature journals must not be discussed with the media, except in the case of accepted contributions, which can be
discussed with the media only once the publication date has been confirmed and no more than a week before the publication date under our embargo conditions."









To download the PowerPoint (.ppt) slides, the MS Word (.doc) of the presentation slide text, and/or a video of the presentation, go to <u>www.the-aps.org/pst/ethics</u>.

Presentation Slide Text

Slide #	Text
1	 Today we will review best practices for Overlapping Publications. This presentation will help you to: Recognize and describe overlapping publications Describe the reasons and criteria that justify publication of previously published information Recognize and describe how overlapping publications can affect co-authors, journals, and others. Develop courses of action to avoid overlapping publications; and Compare the benefits and drawbacks to using social media to share scientific research
2	If you choose the path to become a research scientist or engineer you are already well on your way to developing your very own area of research. The expertise you gain in your PhD will be utilized in your postdoc, and the expertise in your postdoc will help shape the area of research you focus on when you start your own lab or permanent research position in academia, industry, or government. Techniques, key pieces of data, and major interpretations will all be part of what makes you an expert in a particular research area. You will share your research findings and experience over and over again because it is YOUR story and it is worth sharing. And you will publish many primary research articles that describe your new research findings. Each of your primary research articles has to be different from every other article you publish before it and every one you publish after it. This is why you will often read journal articles that describe the findings as "novel," "new," and "original."
3	As you publish more papers in a research area, your work will be recognized by those in your field and they will be very interested in reviewing your latest work. So when journal editors ask them to review your recently submitted manuscript, they will eagerly accept. However, if they read the new manuscript and find that it sounds familiar, they will alert the editor that some or even all of the article may have been published before. In this case, the reviewer's email to the editor puts the manuscript review on hold. Authors then have to explain whether any of the data has been previously published and, if so, why they included it in the current work. The submitted manuscript is likely to require revision at best and, at worst, will have to be withdrawn. Likewise, even if a reviewer does not recognize that a portion, or all, of the manuscript has been published before, a journal reader may identify the data reuse. Journal editors often

	receive emails from graduate students and other researchers who, while writing a review article or the introduction for their dissertation, identify publications that present the same results.
4	Most journals state in their Instructions for Authors or ethics policy that primary research articles should contain new data or results. The expectation is that the study is completely original, that is, completely new. Importantly, reviewers, readers, and the larger research community expect the work to be original.
	Some research communities do allow republication of data when the original source is a conference proceedings report AND the reuse represents a small portion of the new work. If your work is already published as a proceedings article, it is best to check with the journal regarding their policy on duplicate publication.
5	What ARE the journal guidelines for overlapping publications? Earlier, you were asked to look up the overlapping publication guidelines for journals to which you are likely to submit manuscripts (Activity A). You will need that information now.
	At this time, pair up with a neighbor or colleague, or work individually, to compare the guidelines regarding original research in the journals that you looked up.
	 Answer the following questions: What are the major criteria? How do the main expectations regarding overlapping publications differ from journal to journal?
	Pause the presentation to complete the activity {Pause 5 seconds}
	Depending on your specific area of research, journals do vary by what they consider to be overlapping publications. In general, journals do not consider meeting abstracts or theses to be overlapping publications.
	Articles published in a proceedings journal may not count as an overlapping publication for some research areas. Yet, for other journals, long abstracts or mini-papers are considered to be overlapping publications.
	Likewise, manuscripts posted on pre-print servers are considered to be overlapping publications by many journals. However, recently, more journals are removing pre-prints from the "overlapping publications" prohibition. It is best to review the policies of the journal before you submit your work.
6	The International Committee of Medical Journal Editors (ICMJE) defines overlapping publications as:

	1) Duplicate submission
	2) Duplicate and prior publication
	Acceptable secondary publications; and
	Manuscripts based on the same database
	We'll go through these one at a time to discuss the reasons for the guidelines and best
	practice.
7	Duplicate submission is described as submitting an article for consideration for publication
	to more than one journal. That means that more than one journal is reviewing the same
	paper simultaneously. The article could be submitted for review to two different journals
	on the same day or to 3 different journals on different days.
	Best practice is to submit a manuscript to only one journal at a time.
8	Why is duplicate submission poor practice?
	Manuscripts are to be published only once. If two or more publishers are considering the
	manuscripts are to be published only once. If two of more publishers are considering the
	and journal. In fact, duplicate submissions often are identified because a reviewer is asked
	to review the same paper by two different publishers at the same time
	to review the same paper by two different publishers at the same time.
	Duplicate submissions may also occur when authors receive a REVISE decision from one
	journal but, instead of answering the reviewer comments, they submit their article to
	another journal. You must tell the first journal that you do not intend to revise the
	manuscript. Otherwise, it is considered to still be under review at the first journal until the
	revision period expires, usually 3-6 months.
	In this example, Dr. Miller submitted her manuscript to Journal A and received reviews
	back, requiring that she make major revisions to the manuscript. Instead of doing the
	revisions or withdrawing the manuscript from Journal A consideration, she submitted the
	same manuscript to Journal B. One person (Reviewer 3 in this diagram) reviews for both
	journals and was asked to review Dr. Miller's paper for Journal B. Not surprisingly, the
	reviewer recognized the paper and reported the duplicate submission to the editor.
	Dr. Miller wanted to speed up the publication process by not doing the revisions required
	by Journal A but the actual outcome was the opposite. She still has an unpublished
	manuscript and also gained a tarnished reputation with two journals and multiple
	reviewers.
9	The second definition of overlapping publications is: Duplicate and Prior Publication.
	Duplicate and Prior Publication is defined as publishing the same in more than one primary
	research manuscript. This information could include information data, results, figures, or

	 tables. As mentioned at the beginning of the session, editors, reviewers, and readers TRUST that the information in the manuscripts that they read is original and new. The article contains "new results," "novel findings," "information and interpretations presented for the first time." Thus, if information is presented again, without any indication that it is not meant to be considered novel, readers will be misled. This is a form of self-plagiarism. It is best practice to publish your results only once unless ethical norms for a secondary publication have been followed.
10	Let's look at an example. Dr. Miller still has not learned her lesson with regard to overlapping publications. This time, she submits the same manuscript to two journals at the same time. If two or more publishers are considering the manuscript it may be accepted and published in more than one journal. If the duplication remains undiscovered, it distorts the literature. That is, a claim appears stronger only because it appears multiple times in the literature. It is unethical! If the duplication is discovered by a reader and reported to the publishers, one of the articles will have to be retracted. What did Dr. Miller gain this time? Two journals had to deal with a duplication publication problem resulting in one publication of her article and one retraction. However, the other journal can decide to retract her article as well. In either case, both journals are aware of her unethical behavior. It may be possible that her institution would be notified of the incident.
11	Some authors run into trouble with guidelines on duplicate publication when they publish their work in mini-stories. This is sometimes called "salami slicing" or "least publishable units." Such authors submit a manuscript that has just enough information to be a "short story." Then they move on to publish the next "short story" and so on. Data presented in the first publication may really help to explain the information in a subsequent manuscript. However, since the data are already published, they can't be published again. This method of publishing may increase publishing numbers for the author. But the information provided in each manuscript does not really exemplify a complete story and the overall impact of the findings is diminished. Thus, it is better to publish a complete story rather than divide it into small slices. It also helps to avoid the pitfall of publishing the same data in multiple manuscripts, a duplicate publication.
12	One of your homework assignments in Activity A was to read an article from the Retraction Watch blog that described the outcome of a manuscript that may have analyzed the same results reported in two different manuscripts as part of a meta-analysis on sodium's effect

	on heart failure.
	- How would re-use of data in publications affect meta-analyses? {Pause 3 sec}
	Presenting the same data in more than one publication could affect meta-analyses by making a particular result more impactful than it really is. For example, it would be similar to counting the same ballot box twice in an election.
	 What effect could duplicate publication have on interpreting clinical outcomes? {Pause 3 sec}
	Meta-analyses that assess clinical outcomes could bias a treatment as being more effective, or less effective, than it actually is. Would you want to take a medication that has only been proven to effective in one study even though the meta-analysis incorrectly reports positive outcomes in two studies?
	 Lastly, who could have been affected if the duplicate publication had not been discovered? {Pause 3 sec}
	Patient's health could have been affected if the duplication had not been discovered. Also, the meta-analysis could influence future research directions.
13	As noted in the ICMJE guidelines on overlapping publications, there are instances when sharing previously published information is acceptable. For example, if multiple audiences need to know the information, it may need to be published in several journals that target the different audiences. These may include best practice guidelines developed by a professional society or regulations developed by the government. It is also acceptable in some instances to translate publications into multiple languages so that many audiences can interpret the work accordingly.
	If content is republished, the original publisher must approve of the secondary publication. The secondary publisher AND its readers must be aware that the work was published previously. Another form of secondary publication is research reviews such as literature reviews and book chapters. These works often share novel syntheses of the primary literature but do not report new data. Rather, authors refer to and highlight prior publications, and many include republished figures. However, it is expected that the text and conclusions or interpretations are original to that particular work.
	Many review articles are flagged by publishers for plagiarism or duplicate publication because the review is very similar to one already published. As we mentioned in the beginning, just because you are the expert in a field does not mean that readers want to read the same summary of the literature over and over again. Indeed, reviews, books, and monographs should be original (new) pieces of work.

14	If information such as data, figures, and tables has to be republished:
	 The reuse must be scientifically necessary. The reuse must be declared in the cover letter to the editor. It must also be described AND REFERENCED within the manuscript. This may include methods, results, tables, or figures, that is, wherever the reuse occurs. And permission to republish tables, figures, and even modifications of previously published figures, must be granted by the original publisher. The original publisher may own that information, and publishing it in another journal may violate their copyright.
15	Lastly, there are times when data, figures, or tables should be included in more than one primary research article. The ICMJE describes this type of overlapping publication as "manuscripts based on the same database." Sometimes the same raw data may be interpreted in more than one way by one or more research groups. For example, a manuscript was recently published that concluded that mice were terrible models for several types of trauma. However, separate analyses of the same data by another group resulted in different conclusions. The differences in analyses and interpretations are indeed valuable to the research community because they promote broader discussion and consideration of a particular topic.
	Other times the data set generated by an experiment is so large that multiple studies can be derived from it. In these instances, the same baseline or control data, or key experimental data, are repeated in all the related manuscripts. For example, genomic or proteomic data are deposited into public databases and can be uniquely analyzed by any number of research groups.
16	As you may imagine, whether some information is really scientifically necessary is up to the discretion of the editors and reviewers. Editors have to consider the rules regarding duplicate publication AND the best interests of the scientific research community. Activity B offers several scenarios where the question of duplication publication is addressed further. You can pause the video now to do this activity or complete it after listening to the video.
17	While primary research manuscripts clearly count as publications, other forms of scientific communication may also be considered publications. So, when do your public communications affect your opportunities to publish your work?
18	Open communication is an essential aspect of scientific communication. Of course, once your research is shared, in any setting, the results are fair game for your competitors. There are a lot of ways to share your work, casually over coffee, formally in articles and
	books, and formally or informally online. In fact, how much you share online may affect

	your chances to publish the work in a primary research journal, as some of these communications may be considered publications. But which ones?	
19	9 Coffee break discussions and lab meetings are not considered publications. Journal art and books are definitely publications. What about abstracts, websites, blogs, and pre-p servers? The answer is that it varies. Each journal has its own criteria for what is considered to be a publication.	
	As an author, it is very important for you to share your new findings in a primary research journal so that your work can be discovered by readers, cited by others, and fully rewarded. Journal articles listed in your CV also carry significant weight in both job applications and tenure reviews.	
20	What forms of communication will affect your opportunity to publish primary research articles?	
	Many primary research journals do not consider short meeting abstracts (150 words) as prior publications. Contributing to discussions in blogs and mentioning unpublished work may be okay.	
	However, if you included figures in an abstract (that is, "long abstracts") or posted your meeting poster on a server not affiliated with the meeting (e.g. F1000 servers), then these may be considered to be publications. Questions to consider are: - Are unpublished results publicly available?	
	- Have they been widely distributed?	
	- Are the results well described for scientific interpretation?	
	 Are the same results being included in the manuscript? 	
	If so, your next submission may be considered a duplicate publication, and it may not be published.	
	If paraphrasing the fact is not ideal, be sure to add quotation marks to text that you wish to use verbatim, that is use it as it is written in the original document.	
21	In this case, a journal considered the figures in a long abstract prior publication of the data and rejected the manuscript. To avoid this outcome, read the instructions for authors for the journal to which you are interested in submitting your work to know what types of forums and documents they consider to be publications. If the information provided by the journal is not clear, or not listed, email the journal to ask for their criteria.	
22	Is anyone familiar with the term embargo? A journal publisher may request that	

	information or news regarding an article not be advertised until a certain time or date, usually until after the article is officially published.
	Embargoes prevent the author's work from being widely distributed and commented on before it can be fully assessed and defended by the authors. A truncated version of Nature's embargo policy is on the screen. The first two noted paragraphs state that:
	"Material submitted to Nature journals must not be discussed with the media, except in the case of accepted contributions, which can be discussed with the media only once the publication date has been confirmed and no more than a week before the publication date under our embargo conditions."
	 Pause for a moment to consider the following questions: What benefits are there to having a paper embargoed by the journal? Are there any negative impacts for your paper? {Pause 3 sec}
	Some benefits of an embargo are that your article may receive lots of publicity in an organized and timely manner. It highlights your publication at the time when it is available to readers. Possible pitfalls to an embargo period are that authors may want to talk about their work before publication. One can imagine a scenario where another researcher publishes a similar paper one week earlier. Wouldn't you want to share that you have similar results? Or maybe a global outbreak occurs and your paper about the disease would be useful to share.
23	Other journals are doing away with embargoes and are encouraging authors to promote their work prior to publication.
	The media policy for the journal eLife is noted here. It says in part: "The media policy is designed to encourage high quality, informed, and widespread discussion of new research – before and after publication." "Prior to publication authors are encouraged to present their findings to their peers, including at meetings and conferences; to deposit copies of their manuscript (original and revised versions) in open-access repositories, or to make the manuscript available via their website; and to blog about their findings."
	What are the benefits of such a policy? The possible benefits are that authors are in control of how they want to share their findings before and after publication. Of course, talking too soon about the results may negatively impact the work if the study has not been fully vetted and reviewed. Just because the authors interpret the data in one way does not mean that the reviewers of the journal that ultimately publishes the work will interpret it the same way. Any publicity about a new discovery may be diminished by the time the work is published. In addition, without a set timeline for media reporting, public attention to the study could be over before the study is even published.

24	Many more journals and journal hosting sites encourage dialogue about the published literature. Some even provide social media tools, like Altmetric, to help track where and how an article is being shared via social media.
25	As described in the reading assignment in Activity A, "An Introduction to Social Media for Scientists," published in PLOS Biology, it is up to you to decide how much you want to communicate your science online and in what format. Whatever you contribute could be seen by peers and future employers. Thus, it is important to communicate in a space that allows you to contribute your expertise and, ideally, learn from fellow participants. Before communicating online consider, who you want to talk to and why you want to talk to them.
26	 Figure 3 in the Activity A reading outlines a number of common fears with social media such as being wrong, being ignored, being yelled at or breaking the rules or norms of your institution. However, as noted here, a good social media community should support you and help clarify misunderstandings and mistakes. Likewise, it is a good idea to check with your institution's public information department before you begin using social media to share your work as you want to be sure that your intent to communicate as an individual, representative of the lab, or even as a spokesperson of the institution is clear. Also, you must be sure you have the right to share the information. Remember your institution "owns" your data so they have the right to set policy on how it is shared.
27	In summary, sharing your expertise and new findings both formally AND informally is a very important part of scholarly communication. If you do not share your findings, no one will know about the good research that you are doing. However, sharing your research in some forums may hinder you from publishing your work in other forums. Unpublished data posted online may be considered to be a prior publication by scholarly journals. It is good practice to check the journal guidelines BEFORE you post unpublished data.
28	Thank you for listening to this presentation. To access more information about APS Professional Skills Training Courses visit <u>www.the-aps.org/pst</u> .

References and Resources

- 1. Habibzadeh, F. and Winkler, M.A., Duplicate publication and plagiarism: causes and cures, *Notfall Rettungsmedizin*, 12:415-418, 2009.
- ICMJE International Committee of Medical Journal Editors. (Updated December 2016) Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals. Retrieved from: <u>http://www.icmje.org/recommendations/browse/publishing-and-editorial-issues/overlapping-publications.html</u>
- **3.** Marcus, A. and Oransky, I. (2012, July). What's behind paper retractions? (10): That sounds familiar. *Lab Times, (4), pg. 35*.
- 4. Wager, E., Ethical publishing: The innocent author's guide to avoiding misconduct, *Menopause International*, 13:98-102, 2007.

Course Resources

Each of the **Professional Skills Training Courses on Best Practices for Publishing Your Research** has multiple resources to accompany the Instructor Guide. All of the following resources are available at <u>www.the-aps.org/pst/ethics</u>.

- **1.** PowerPoint (.ppt) files for the Interactive Lecture. These slides are editable.
- 2. Instructor and Student Guides are available as editable .doc files.
- 3. Request form for assessment tools (quizzes and key).
- 4. Links to video versions of the Interactive Lecture on YouTube.
- 5. Links to online, on demand version of the module.

Publication Ethics Community

In addition, APS hosts a Publication Ethics Community on the Life Science Teaching Resource Community. The community posts ethics cases for comment by participants and experts. See <u>www.lifescitrc.org</u> and click on My Community.

Ethics CORE (Collaborative Online Resource Environment)

This website is coordinated by the National Center for Professional and Research Ethics. The site provides resources for Responsible Conduct of Research courses and seeks to create communities of responsible research and professional practice. It is an excellent source of case studies, simulations, role-play scenarios, videos, and lectures. See https://nationalethicscenter.org.

We welcome your questions and feedback on these materials. Email us at <u>education@the-aps.org</u>.

Overlapping Publications Module Student Handouts



These activities will help you:

- 1. Describe what overlapping publication is and recognize examples of it.
- 2. Describe the reasons/criteria that justify publication of previously published information and evaluate specific situations using those criteria.
- 3. Recognize and describe how overlapping publication can affect co-authors, journals, readers, researchers, and the public.
- 4. Develop courses of action to avoid overlapping publications.
- 5. Compare the benefits and drawbacks of using social media to share scientific research.

This module is part of the series, "Professional Integrity: Best Practices for Publishing Your Research" developed by:

American Physiological Society <u>www.the-aps.org</u> Biomedical Engineering Society <u>www.bmes.org</u> Society for Biological Engineering <u>www.aiche.org/sbe</u>

For information on the other modules or to take an online, interactive version of one or more modules, go to <u>www.the-aps.org/pst</u>.

About Your Publication Ethics Checklists

In these modules, you will be encouraged to create your OWN checklists for preparing manuscripts using ethical and professional standards of practice for researchers.

Why do I need a checklist?

As your training progresses, your research and writing skills develop along with your knowledge of the field, your professional network, and your independence as a professional. This also means that understanding and following best practices for professional behavior, including research and publication ethics, increasingly rests on your shoulders. YOU become the person who is setting the standards for your laboratory group. YOU are the person who must establish protocols for assuring ethical behavior. And YOU are the person who has to teach standards and protocols to every trainee in your lab and, sometimes, to those with whom you collaborate. You cannot assume that they come with an understanding of best practices...you must inform, guide, and monitor their adherence to best practices.

What should I include in the checklist?

You are investing time and effort to learn best practices for publication ethics through this module (and possibly the other modules in this series). **This activity is the big "take away" from this module**. It is YOUR checklist of things to remember about publication ethics. In each module in this series, you will add a checklist of the things you want to remember from that module. You also will add notes on how you would teach this to your students in the future. For most modules, we encourage you to add three sections to your checklist:

1. Definitions to Remember Table: Consider adding the terms and definitions from the lecture. Also add the links for professional standards you want to access later (e.g., ICMJE criteria for authorship). Remember to add the source of your definition or text if you are copying it.

2. My Best Practices Checklist: What are the things you want to check as you develop or revise your manuscripts?

3. PASS IT ON: How will you teach this to YOUR trainees in the future? How will you share this with those with whom you collaborate?

When you are done with these modules, we encourage you to make a copy of your checklists and keep them handy for use as you develop manuscripts in the future.



WRITF

Activity A Evaluating Journal Guidelines on Overlapping Publications

- **Purpose** This activity will allow you to identify and compare overlapping publication policies in journals. It also includes two readings on overlapping publications and using social media in science. After completing this activity, you will be able to describe what overlapping publication is and recognize examples of it. You also will be able to evaluate the journal guidelines on overlapping publications and recognize the main expectations for best practice.
- **Procedure** Before coming to class, identify three journals to which you are likely to submit your future manuscripts. Visit the website for each journal and look for the overlapping publications criteria provided there. Note that they may be listed in a variety of ways (e.g., "overlapping publication," "self-plagiarism," "redundant publication," or "duplicate publication").

PRINT out the guidelines for each from the website and bring copies to class. For each journal, summarize or list the guidelines on the sheet below and bring this to class as well.



READ

READ the following articles before class:

- Blog entry: "Heart pulls sodium meta-analysis over duplicated, and now missing data." May 2, 2013, Retraction Watch, <u>http://retractionwatch.com/2013/05/02/heart-pulls-sodium-meta-</u> analysis-over-duplicated-and-now-missing-data/ (Accessed 1/26/17).
- Bik HM, Goldstein MC (2013) An Introduction to Social Media for Scientists. PLOS Biology 11(4): e1001535. doi: 10.1371/journal.pbio.1001535. <u>http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1001</u> <u>535</u> (Accessed 1/26/17).



IN CLASS, you will work with a partner to:

- 1. Compare the journal guidelines provided by you and your partner.
- 2. Summarize what you learned from the various journals and answer the question: "What are the main expectations from the journals regarding overlapping publications?" List them on your worksheet.

Journal 1 Name:

Please list the overlapping publication guidelines:

Journal 2 Name:

Please list the overlapping publication guidelines:

Journal 3 Name:

Please list the overlapping publication guidelines:

SUMMARY

What are the main expectations from the journals regarding overlapping publications?

Activity B "Should the Data be Republished?" Case Studies

Purpose This group activity will give you practice in applying overlapping publication best practices to common scenarios. After completing this activity, you will be able to describe the reasons/criteria that justify publication of previously published information and evaluate specific situations using those criteria; recognize and describe how overlapping publication can affect co-authors, journals, readers, researchers, and the public; and develop courses of action to avoid overlapping publications.

Procedure READ the Introduction and Questions to be Considered (below).



Introduction and Questions to be Considered

Concerns of overlapping publication are often brought to the attention of journal editors. Editors usually contact the authors to clarify whether data or other content has been published before and whether there is a scientific reason to include the information again. Editors have to consider the ethical guidelines of the journal (the standards) as well the specific facts related to the manuscript in order to determine how best to address the matter.

The two main questions to consider are:

- 1. Is the reuse scientifically justified? (Yes or No)
 - a. Are the data used to answer a novel question?
 - b. Can the data be referenced, rather than included, without affecting the conclusions? Is the manuscript easier to interpret if the data are included?
- 2. Is the reuse declared in the manuscript? (Yes or No)
 - a. Is there a scientific explanation for the reuse in the Methods and/or Results section?
 - b. Is the prior publication referenced in the manuscript?
 - c. Has permission to reuse the material been granted by the copyright holder?



READ the following scenarios as a group and **DISCUSS**. Vote **Yes** or **No** and be prepared to explain why.

Scenario 1: Photo Reuse

Mark is a second-year graduate student in Dr. Mac's lab. Dr. Mac has just submitted Mark's first first-authored paper for publication. The manuscript describes a new biopsy procedure on a mouse model that they regularly use in the lab. In Figure 1, Mark includes a picture of a mouse that was taken from one of the lab's previous publications because it is a good visual aid for the experimental setup. However, he does not reference the original work or note that the picture has been previously published. A reviewer recognizes that that picture has been published before and alerts the editor.

- 1. Is the reuse scientifically justified? (Yes or No?)
- 2. Is the reuse declared in the manuscript? (Yes or No?)
- 3. Should the editor recommend that the picture be removed?
- 4. If the picture is not removed, what, if any, corrections should be made to the manuscript?
- 5. How could Dr. Mac have prevented this situation in the first place?



REMEMBER: Note ideas that you want to add to your My Overlapping Publications Checklist.

WRITE

Scenario 2: Figure Reuse

Maria is a new postdoc who has just published a manuscript in a journal that is prestigious in her area of research. In the new publication, she included three figures (Figures 1-3) from a paper that she published last year. She thought this was a good solution because the data are really important but, since they were published in a journal that not many researchers in this field read, it didn't get the attention that she thought it deserved. The prior publication is referenced in the new manuscript, but the reuse is not declared. Figures 4 and 5 are new data and validate the results in Figures 1-3.

Jacob, an author on the previous publication, read the new paper with much interest but was surprised to see the prior data in the new paper. He contacts Maria, requesting an explanation.

- 1. Should Maria have included the previously published data in the new manuscript? Justify your response.
- 2. Would simply adding the other author to the paper resolve the issue? Justify your response.
- 3. Is the reuse scientifically justified? (Yes or No). Explain your answer.
- 4. Is the reuse declared in the manuscript? (Yes or No)
- 5. How should Maria resolve the issue? Explain.
- 6. What about Jacob? Was he treated professionally and fairly in this situation? What would be his concerns about collaborating with Maria in the future?
- 7. How could Maria's research advisor have prevented this situation in the first place?



REMEMBER: Note ideas that you want to add to your My Overlapping Publications Checklist.

Scenario 3: Data Reuse

Diane and Carrie have just published their third manuscript derived from a huge data set on the factors that affect the incidence of heart disease in single men. They have at least two more manuscripts to prepare. Because this is such a big data set, they have included in the methods section of all the manuscripts a paragraph that describes the entire study and how they have divided the data analysis into a number of studies, with the prior publications referenced. They also include the same table, which describes the general health characteristics of the subjects, in every manuscript to make it easier for the reader to interpret the rest of the data. The publication in which the table was first published is referenced.

1. Is this appropriate use of previously published table? (Yes or No). Justify your answer.

2. Is the reuse scientifically justified? (Yes or No) Justify your answer.

3. Is the reuse declared in the manuscript? (Yes or No)



REMEMBER: Note ideas that you want to add to your My Overlapping Publications Checklist.

Activity C My Overlapping Publications Checklist

- **Purpose** In this activity, you will use what you have learned to establish a checklist for overlapping publications for your own collaborations and projects. Your checklist should be based on accepted criteria and best practices for ethical writing. After completing this activity, you will be better able to avoid overlapping publications in your manuscripts, including those done collaboratively with trainees and collaborators.
- **Procedure** In **Part 1**, you should, without prior reading or study, write down your opinion and why you think that. Be prepared to discuss your opinion in small groups.



In **Part 2**, you will add some definitions and create a checklist for your own use on overlapping publications and a plan for teaching your future trainees about overlapping publications.

WRITE

Part 1: State Your Opinion

Is it EVER appropriate to submit the data or information in a journal article that has already been published in a previous journal article? YES or NO (circle ONE)

Please describe WHY you selected that answer (your reasons):

Part 2: My Overlapping Publications Checklist

Using what you have learned in this module, develop a checklist of questions for yourself, your trainees, and your collaborators to use in manuscript preparation (and to check before submission) to assure that:

- 1. A manuscript does not contain any previously published data or information; and,
- 2. If it does, the proper permissions have been obtained and justifications have been provided in the manuscript and to the editor.



This checklist should be added to other checklists you generate through the modules on publication ethics best practices.

WRITE

First, be sure to add the following definitions and information to your list.

Definitions and Resources to Remember				
ICJME	1.			
definition of	2			
overlapping				
publications	3.			
	4.			
Duplicate				
submission is				
Redundant				
(duplicate)				
publication is				
"Salami-slicing"				
manuscripts				
is				
Manuscripts				
based on the				
same dataset				
can mean				
Secondary	1.			
publication is acceptable only	2.			
when these	3.			
four criteria are met:	4.			

My Checklist/Questions for Overlapping Publications:

How will I teach MY future trainees about overlapping publications?

Student Slide Handout























Professional Integrity: 8 est Practices For Publishing Your Research Overlapping Publications 🍄 🔶 BMES 🥭

2. Duplicate and Prior Publication

Definition: Publishing the same information (data, results), in part or in whole, in more than one publication.

Best Practice: Publish only original results or declare reuse of

- material at submission Why is duplicate publication poor practice? Because:
- readers trust and expect that primary research manuscripts present only new results
- It unnecessarily utilizes the peer review resources for review of unoriginal work ✓ it distorts the literature (overemphasizes a single finding)

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BMES Professional Integrity: Best Practices For Publishing Your Research Overlapping Publications

Secondary Publications are Only Acceptable if:

- The reuse of previously published data is scientifically necessary
 The reuse of previously published data is declared and justified in the cover letter to the editor
- The reuse of previously published data is described AND REFERENCED within the manuscript, wherever the reuse occurs
- Permission to republish data is granted from the copyright holder

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The time is always right to do the right thing.

caps lock

–Martin Luther King Jr.

OVERLAPPING PUBLICATIONS is one of seven teaching modules designed to promote best practices in publication ethics for life scientists and biomedical engineers who publish research papers. Each module provides information on and principles of the most common publication ethics issues as well as the tools needed to integrate and apply professional standards of practice to real life situations. After finishing each module, students will have a personal checklist to use in the preparation of future manuscripts AND a plan for teaching module principles to their future trainees and collaborators.

Modules are designed to be used by higher education institutions, laboratory groups, individuals, and professional societies. The teaching paradigms used in the modules support various types of learners and were designed to integrate into current Responsible Conduct of Research (RCR) training courses/programs.

Modules were developed with support from the National Science Foundation (NSF) (#SES -1238368) and in collaboration with staff and members of the American Physiological Society, Biomedical Engineering Society, and the Society for Biological Engineers.

Handouts for instructor and students, audio and video resources, and online course links are available at www.the-aps.org/pst for all seven modules:

- Authorship
- Conflicts of Interest
- Considerations for Animal and Human Studies
- Data Fabrication and Falsification
- Data Management and Integrity
- Overlapping Publications
- Text Preparation and Avoiding Plagiarism