[Replace Text Here with Your Title]

[List authors by first name (optional middle initial or middle name) followed by last name. Separate multiple authors by commas. Use superscript numbers to link authors to specific affiliations, and symbols for author notes.]

First Middle Last1\*, First Last2†, and First M. Last1

**Affiliations:**

1Department Name, University/ Institution

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\*Correspondence to: Include the postal mail and email addresses of the corresponding author(s).

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**Type of Manuscript:** *CourseSource* Teaching Tools and Strategies Manuscript

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**Title and Description of Primary Image:** [Provide a title and a short description to accompany your primary image. All submissions must include an image that represents the information in the article (*e.g.,* a picture of a dividing cell for a lesson about mitosis; a picture of a swinging pendulum for a physics lab). This image will be displayed with the title of your article on the *CourseSource* website (it will not be in the PDF). Ensure that this image is not copyrighted. If students are photographed, students must consent to having their image published.]

Please provide a 4 x 3 image at high resolution (*e.g.,* 800 pixels wide x 600 pixels high).

# Abstract

[The abstract should be a single paragraph of 250 words or less. Start with an opening sentence that sets the teaching challenge that you address in this manuscript, provide background information, and briefly describe your take-home message.]

## [MAIN TEXT - YOUR FIRST SECTION TITLE]

[Describe how to use the resource, tool, or approach in as brief and practical way as possible, citing references and related materials.

Subheadings can be included within any of the sections to increase readability and clarity. Use the embedded styles in Microsoft Word, accessible from the HOME tab:

## Heading 2

### Heading 3

#### Heading 4

##### Heading 5

Please use the BlockQuote style when you want to:

Designate a student quote, label instructor script during an activity, or differentiae spoken word from the main text.

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Make specific text distinct or separated from the main text such as a clicker question. This is similar to BlockQuote in appearance, but should not be used to indicate speech.

*\*For website links:*

* If you want to direct readers to watch a YouTube video, read an article on a website, provide a website for purchasing equipment, etc.:
	+ Provide the URL link in parentheses following the underlined text you want hyperlinked.
	+ An example: Students watch a short video about photosynthesis (<https://www.youtube.com/watch?v=2KZb2_vcNTg>) prior to the activity.
	+ Do not include in the citation list.
* If you want to use an article from a website as a citation (*e.g.,* NPR), please use it as you would a normal citation. See the References section below to see how to format a Website citation.

The actual URL in parentheses will be removed prior to publication, but is necessary for you to include to ensure we publish using the correct links.]

***Important information about participant data:***

**Institutional Review Board (IRB)/ Behavioural Research Ethics Board (BREB) Approval**

* **You may be required to provide an ethics board protocol number**. US Federal regulations require IRB review and approval for projects that:
	+ (1) Meet the definition of research
	+ AND (2) Involve human subjects
* Research is defined as “a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.” (*e.g.,* testing a hypothesis; randomization of subjects; comparison of case vs. control)
* A human subject is defined as “a living individual about whom an investigator (whether professional or student) conducting research:
	+ Obtains information or biospecimens through intervention or interaction with the individual, and uses, studies, or analyzes the information or biospecimens; or
	+ Obtains, uses, studies, analyzes, or generates identifiable private information or identifiable biospecimens."
* Most articles submitted to *CourseSource* will be considered as Quality Improvement and/or Program Evaluation, and IRB review is not required because the project does not constitute research as defined under 45 CFR46.102(d).
* However, ***if your project is considered research and/or you present and discuss human subjects’ data,*** [***IRB review is required***](https://www.american.edu/irb/irb-no-review.cfm). This includes, but not limited to:
	+ Student performance data (*e.g.,* pre/post scores on an assessment)
	+ Student quotes, particularly if the quotes were gathered from a survey that collected identifying information (*e.g.,* their name) or from interviews
* If you use student data, you must either provide an IRB protocol number OR certification by the IRB or the institution that IRB review was not required. Please provide this information in the Lesson Plan or adjacent to the data (often in the Teaching Discussion section).
	+ **IMPORTANT**: While your project may not be considered ‘research on human subjects’, [intent to publish results may change its designation to research and thus require IRB approval](https://stockton.edu/research-sponsored-programs/documents/irb/FAQs.pdf). Ensure that when submitting for approval to your IRB that you *state your intent to publish results from the project* (*e.g.,* survey data, test scores, quotes).
	+ If considered research on human subjects, it will likely undergo review under the “exempt” category. This means that your study requires only an initial review and is *exempt from ongoing review*. [Exempt does not mean *exempt from any IRB review* nor exempt from general requirements for informed consent and protection of subjects](https://www.iup.edu/research/resources/conducting-responsible-research/irb/guidelines/exemptions.html).
* What if my institution does not have an IRB board?
	+ We recommend that you do not provide any human subjects’ data. Instead, discuss your observations, overall student reactions, or general classroom performance.
	+ If you still wish to provide such data, you must provide a statement(s) in your article regarding:
		- IRB review was not available
		- Description of ethical procedures and practices that were followed (*e.g.,* maintaining the anonymity of student participants, data management and protection, and student consent)
		- The research posed minimal risk to students and was conducted in established or commonly accepted educational settings
* **Common exceptions:**
	+ An IRB is not needed if you are presenting data collected from an anonymous survey. If the survey collected identifying information (such as names or demographics), even if de-identified later, we cannot publish the data without an IRB.]

## Supporting Materials

* S1. Writing Hypotheses – Student Handout
* S2. Writing Hypotheses – Slides
* S3. Writing Hypotheses – Quiz [Instructor view only]

[Replace the above text with a bulleted list of all your supporting files. A short description is not required, but can be added if desired. If you would like to restrict access of any supporting files to only instructors (*e.g.,* exam questions, exam key), please indicate in the bulleted list.]

Use the following nomenclature to list your materials. Begin with the letter “S” and the number representing the order *in which the material is referenced in the article* (S1, S2, S3…). Follow with a short version of your article title. For example, shorten “Using Hypothesis Writing and Testing to Develop Skills in Scientific Inquiry,” to “Writing Hypotheses”. Then include a brief title of the resource, such as lecture slides, worksheet, etc.

When referencing supporting files within the text, do not refer to these files as “supplemental.” You may refer to the supporting files using parentheses or within the text. If using parentheses, please list the numbers the same as you would an ASM citation. For example: (Supporting Files S7, S8) and (Supporting Files S10–S15). If referencing file(s) within the text, please use proper grammar.

**Examples of in-text supporting file reference in parentheses:**

* ONE: Print one set of cards for the sorting game (Supporting File S1).
* MULTIPLE: Additional learning materials (Supporting Files S1, S4–S15) were created to facilitate the online transition as a result of the COVID-19 pandemic.

**Examples of in-text supporting file reference outside parentheses:**

* ONE: If this dataset will be used for the activity, instructors may refer to information presented in Supporting File S14.
* MULTIPLE: Example grading rubrics are in Supporting Files S12 and S13.

**All Supporting Materials MUST be referenced at least once** in the main text.

Important information:

* **We request authors limit the number of supporting files to 20 at most.**
* When naming the actual supporting files, *use the exact same titles as named in the Supporting Materials bulleted list*. For example, “S2. Writing Hypotheses – Slides.pptx”
* When possible, please use **editable file formats** such as Word, PowerPoint, Excel, etc. Avoid PDFs if possible – PDFs are difficult to be made accessible as well as hard for reviewers, editors, and readers to edit.
* Wherever possible, ensure that the article title and name(s) of author(s) are visible when a reader opens the file. Suggested areas include in a header, on the first page/first slide, or as a “Notes” sheet in a spreadsheet workbook.
* Upload a separate file for each supporting material item when you submit your article. **Do not embed any of this information in the manuscript text file**.
* The maximum size for each supporting file is 100 MB.
* In supporting files that contain lecture slides, it is helpful to include notes about materials and transitions to help the reader teach the materials.

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Refine your search by selecting “Tools” > “Usage Rights” > “Creative Commons licenses.” When you click on an image, you will find “License details” hyperlinked below. Click on the link to make sure the image is compatible.

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## Acknowledgments

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## Table and Figure Captions

[**Upload a separate file for each figure and table** when you submit your article. Do not embed any of this information in this text file. **All Tables and Figures MUST be referenced at least once** in the main text.]

## Tables

**Table 1.** Name of table. Table captions should contain a short description of the table.

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**Figure 1.** Name of figure. The figure caption should begin with a sentence that describes the overall “take home message” of the figure. **(A)** Indicate figure parts with capital letters. **(B)** You should also reference/ describe each figure part in the main text as well.

**IMPORTANT:**

* All tables must be submitted using the provided [table template](https://qubeshub.org/community/groups/coursesource/for_authors) and as a DOCX file (not PDF).
* All figures must be submitted in a graphic file format such as JPEG (PDFs will not be accepted).
* Ensure that no copyrighted materials (or copyrighted materials without permission) are included in your article or in your tables and figures.]

## References

[Replace these instructions with your reference list.]

The citation style of *CourseSource* follows the [standards set by the American Society for Microbiology (ASM)](https://journals.asm.org/journal/jmbe/reference-style). Here are general guidelines:

* Cite references in the text by placing the reference number in parentheses (or brackets when relevant). Number the references in the order in which they appear. For example:
	+ Several CUREs have been developed recently in the field of ecology (1-5). CURES have the potential to increase student success (6, 7). There are multiple consortiums available to help scholars develop their own CURES (see Consortium A [8], Consortium B [9], and Consortium C [10] for more information). Despite this growth, research suggests that interdisciplinary CUREs are lacking in the current literature (4).
* If you are using reference organization software, **you must submit an unlinked version**.
* Abbreviate the names of journals, according to the list in [NCBI](http://www.ncbi.nlm.nih.gov/nlmcatalog/journals). **Remove any periods**.
* List all authors of the reference.
* Use sentence case for titles (helpful website: <https://titlecaseconverter.com/> )
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	+ doi:10.1187/05-06-0082
	+ OR
	+ <https://doi.org/10.1187/05-06-0082>
* If multiple references are cited in the same citation, number them by date order with the oldest citation as the lowest number.
* References in the list should **only be of references in the main text**. Any references in the Supporting Materials should be listed separately within the Supporting Material.

Examples of reference style:

**Journal Articles**

1. Knight JK, Wood WB. 2005. Teaching more by lecturing less. Cell Biol Educ 4:298–310. doi:10.1187/05-06-0082.

**Book/ Report**

1. Handelsman J, Miller S, Pfund C. 2006. Scientific teaching. W.H. Freeman, New York, NY.

**Book Chapters**

1. Dennen VP, Burner KJ. 2008. The cognitive apprenticeship model in educational practice, p 425–439. *In* Spector JM, Merrill MD, van Merriënboer J, Driscoll MP (ed), Handbook of research on educational communications and technology, 3rd ed. Lawrence Erlbaum Associates, New York, NY.

**Websites**

Author (if unavailable, use website host). Year published (if unavailable, use update/revision date; if unavailable, write “n.d.”). Article title. Website host (if not already used as author). Retrieved from URL (accessed day month year).

*Examples:*

1. California Department of Fish and Wildlife. 2022. Gray wolf. Retrieved from https://wildlife.ca.gov/Conservation/Mammals/Gray-Wolf (accessed 19 October 2022).
2. Ray J, Marken S. 2014. Life in college matters for life after college. Gallup. Retrieved from https://news.gallup.com/poll/168848/life-college-matters-life-college.aspx (accessed 14 July 2022).

*Please note an important distinction!* If you use a website page as a citation, please cite it properly—such as (4)—and include the citation in your references list. If you are providing information for readers (such as a YouTube video for students to watch, a website to buy lab supplies from, a popular science article for students to read, etc.), do not cite the website in-text and do not include it in the references list. Formatting would look as follows (as described previously):

Students watch a short video about photosynthesis (<https://www.youtube.com/watch?v=2KZb2_vcNTg>) prior to the activity.

Visit the [ASM website](https://journals.asm.org/journal/jmbe/reference-style) for the most current information regarding formatting of references. [This website](https://www.unr.edu/writing-speaking-center/student-resources/writing-speaking-resources/american-society-of-microbiology-%28asm%29-style) is also a helpful resource for how to cite different kinds of references, but may not have the most up-to-date information.

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