

Instructions for Authors (first two pages):

We have created this manuscript template to aid our student authors in the formatting of their work when submitting to *eiRxiv*.

Using This Template:

- The following pages contain a manuscript template for you to use for your submission.
 - **Please do not simply copy and paste your text onto this template.**
 - Take time to read the examples and advice given for each section.
 - **Do NOT change the order of the sections, add any sections, or remove any sections.** You must use the sections and order as laid out on the following pages.
- We have provided information under each heading to guide authors as well as point out common mistakes seen.
 - Our online [submission guide](#) contains more information than presented here. We strongly encourage all authors to read this guide throughout the submission process. *It will save you time during the submission process.*
- As you write, remove any non-heading text (*in italics*) in this template.
 - All that should be left in the end are the headings and your text (non-italic, unless needed) telling us about your research!

General Formatting Items:

- 1.5x Line Spacing
- Font: Arial, size 11
- 1-inch margins on all sides
- 10 page limit
 - o Counted from the start of the Introduction to the end of the Materials/Methods
 - o At initial submission you may be 1-1.5 pages over this limit as we work with you on manuscript content and refining the material presented.
- 8 Table + Figure maximum
- Please leave the line numbers on the document – it helps out our reviewers and editors!
- Do not use specially formatted headings or subheadings – they should all be bolded 11pt font

Before Submitting:

- Ensure that all authors have given permission for this work to be published at *EIRXIV*.
- All images and tables are original to this work
 - **Any image and/or table published in other sources required approval for copyright reasons.** Please reach out to us prior to submission if you are considering using a previously published image/table.
- You have all study approval documents (if applicable)
 - Please see our [Human and Animal Subjects guidelines](#) for more information
 - For consent forms, please upload just the blank version.
 - If we need to see filled out forms, we will contact you after submission.
- Lastly, please delete the “Instructions for Authors” pages from the manuscript file

Using eiRxiv Submission Site:

- The senior/corresponding author (or parent/guardian) must create an account.
 - o If a parent/guardian is submitting the manuscript and is not the senior author, please ensure you have received permission from the senior author to publish.
 - o The individual who submits the work will be who all emails from us are addressed to. This does NOT reflect the actual order of authors which will be pulled from your manuscript Word file.

- o The student author is allowed to submit their manuscript to *eiRXIV* using their own eiRxiv submission account.
 - o An adult's approval is required for any manuscript submission.
- The manuscript file needs to be in PDF document format
- Figures must be saved as jpg/png/tiff files in order to be recognized by the system
 - o Figures should be uploaded separately in Editorial Manager **as well as placed at the end of this template above their captions**
 - o If a figure has multiple panels (i.e., Figure 1a, b, c), it must be uploaded it as **one** file.
- Any study approval documents should be uploaded under "other"
- Check out our full [submission checklists](#) for all other items needed to submit

Contacting the Staff:

Should you have any questions throughout the submission process, please contact us at submissions@eiRxiv.org. If you have submitted, please include the title, and, if accepted for review, the manuscript number (Ex: EIRXIV-22-153) in any email to the staff.

Article Title [110 characters or less]

First Author¹, Second Author², Third Author^{1,2}

¹ Department (if applicable), Institution/School, City, State, Country (if non-US)

² Department (if applicable), Institution/School, City, State, Country (if non-US)

³ Department (if applicable), Institution/School, City, State, Country (if non-US)

Affiliations of “unaffiliated”, “mentor”, or that only give general industry/position (i.e., tech sector) are NOT allowed. Authors may default to the student author’s affiliation if needed.

Student Authors

Please list all student author names here and indicate whether in middle or high school

Authorship Guidelines:

*Equal contributions should be noted by placing an * after each author who contributed equally. The statement “These authors contributed equally to this work” should be given at the end of the author affiliations.*

A senior (adult) author is required for all EIRXIV manuscripts. This person is generally the individual who supervised the research. They often don’t participate in the data collection but provide feedback on experimental design and in writing the manuscript.

Please do not list degrees for any of the authors on the title page as it will be removed before publishing.

SUMMARY

250 words or less, one paragraph

A short summary of the manuscript. It should include:

- *The problem that prompted the study or why the study is valuable*
- *The research question/purpose of the study*
- *Main hypothesis*
- *Summary of results with a very brief overview of the methods for context*
- *Conclusions of the work and implications of the findings*

INTRODUCTION

We recommend that introductions follow an inverted pyramid format where you start off broad and get more and more specific with each paragraph about your research question.

Your introduction should:

- *Describe the overarching scientific topic of the manuscript*
- *Provide background on the scientific question so the readers understand why the question is being asked AND why the question is of interest*
- *Have [references](#) throughout (this section is often the one with the most references)*
- *End with a brief concluding paragraph that states:*
 - o *The purpose/hypothesis of the work*
 - o *Major results*
 - o *1-2 takeaway points*

Common mistakes seen:

- *Presenting work that is not hypothesis-driven. Please see our [guidelines](#) for more information.*
- *Not having any or enough citations to support claims made. Any claim made that is not considered “common knowledge” must have a citation provided. For example, if you are stating a fact, such as “1.3 million people die from tuberculosis every year”, please include a citation to support that claim.*
- *Presenting hypotheses as a null and alternative hypothesis. When writing a manuscript, we don’t want to have text that could potentially confuse readers, so you should just state the question you are interested in testing (often is the alternative hypothesis)*

RESULTS

The results are where you report what you saw with your experiments. For each experiment you will want to:

- Describe the rationale for the experiment (why does this experiment make sense to do?)
- Briefly explain how the experiment was done
 - o This is to help your readers understand the data. Full details will be provided in “Materials and Methods”
- State what you saw in your experiments, making sure you reference any figures or tables that contain your results

Common mistakes we see is that present instead of past tense is used to described results, and too much focus is placed on figures, statistics and/or numbers without putting them in the larger context of the experiment. We recommend authors think about referencing these items like they do when citing literature to support claims. An example of both these scenarios is given below:

Incorrect:

*In **Figure 1** we can see that with a p-value of 0.01 seeds planted in soil containing 40ppm nitrogen grew significantly taller than those in soil with 20 ppm nitrogen.*

Correct:

*Seeds planted in soil containing 40 ppm nitrogen grew significantly taller than those in soil with 20 ppm nitrogen ($p = 0.01$, two-sample t-test, **Figure 1**).*

DISCUSSION

The discussion is often the longest sections of a manuscript. This section is where you want to discuss your results and interpret what these results mean.

Your discussion should:

- Summarize the experimental results and draw conclusions from these results
 - o Results must be mentioned in the results section first
- Discuss factors or limitations that could have influenced your results
 - o Human error is assumed so should not be the primary focus of this section
 - o Think about if your experiments should have had more replicates, different controls, or if there were better ways to measure your data than what you used.

- *Tell the readers about the significance/impact of your results*
 - *Be careful to not overinterpret your results here!*
 - *Example of overinterpretation:*
 - *Treating cells in vitro and seeing an effect (i.e. decrease in glucose) does not indicate that you have found a new compound that will work in animals or humans in vivo to treat a disease (i.e. diabetes).*
 - *Also remember that correlation does not equal causation*
 - *Your data supports a hypothesis, but it cannot definitively prove it*
- *Discuss remaining scientific questions and potential future experiments*
- *Conclude with a paragraph that briefly summarizes your results and touches on the overall impacts of your research*

MATERIALS AND METHODS

This is usually the hardest part of the manuscript to write for our student authors as it differs the most from what you would do in a standard lab report. You want to provide enough details that someone would be able to replicate your experiments, but you should not list out everything in a step-by-step fashion. Materials, equipment, and animal strains should have a company and catalog number given.

The Materials and Methods (and the Results) can be divided into subsections with a header (in italics) summarizing the content of that subsection. This is particularly helpful in keeping it organized if you have different experiments.

If you had any code that was self-generated for your manuscript, then you can either upload it to a GitHub page (if you have one) and provide that link or include the full script as an appendix to your manuscript. This ensures the script is available to all readers.

We have provided an example below of a step-by-step protocol and how it was changed into a protocol for a manuscript.

Incorrect:

- 1) *Grow bacteria up overnight with shaking at 30°C in 2 mL of broth in a glass test tube*
- 2) *Perform a serial dilution on the overnight cultures (1:10 to 1:1000) in sterile water*
- 3) *Using a sterile cell spreader, spread out 50 uL of each dilution onto blood agar plates.*
- 4) *Incubate at 30°C overnight.*
- 5) *Count the resulting colonies and categorize based on hemolysis of the blood agar.*

Correct:

Bacteria samples in glass tubes containing 2 mL LB broth (Sigma, Cat# L2542) were grown at 30°C overnight with shaking in the SD-ura incubator. Overnight cultures were diluted via serial dilution from 1:10 to 1:1000 in sterile deionized water. Using a cell spreader, 50 uL of each dilution spread onto tryptic soy agar (TSA) plates (GrowingLabs, Cat# G60) to ensure even coating. Then, plates were inverted and incubated at 30°C overnight. The resulting colonies were counted.

ACKNOWLEDGMENTS (Optional)

Authorship is considered the highest form of acknowledgement in scientific writing. This means that anyone in your author list cannot appear in your acknowledgements. Include anyone or anyplace that helped with your research but didn't meet the requirements for authorship.

If you received any funding for your work this is where you want to acknowledge it!

REFERENCES

[References](#) should be in a modified MLA 8 format.

- *References are number based on the order in which they are cited in text*
- *No hanging indentation should be used*
- *Hyperlinks (just the link to the web, not the text itself) should be removed along with "https://"* for any reference with a weblink

Every effort should be made to use primary sources or reputable secondary sources. Try to avoid/limit referencing Wikipedia or blogs and social media posts.

Figures and Figure Captions

Place your figures in this section with their caption located below the figure.

Figure captions are often one of the hardest pieces of a manuscript to write. The basic elements of a caption are: **title**, **what is shown**, **methods**, **statistical tests and values** (if applicable), and **replicates**.

Example caption:

Figure 1. Herbal formulation (HF1) eliminated PMA-induced overexpression of COX-2 in MCF-7 cells. Bar graph showing mean $\pm$ SD COX-2 mRNA fold change ($n=3$). MCF-7 breast cancer cells were grown under either control conditions, in 10ng/mL PMA (COX-2 overexpression), or in 10 ng/mL PMA + 0.3 mg/mL HF1 for 24hrs. One-way ANOVA, *** $p < 0.001$.

Note: Your figure or table captions should capitalize the first letter of the first word and then only proper nouns and acronyms after that.

Tables with Captions

Tables should be placed above their caption. Make sure your captions explain any abbreviations used in the table. Any references provided in the table should also be cited somewhere in the manuscript and given in the table as: Last name (year)

Tables should be in an editable format (not provided as jpeg/png/tiff files) and efforts should be made to limit them to 1 page in size. If tables cannot be made to fit on one page, while still being legible, it will be placed in the appendix for the manuscript.

Appendix (If applicable)

EIRXIV allows appendices on a case-by-case basis depending on the type of research being presented.

If you feel your work requires an appendix, please include it along with a separate statement of why this information is necessary to include as an appendix rather than in the actual manuscript.

Note: Code/programming script does not need any statement provided with it.