Writing your Abstract

Members of the scientific community are expected to communicate their research findings to the broader research community and to the public.

As undergraduate interns at DOE laboratories and full-fledged members of the scientific community, you are required to communicate the results of your efforts by writing a **Research Abstract**, a succinct summary of your research findings. Abstracts provide a brief overview of your work and should consist of no more than 2500 characters, including spaces, arranged in a single paragraph and single-spaced.

Although an abstract is not explicitly divided into sections, it must contain four distinct parts:

1. The **introduction** section describes and appropriately connects the subject and context/ background of the research to the purpose of the investigation.

2. The **methods** section identifies the methods used to study the subject of the investigation or identifies the existing procedures, models or programs used in the investigation.

3. The **results** section provides an explanation of what was discovered, accomplished, collected or produced.

4. The **conclusion** provides an interpretation of the results and what they mean to the investigation and an evaluation of the relevance or uniqueness of what was accomplished in the immediate context of the project's purpose and the broader scientific field.

Even though abstracts are typically written after a full-length research paper has been completed, the nature of undergraduate internships may require that an abstract be written before and/or during your research. For this reason, you should create initial drafts of your abstract early in your internship and update them regularly as your work progresses. At the end of your internship, a final version of your abstract can be quickly completed that accurately and fully reflects your accomplishments.

Although it is difficult to be both concise and descriptive, that is exactly what a scientific abstract must be. You should employ complete sentences and appropriate word choices that exclude jargon. The abstract should not include citations, references to sections in a research paper, graphs, tables, pictures or complex formulas. Despite these limitations, the abstract should be able to serve as a "stand alone" document that briefly reflects the nature of your investigation. Proper spelling, capitalization, punctuation, grammar and usage are described in the *Journal of Undergraduate Writing Style Guide*. (Please see the EduLink "Key Resources & Information Page.")

Abstract Evaluations and Eligibility for Publication

Your abstract must be submitted at the end of your term and will be considered for publication in the *Journal of Undergraduate Research*. All abstracts will be evaluated based on the criteria and scoring rubrics described below. Qualifiers have been written into the scoring rubrics to account for circumstances where research was not completed by the end of your internship period.

All abstracts that:
1. meet the DOE quality mission science criterion,
2. reflect quality research involvement, and
3. score above a predetermined value on the research abstract rubric

will be accepted for publication in the *Journal of Undergraduate Research* and may or may not require minor editing.

Abstracts that meet mission science criterion and reflect quality research involvement, but score below the predetermined value may also be considered for publication pending revision as directed by Headquarters and your Laboratory Education Director.

Abstracts that exceed the word limit will not be accepted or scored since abstracts that exceed 2500 characters will be truncated and unsuitable for publication.

Please see the EduLink "Key Resources & Information Page." to view sample abstracts with accompanying scores.

All Abstracts must meet the following two criteria at minimum to be considered for Publication in the *Journal of Undergraduate Research*.

Then, each abstract is scored using the rubric on the next page.

Qualifying Criteria for Abstracts		
Component	**Eligible for Publication**	**Not Eligible for Publication**
MISSION SCIENCE
The abstract reports on high quality, significant research that is aligned with one or more DOE mission areas.	Describes activities and tasks performed that are a part of a high quality scientific research project clearly connected to one or more DOE mission areas.	Describes activities and tasks that are NOT clearly connected to one or more DOE mission areas or are not a part of a high quality research project.
RESEARCH INVOLVEMENT
The abstract reflects a meaningful involvement in the process of scientific research | Describes activities and tasks that reflect a rich involvement with the fundamental scientific principles essential to the research and are essential to the accomplishment of the research | Describes activities or tasks that reflect little understanding of the fundamental scientific principles related to the research, OR

Describes activities or tasks that are of only a routine or menial nature, without connection to the fundamental scientific principles related to scientific research. |

Abstracts that meet the mission science and the research involvement criteria will be evaluated using the following rubric on a 0 to 10 point scale and considered for publication in the *Journal of Undergraduate Research.*

Research Abstract Evaluation Rubric - page 1 of 2

Research Abstract Components	2 points A component in this category:	1 point A component in this category:	0 points A component in this category:
INTRODUCTION The introduction succinctly describes and appropriately connects the subject and context/ background to the purpose of the investigation.	• Describes and connects the subject and context/ background to the purpose of the investigation in an organized, specific and concise manner.	• Describes and connects the subject and context/background to the purpose of the investigation, but is somewhat disorganized, somewhat lacking in specifics or somewhat wordy, • Or contains only implicit or superficial connections.	• Describes and connects subject and context/background to the purpose of the investigation, but lacks organization, lacks specific details or is overly wordy, • Or fails to make connections, • Or contains no introduction.
METHODS The methods section succinctly identifies the methods used to study the subject of the investigation OR succinctly identifies the existing procedures, models or programs used.	• Discusses the methods or resources used to study the subject of the investigation in an organized, specific and concise manner.	• Discusses the methods or resources used to study the subject of the investigation, but is somewhat disorganized, somewhat lacking in specifics or somewhat wordy.	• Discusses the methods or resources used in the investigation, but lacks organization, lacks specific details or is overly wordy, • Or provides no discussion of the methods or resources used.
RESULTS The results section provides a succinct and specific explanation of what was discovered, accomplished, collected or produced.	• States results, including quantitative data, in an organized, specific and concise manner, • Or provides a thorough, organized and specific explanation of why no data or results were achieved.*	• States results including quantitative data, but is somewhat disorganized, somewhat lacking in specifics or somewhat wordy, • Or states results only qualitatively, • Or provides only a superficial explanation of why no data or results were achieved.	• Provides no results, • Or does not explain why results were not possible, • Or states only "No results."

Research Abstract Evaluation Rubric - page 2 of 2

Research Abstract Components	2 points A component in this category:	1 point A component in this category:	0 points A component in this category:
CONCLUSION With results: The conclusion provides a succinct interpretation of the results and evaluates what the results mean to the investigation, OR evaluates the relevance or uniqueness of what was accomplished in the immediate context of the project's purpose, AND describes how the investigation fits within a larger field. When results were not obtained: A conclusion without results succinctly evaluates what the completion of the investigation could mean within a larger field.	• Provides an interpretation of results, if any, in a clear and concise manner and specifically states what they mean to the investigation, • Or provides an evaluation of the relevance or uniqueness of the accomplishments in the immediate context of the project's purpose, • And describes how the investigation, whether completed or not, fits within a larger field or continuing investigation in a clear and concise manner.	• Provides an interpretation of results, if any, but in a somewhat disorganized or somewhat wordy manner or fails to state what the results mean to the investigation, • Or provides an evaluation of the relevance or uniqueness of the accomplishments in the immediate context of the project's purpose and in the larger context of its field, but is somewhat disorganized, somewhat lacking in detail or somewhat wordy, • And states how the investigation, whether completed or not, fits within a larger field or continuing investigation, but is somewhat disorganized or somewhat wordy.	• Provides a conclusion that lacks organization, lacks specificity or is overly wordy, • Or provides an evaluation that lacks organization, lacks specificity or is overly wordy, • Or provides no conclusion.
LANGUAGE USE & CONVENTIONS The abstract employs complete sentences, appropriate word choices that exclude jargon, correct grammar and usage, conventional spelling, capitalization and punctuation, and defines all acronyms.	• Contains no errors in language use or conventions, • And defines all acronyms at their first use,	• Contains no more than two errors in language use or conventions, • Or contains, at their first use, no more than two undefined acronyms.	• Contains three or more errors in language use or conventions, • Or contains three or more undefined acronyms.

*This exception is meant to cover instances where the investigation was not completed during the internship.