

## “Reading, writing and revising an abstract” Exercises

**Learning Objectives:** Students learn how to summarize research and identify problems, contributions, evidence, and meaning of their own and other research. These activities can be performed before the students start their project, so that they learn what a road map for research is, or in the middle or towards the end a project.

A good abstract generally contains: (1) a clear problem statement, (2) why the problem is important, (3) the technical contribution of the work, (4) what the evaluation is and what it indicates (e.g., a proof, experiments, data collection), and (5) meaning, e.g., what the consequences of (3) and (4) are. Another key aspect of a good abstract is that it will include concrete and specific technical details that motivate readers to find out more.

**Activity 1:** Find three or four well-written abstracts and one or two poorly written abstracts from the biography exercise or some papers they have read as part of their project. It is important that they have actually read most of the papers, especially the poorly written abstract papers.

1. Ask the student(s) to diagram each abstract into the 5 parts above and bring them to a meeting.
2. Discuss how each abstract meets or does not meet the above criteria. Some good abstracts may not perfectly match the criteria. Discuss how they could be improved or why their choice is appropriate to the work and/or results in this paper.
3. Choose an abstract to improve and work together on a computer or on paper to rewrite it. The students and perhaps you will have read this paper so that they can insert specifics that make the abstract correct and engaging and specific!

**Activity 2:** Ask the student(s) to write an abstract for their project, *regardless of the status of the project*. They should diagram the abstract and bring it to a meeting. Even if the project is only half way through, the student can write an optimistic abstract in which all the experiments or proofs turn out perfectly. Be prepared to help students identify what the problem is that they are solving and why it is important, and to interview the student on specifics and novelty of the technical approach, and to help them predict the meaning.