Oral presentations are a critical component of communication in the physical sciences. One’s ability to communicate the ideas and results of scientific inquiry is equally as important as undertaking the science itself. More often than not, these new ideas and results are initially disseminated to the scientific community in the form of an oral presentation in a conference setting. Within this setting, every new idea or discovery requires a review of what was known, or what was thought to be known, and quite often necessitates a change in the way scientists approach a particular scientific phenomenon. Without continual communication and dissemination of results for others to build upon, science would quickly become stagnant.

Considering the previous discussion, scientific presentations are almost always driven by the necessity to disseminate one’s ideas and/or results. An effective presentation begins with an introduction that grabs the audience’s attention, provides motivation, and reviews the current state of knowledge in the field. The presentation ends with conclusions that support the speaker’s main hypothesis. In between, data (often in the form of schemes, graphs, and tables) are presented with a sense of precision, clarity, and objectivity that allows the audience to evaluate the validity of the results based solely on the experimentally (or theoretically) observed facts. How these data are presented and to what level of detail depend entirely on the audience. Thus, identifying the audience, the audience’s knowledge base, and the audience’s attitudes toward the subject is a key step in constructing an effective scientific presentation. For students in polymer science, the audience could range from one’s peers, professor, dissertation committee, or the science community as a whole—all of who have specific needs that must be identified and addressed. These needs will shape key features of the scientific presentation including overall organization, technical detail, and use of discipline specific jargon. Although it’s

The basics of speaking are, for the most part, consistent across disciplines. Knowing the expectations of a discipline is an important part of adapting to your audience, however. The papers in the “Speaking, in my opinion…” series do not represent an official statement from the department. They do, however, give you an introduction to different faculty opinions on effective speaking.
difficult to meet the needs of each member of the audience, the speaker should ultimately aim to make the often complex ideas of science appear clear and concise such that the audience grasps the overall significance of the presentation, rather than only parts of its contents.

Effective oral communication in the sciences, as in other disciplines, relies on the use of good public speaking habits. Examples of good habits include the use of proper articulation and pronunciation, volume, speech rate, body language, eye contact, and appropriate attire. In addition, the use of PowerPoint has become synonymous with scientific communication due to the fact that most scientific presentations are data driven. The entirety of the talk is often centered on explanations of complex graphs, tables, and schemes. In other words, pictures are an important part of conveying the content and concepts to the audience in a clear and concise manner. Thus, students must learn to design effective slides that balance text and graphical content and incorporate these visual aids into the oral delivery of the presentation.