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TEACHING & LEARNING SUMMIT 2016

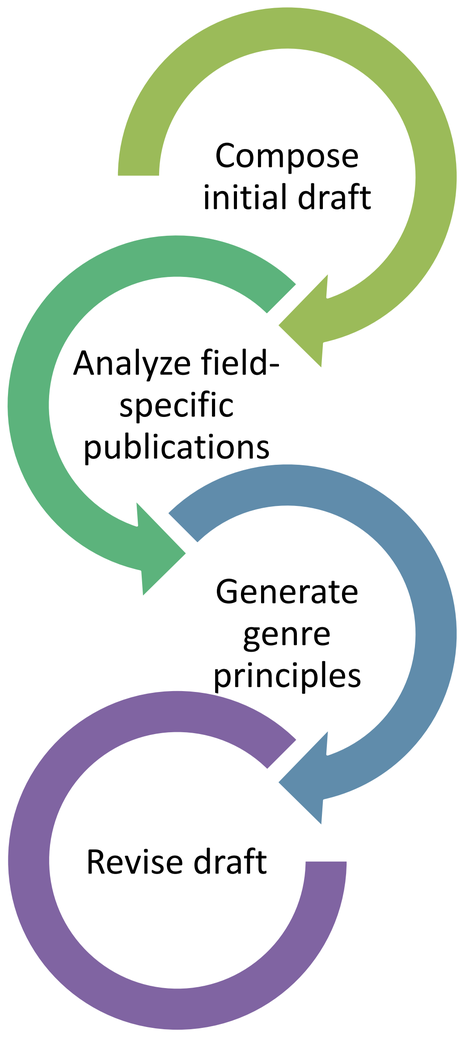
Carnegie Mellon University

Strategies for Graduate Writing Success

Graduate students need genre-focused training to successfully communicate their research.

Course Design

Our goal was to demystify academic writing to help graduate students clearly communicate research in their specific fields.



Lessons Learned

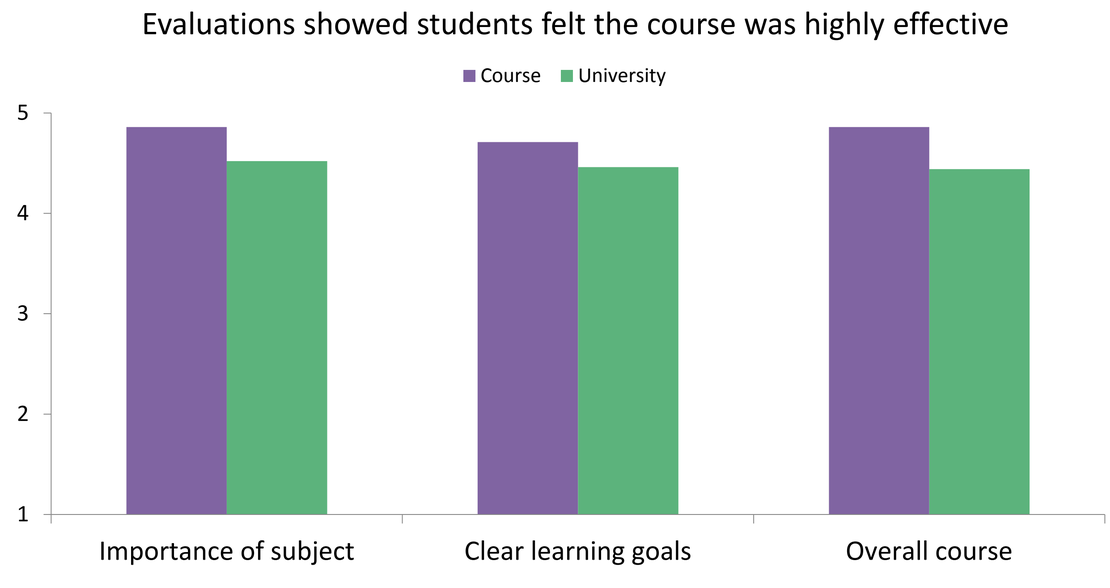
Writing in the disciplines is improved by integrating genre analysis.

- Students articulated field-specific expectations across genres
- Practice led to transferable learning principles and increased confidence
- Writing became more targeted and focused for specific audiences
- Students demonstrated a more robust disciplinary lexicon

Testimonials

"Very useful course. The in-class workshops and assignments helped **to understand in practice how to apply** the writing strategies learned in the class."

"I liked the **workshop** during the class and the **emphasis on practice**."



Evaluation

Students' final projects were evaluated according to recognition of and adherence to genre guidelines in their specific disciplines.

Step 1: Initial Draft

We propose a polylactic acid (PLA) composting process that can be completed in the home. A direct relationship between time and temperature results in decomposition. Our process can be extended to other bioplastics as well. This new process can help support the production of bioplastics because they are better for the environment than petroleum plastics, which are more common and cause many environmental problems.

Focusing on the project and broader implications

General issue

Depending on audience and field, this abstract may be confusing for the following reasons:

1) Starting with the contribution, or new research, does not give readers context to understand the general topic or territory.

2) The main focus of the research, polylactic acid, is not fully explained—readers may need to know what the mateiral is, why traditional recycling isn't appropriate, and why PLA is desirable.

Step 2: Analysis of Publication

The usage of plastics in packaging and disposable products, and the generation of plastic waste, have been increasing drastically. Broader usage of biodegradable plastics in packaging and disposable products as a solution to environmental problems would heavily depend on further reduction of costs and the discovery of novel biodegradable plastics with improved properties. In the authors' laboratories, various carbohydrates in the growth media, including sucrose, lactic acid, butyric acid, valeric acid, and various combinations of butyric and valeric acids, were utilized as the carbon (c) sources for the production of bioplastics by *Alcaligenes eutrophus*. As the first step in pursuit of eventual usage of industrial food wastewater as nutrients for microorganisms to synthesize bioplastics, the authors investigated the usage of malt wastes from a beer brewery plant as the C sources for the production of bioplastics by microorganisms. Specific polymer production yield by A. Latus DSM 1124 increased to 70% polymer/cell (g/g) and 32g/L cell dry wt, using malt wastes as the C source. The results of these experiments indicated that, with the use of different types of food wastes as the C source, different polyhydroxyal-kanoate copolymers could be produced with distinct polymer properties.

Significance of territory and current research

Problem with current research

Addressing the problem

Using an abstract from their fields the students analyzed the function of each sentence. The analyses led to categories and genre principles. These genre principles guided revisions and helped students adapt their writing between genres.

Abstract: Yu, P.H., et al. "Conversion of Food Industrial Wastes into Bioplastics." *Applied Biotechnology and Biotechnology*. Humana Press, 1998.

Step 3: Revised Draft

Although plastic has revolutionized modern life, the environmental impact of traditional petroleum plastics is staggering. Bioplastics may provide a sustainable alternative to petroleum plastics because they use fewer fossil fuels in production and reduce greenhouse gas emissions as they biodegrade. One particularly promising bioplastic is polylactic acid (PLA). PLA resembles traditional plastic and can be processed on equipment already used for petroleum plastics. However, the commercial viability of PLA is currently limited because it is only compostable in industrial facilities and cannot be mixed with other recyclable materials [1, 2]. To make PLA more commercially viable, we propose a device that composts PLA and other bioplastics within a home composting environment [3]. Such a device, we argue, would encourage the production of more sustainable and economic bioplastics.

Significance of territory

Current research in field (status quo)

Problem with status quo

Addressing the problem

Here, the student has provided helpful context to frame the new research.

As this student is at the proposal stage, the emphasis of the abstract was not on results, as can be see in the published sample. So the student adapted the genre principles to focus on problems in the field as a way to make a case for why his/her research is needed.

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