

# Academic Writing Across the Disciplines

---

**Written by Barrie Olson**

**With Introduction by Eleanor Dougherty**

**February 2013**  
**Literacy Design Collaborative**



## Introduction

When Jane, a high school science teacher, “got the message,” as she put it, that she was to teach reading and writing, she admitted that this new role seemed daunting. She certainly felt confident teaching science but was at a loss to teach literacy and wasn’t sure how to fit literacy instruction into her coursework. Nevertheless, on reflection she realized that her students would soon be in college science classes where they would have to write papers, not just lab reports. The Literacy Design Collaborative (LDC) gave her a starting point and guidance that she “badly” needed. Once she taught an essay in which students examined cryogenics, she realized that literacy was a powerful tool for learning and that her students internalized their examination of content better than they had when she gave them worksheets.

LDC is a framework for developing and teaching assignment tasks aligned to the College and Career Ready Anchor Standards in the Common Core State Standards. The framework consists of a system of template tasks that can be applied to any subject in the secondary grades, 6-12. Its purpose is to support teachers in their efforts to interpret and transform CCSS into practice.

At the request of the Literacy Design Collaborative, Professor Barrie Olson conducted a literature review on academic writing and discourse, as well as collected and analyzed college writing assignments. In her paper, *Academic Writing Across the Disciplines*, Olson details her findings and organizes the student writing products around a number of factors, including discipline, genre or mode, length, and form. The close concurrence with LDC’s framework bodes well for teachers who design and teach LDC modules and for their students. It is clear from her analysis that students who acquire reading and writing skills taught through LDC modules will find they are prepared for their coursework in college. In classrooms and school systems where students engage in LDC modules in multiple courses and over time, students will also acquire facility and confidence with such tasks, resulting in a level of preparedness that will enable them to manage the academic load that is common in the college curriculum.

### **Connections: How LDC and College Writing Concur**

Citing the work of Chris Thaiss and Terry Myers Zawacki, Olson states that three general traits define “good” academic writing in any discipline: the student writer displays reason over emotion, shows evidence of being open-minded and disciplined, and assumes a rational readership. The CCSS likewise call for students to apply critical thinking skill in reasoning and logic as they read and write, to produce text-based written products, and to use the conventions that apply to a discipline and audience. The alignment with CCSS “hardwired” into the LDC templates supports these traits:

- LDC promotes “reason over emotion” by focusing on expository writing in which students provide reasons and explanations for their claims in argumentation and theses in informational or explanatory products.
- LDC requires evidence of being “open minded and disciplined” because students must also read in order to produce written evidence of explicit understandings of texts.
- LDC’s framework is designed to address a range of audiences but is primarily aimed at that “rational reader” who is willing to engage with information or argument provided by the student author. The two dominant modes in the LDC Framework, argumentation and informational/explanatory, set up writing so that students receive instruction in persuading and informing an audience.

Like the college writing assignments, LDC is designed to involve students in writing across the disciplines. Olson suggests a set of categories for understanding the types and purpose of writing tasks, such as problem-solving, researching from sources, conducting empirical inquiry, and analyzing concepts and data. These are “transactional” types of writing, and they constitute a large majority of the writing assigned in college coursework. The LDC template tasks and instructional templates allow teachers to mirror these categories in their teaching tasks.

In her paper, Olson provides an organizer that outlines the types of student products by discipline and genre. These useful charts can help secondary teachers include in their teaching tasks student written products that are typically found in a given discipline at the college level and can help to ensure students are exposed to a variety of academic writing types. These student product examples are telling of the level of reading and writing students will be expected to manage. For example, interpreting data is a skill necessary in science, engineering, and history. The ability to synthesize information from multiple sources and arrive at a hypothesis is another example of the skills students will need to bring to science courses. Likewise, the ability to infer from texts in order to arrive at an analysis or answer a text-based question is a skill necessary for the study of literature not only in English but in all disciplines. These skills should be nurtured throughout the secondary years and more directly aligned with college during the last two years of high school. The LDC templates can help teachers do just that, supporting their effort to create coherence and setting everyone’s eyes on college-readiness.

— Eleanor Dougherty  
*LDC Design Team*

## Table of Contents

Defining Academic Writing at the College Level .....	4
Distribution of Writing Task Types Across College Campuses .....	4
Concept-Driven and Data-Driven Writing .....	6
Citation Across Disciplines .....	6
Student Product Distribution by Discipline .....	8
English .....	9
History .....	11
Laboratory Sciences (Chemistry, Biology, etc.) .....	12
Engineering.....	14
Business .....	16
Psychology.....	17

## Defining Academic Writing at the College Level

The term “academic writing” is often used to describe the kind of writing students are asked to do at the college level. Unfortunately, genres differ significantly from one discipline to the next, which means that what is considered “good” academic writing in one classroom may not be considered so in another. We can, however, identify three traits of “good” academic writing<sup>1</sup> that span all disciplines and genres:

1. Reason over emotion
  - The student’s claims are made with adequate supporting evidence.
  - The student isn’t hyperbolic in his or her claims.
  - The student presents a clear line of reasoning to support his or her argument.
2. Evidence of being open-minded and disciplined
  - The student, where appropriate, includes and acknowledges opposing views.
  - The student includes a variety of credible sources.
3. The written product assumes a rational reader
  - The reader will look for gaps in the student’s argument and the student anticipates this.
  - The student assumes the reader is willing to be persuaded. The student, therefore, offers a clear line of reasoning in an effort to persuade.

It is important that these characteristics are made explicit to students. Often, when asked to explain academic writing, students can be heard saying that academic writing means “you can’t use the personal pronoun ‘I’ in a paper” or that academic writing has a three-part thesis. They do this because they associate the term “academic writing” with the writing they have done in school and frequently, these are the writing “rules” they have learned in school. These rules, however, are not universal. There are multiple disciplines that accept the use of first-person, not only in the work students turn in but in the professional journals of the field. Likewise, the three-part thesis statement (or any thesis statement for that matter) is not standard in every discipline or even in writing tasks within disciplines. This isn’t to say, however, that forbidding the use of the first-person in a given writing task, or insisting on the use of a thesis statement is arbitrary to a discipline or idiosyncratic of an instructor. On the contrary, there are often important rhetorical reasons for why disciplines and individual instructors make the “rules” they do. An instructor may “ban” the use of the word “I” in a paper not because a student’s opinion is invalid, but because given the writing task and the intended audience, the use of “I” would be inappropriate. For example, in a scientific research article, the audience is less interested in the actions of the scientist and more in what those actions produced or illustrate. Likewise, as the tables that follow will show, not all writing genres have any thesis statement at all (for example, an IMRaD report) let alone one with three parts. Thus, by explaining that writing “rules” are merely guidelines associated with best practices in a discipline or with a specific instructor, and by explicitly defining academic writing, we can better prepare students to engage with and understand the writing assignments they receive.

### Distribution of Writing Task Types Across College Campuses

When discussing the kinds of academic writing students are assigned at the college level, it can be helpful to distinguish them categorically rather than individually (primarily because the diversity of writing tasks is so expansive). Michael Carter<sup>2</sup>, in “Ways of Knowing, Doing, and Writing Across the Curriculum”

---

<sup>1</sup> Thaiss, Chris and Terry Myers Zawacki. *Engaged Writers, Dynamic Disciplines: Research on Academic Writing Life*. Portsmouth: Boynton/Cook, 2006.

<sup>2</sup> Carter, Michael. “Ways of Knowing, Doing, and Writing in the Disciplines.” *College Composition and Communication* 58.3 (2007): 385-418.

divides college writing tasks among four categories: problem-solving, research from sources, empirical inquiry and performance. *Problem-solving* assignments are, unsurprisingly, assignments that pose a problem and require students to respond with a solution. These types of assignments are popular in business and engineering courses and the written products may include business plans, feasibility reports, management plans, reports to management, project reports, project proposals, technical memoranda, and technical reports. Students being asked to write based on *research from sources* are often engaged in writing literary criticisms, research papers, and research projects. Often, when students say they have been asked to write “a paper,” this is the kind of assignment they are referring to. *Empirical inquiry* assignments require students to draw conclusions from data, often data they have collected themselves. These assignments are popular in the life and applied sciences and, at the upper-levels, sometimes the social sciences. These assignments include written products such as lab reports, poster presentations, research proposals, research reports, scientific articles, and scientific presentations. The final category is *performance*. In performance assignments, the written text itself is what is most important. Unlike lab reports or technical memos, where the most important factor may be the information or data being conveyed, in performance assignments, the most important feature may be the artistry of the text itself. Performance writing tasks could include creative writing pieces, editorials, feature articles, news stories, and websites.

Dan Melzer proposes a different way of categorizing academic writing. His categories are expressive, poetic, and transactional. *Expressive* writing is informal and serves an exploratory function. As such, the writer is his or her own audience. Expressive written products include free writing or journaling. *Poetic* focuses on the text itself. These assignments are the equivalent of Carter’s “performance” assignments. The final type of assignment is *transactional*. In transactional assignments, the writing is meant to be informative and, often, persuasive. Transactional writing includes investigative reports, lab reports, and policy memos.

Using Melzer’s categories, a 2002-2006 study<sup>3</sup> of over 100 postsecondary institutions (including Doctoral/Research Universities, Master’s Comprehensive Colleges, Baccalaureate Colleges, and A.A. Colleges) found the following distribution of writing tasks:

<i>Type of Writing Task</i>	<i>Percentage of Total</i>
• Transactional	83
• Expressive	13
• Poetic	4

Table 1: Distribution of writing tasks based on 2,100 writing assignments collected from 400 undergraduate courses (100 from the natural and applied sciences, 100 from business, 100 from the social sciences, and 100 from arts and humanities)

The data shows that transactional writing is, unquestionably, the most common kind of writing students are asked to do in their college classes. Based on the CCSS writing types, transactional writing is equivalent to the argumentative and informational or explanatory categories. Narrative writing would be considered either poetic or expressive depending on the particulars of the assignment. The distinction would be decided primarily based on who the target audience is for the piece.

<sup>3</sup> Melzer, Dan. “Writing Assignments Across the Curriculum: A National Study of College Writing.” *College Composition and Communication* 61.2 (2009): 240-261.

## Concept-Driven and Data-Driven Writing

Another way to categorize academic writing is by determining if it is concept-driven or data-driven<sup>4</sup>. Concept-driven writing is discourse that begins with a concept—such as a term, hypothesis, or theory—and then applies the concept to the data being analyzed. The data may be results from a study, a text, etc. Concept-driven discourse is popular in the social sciences where theories often drive the collection and interpretation of data. For example, a sociologist may hypothesize that poverty has an “X” effect on children in urban areas. The sociologist will then go out and study and collect data to support or refute this hypothesis. The social sciences feature a lot of conceptual-driven writing because rarely in those fields will researchers go out and conduct studies without a theory of some kind driving them.

Data-driven discourse, on the other hand, is discourse that begins with data that is then used to build a theory or support an interpretation. An example of a data-driven writing product is the literary analysis paper. When writing a literary analysis, students begin with the data (the text) and then use that text to develop a theory or an interpretation of the text. For example, a student may read a novel and notice some kind of pattern in the text (imagery, word choice, etc.) and then use this pattern to offer an interpretation of what the pattern means or suggests about the text as a whole.

While the social sciences commonly assign concept-driven writing and courses in the humanities, especially English, assign data-driven writing, both kinds of writing do appear in all disciplines. The distinction is helpful, however, because research indicates that students struggle significantly more when assigned a concept-driven paper. Their difficulty is frequently the result of the level of abstraction they must deal with when writing. If a concept seems too far removed, they will have difficulty working with it. That said, data-driven discourse brings its own challenges for students. Specifically, students can quickly become overwhelmed by the number of possible interpretations their data offers them. This is especially true with an assignment like literary analysis. Because both writing types present unique challenges, it can be helpful to explicitly state what kind of writing a student is engaging in. Moreover, in explaining the writing type, an instructor can also discuss disciplinary values and the reasons why one type of discourse—concept-driven or data-driven—is privileged over the other.

## Citation Across Disciplines

There are other ways for discussing disciplinary values beyond concept-driven and data-driven discourse. There is perhaps no greater tool for such discussions than the various citation models that disciplines adhere to. Most students arriving at college have some knowledge of citation. If nothing else, they know that they must do it to avoid accusations of plagiarism. While this is indeed true, neglecting to further inform students on the reasons for why we cite does them a disservice, not just as they develop their academic writing skills but also as they come to know and understand different disciplines.

The first discussion instructors should have with students is why scholars cite. Students who come to see citation as a mechanism for something other than defense against plagiarism accusations tend to put more time and effort into not only citing properly but also choosing better sources and integrating them more sophisticatedly into their work. Feak and Swales<sup>5</sup> offer seven relevant reasons for why writers should cite:

1. Defense against plagiarism
2. As a sign of respect (citation recognizes the work and achievements of previous scholars)

---

<sup>4</sup> MacDonald, Susan Peck. “Data-Driven and Conceptually-Driven Academic Discourse.” *Written Communication* 6.4 (1989): 411-435.

<sup>5</sup> Feak, Christine B., and John M. Swales. *Telling a Research Story: Writing a Literature Review*. Ann Arbor: U of Michigan P, 2009.

3. They tell your readers how to find the sources you used in case they want to do further research
4. Persuasion (they give the writer greater authority)
5. To mark one's place in the field of study (citations convince your reader that you know the field's history and are one of them)
6. Open up work for more research (citations point to what has been done already therefore illustrating the gaps for work still needed)
7. Tell the reader what the writer believes is relevant work, thus establishing an "intellectual network"

In addition to discussing reasons for citation beyond defense against plagiarism, it is helpful to explore various citation systems. Students who arrive at college with some level of familiarity with citation systems often view them as idiosyncratic. How an in-text citation is formatted and where the date goes all seem like arbitrary rules. In fact, the opposite is true. Citation systems go a long ways toward illustrating disciplinary values. While the number of citation systems currently in use is vast and would be impossible for any single person to cover, three citation systems in particular—MLA (Modern Language Association), APA (American Psychological Association), and IEEE (Institute of Electrical and Electronics Engineers)—are common on college campuses and help point to disciplinary values in the humanities, social sciences, and sciences.

Table 2 features in-text citations in MLA, APA, and IEEE style. The differences in style are significant. When a table such as this is shown to students, one of the first things they notice is the inclusion of publication date in APA format but no publication date in MLA format. This difference is important. In the social sciences, when an article was published is significant. A study on cancer cells from 1956 may not be as relevant as a study on cancer cells from 2012. Thus, whenever evidence in the form of citation is introduced in an APA-style paper, the date is included to alert the reader to the timeliness of the piece. In MLA, which is commonly used in the humanities, timeliness isn't as important. For example, a literary interpretation of *Hamlet* from 1972 is just as relevant and significant as one from 2011.

Next students point out that in IEEE, no page number is included at all. As Wolfe<sup>6</sup> explains, "IEEE lacks a mechanism for citing page numbers, which suggests how rare (and discouraged) direct quotations are in this discipline." MLA, on the other hand, has in-text citation guidelines not only for how to include page numbers but also how to format quotations depending on their length. Furthermore, the lack of any mention of an author shows that in IEEE disciplines, authorship is significantly less valued than the data itself.

MLA	APA	IEEE
Wilhoit explains that a simple claim is when "you have a single assertion to report" (59).	Wilhoit (2009) explains that a simple claim is when "you have a single assertion to report" (p. 59).	A simple claim is when "you have a single assertion to report" [1].

Table 2: Sample in-text citations

<sup>6</sup> Joanna Wolfe, Carnegie Mellon University, personal correspondence

A similar conversation can be had regarding works cited and reference lists. Table 3 shows these kinds of citations. Here, there are two major differences that students note. The first is that in MLA, an author's full first name is given whereas in APA, only the first initial is listed. The lack of full first name in APA indicates that disciplines employing APA as a citation style tend to favor the data (the methods, results, and discussion) over individual authorship. In MLA disciplines, authorship is very significant, in part because these disciplines tend to be data-driven, meaning that theories and abstractions tend to be associated with individuals rather than with disciplines as a whole (as is the case in concept-driven disciplines). Student will also once again note the placement of publication date.

The final difference of interest is the way that IEEE style citation uses numbers to order citations rather than alphabetically listed last names. When using IEEE, citations appear in the reference list in the same order they appear in the text itself. Disciplines that use IEEE tend to value concision. By numbering their citations, they can include less information in the text itself and numerically refer the reader to the reference page.

MLA	APA	IEEE
Wilhoit, Stephen. <i>A Brief Guide to Writing Academic Arguments</i> . New York: Longman, 2009. Print.	Wilhoit, S. (2009). <i>A brief guide to writing academic arguments</i> . New York: Longman.	[1] S. Wilhoit, <i>A Brief Guide to Writing Academic Arguments</i> . New York: Longman, 2009.

Table 3: Sample works cited and reference list citations

### Student Product Distribution by Discipline

While broad categorization is helpful when looking at academic writing as a whole, investigating the writing assigned in individual disciplines is also important. The following tables illustrate the variety of written products students may be assigned in English, History, Laboratory Science, Engineering, Business, and Psychology. They are developed from a review of the literature on academic writing and discourse, as well as from an analysis of collected sample writing assignments. It is important to note that the list is not exclusive, that certain products blend into other product types, and that while we can generalize their traits, they are by no means universal. The chart also includes reference to example LDC template tasks that could be used when designing an LDC assignment that results in the given student product.

## ENGLISH

Written Product	Literary Analysis	Rhetorical Analysis	Research Paper (Report)	Argument	Definition Essay	Evaluation
<b>Rhetorical Purpose</b>	Respond critically to cultural works	Examine in detail the way text works	Provide readers with reliable information	Ask readers to consider debatable ideas	Categorize a particular thing, person, event or phenomenon	Make a claim about the merit of something
<b>Variations</b>	<ul style="list-style-type: none"> <li>Literary Interpretation</li> <li>Close Reading</li> <li>Cultural Analysis</li> </ul>	<ul style="list-style-type: none"> <li>Ad Analysis</li> <li>Argument Analysis</li> <li>Cultural Analysis</li> <li>Analysis of a visual text</li> </ul>	<ul style="list-style-type: none"> <li>News Report</li> <li>Investigative Report</li> <li>Academic Report</li> <li>Flowchart</li> <li>Infographic</li> </ul>	<ul style="list-style-type: none"> <li>Argument to advance a thesis</li> <li>Exploratory Argument</li> <li>Refutation Argument</li> <li>Visual Argument</li> </ul>	<ul style="list-style-type: none"> <li>Simple Categorical Arguments</li> <li>Definitional Arguments</li> </ul>	<ul style="list-style-type: none"> <li>Product Review</li> <li>Arts Review</li> <li>Social Satire</li> <li>Visual Comparison</li> </ul>
<b>Major Traits</b>	<ul style="list-style-type: none"> <li>Thesis-driven (thesis first format)</li> <li>Claims supported with quotations from text(s)</li> <li>Proper citation</li> <li>Data-driven</li> </ul>	<ul style="list-style-type: none"> <li>Thesis-driven (thesis first format)</li> <li>Claims supported with quotations from text(s)</li> <li>Proper citation</li> <li>Data driven</li> </ul>	<ul style="list-style-type: none"> <li>Objective</li> <li>Uses reliable sources with supported evidence and/or claims and proper citations</li> <li>Presents information clearly</li> <li>Requires synthesis</li> <li>Thesis-driven</li> </ul>	<ul style="list-style-type: none"> <li>Thesis-driven</li> <li>Supporting evidence</li> <li>Refutation</li> <li>Often requires synthesis</li> </ul>	<ul style="list-style-type: none"> <li>Thesis-driven</li> <li>Establishes clear criteria</li> <li>Defends criteria matching</li> </ul>	<ul style="list-style-type: none"> <li>Thesis-driven (makes judgment)</li> <li>Establishes criteria</li> <li>Offers convincing evidence</li> </ul>
<b>Example LDC Template Task(s)</b>	<ul style="list-style-type: none"> <li>Analysis</li> <li>Comparison</li> </ul>	<ul style="list-style-type: none"> <li>Analysis</li> <li>Comparison</li> </ul>	<ul style="list-style-type: none"> <li>Synthesis</li> <li>Analysis</li> <li>Description</li> </ul>	<ul style="list-style-type: none"> <li>Any template task within Argumentation</li> </ul>	<ul style="list-style-type: none"> <li>Definition</li> </ul>	<ul style="list-style-type: none"> <li>Evaluation</li> </ul>

## ENGLISH

Written Product	Causal Paper	Narrative	Proposal	Annotated Bibliography
<b>Rhetorical Purpose</b>	Explain why, how, or if something happened	Chronicle events in people's lives	Define a problem and suggest a solution	Summarize and assess sources
<b>Variations</b>	<ul style="list-style-type: none"> <li>• Causal Analysis</li> <li>• Research Study</li> <li>• Exploratory Essay</li> <li>• Cultural Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Reflection</li> <li>• Literacy Narrative</li> <li>• Memoir</li> <li>• Graphic Narrative</li> </ul>	<ul style="list-style-type: none"> <li>• Formal Proposal</li> <li>• Manifesto</li> </ul>	
<b>Major Traits</b>	<ul style="list-style-type: none"> <li>• Thesis-driven (makes judgment)</li> <li>• Establishes grounds</li> <li>• Offers convincing evidence from research</li> </ul>	<ul style="list-style-type: none"> <li>• Tells a story</li> <li>• Makes a point</li> <li>• Observes details closely</li> <li>• No explicit thesis statement</li> </ul>	<ul style="list-style-type: none"> <li>• Defines a problem typically with convincing evidence from research</li> <li>• Clear target audience</li> <li>• Considers reasonable options</li> <li>• Makes specific and realistic recommendations</li> </ul>	<ul style="list-style-type: none"> <li>• Accurate bibliography of research materials</li> <li>• Describes/summarizes the content of each item</li> <li>• Assesses quality of each item</li> <li>• Explains the role work plays in project</li> </ul>
<b>Example LDC Template Task(s)</b>	Cause-Effect	Description Procedural-Sequence	<ul style="list-style-type: none"> <li>• Problem-Solution</li> </ul>	<ul style="list-style-type: none"> <li>• Description</li> <li>• Synthesis</li> <li>• Evaluation<sup>7</sup></li> </ul>

<sup>7</sup> The focus of an annotated bibliography can differ. Some annotated bibliographies merely describe sources. Others may synthesize them and put them into conversation with one another. Frequently, annotated bibliographies will feature evaluative statements speaking to the usefulness of each particular source.

## HISTORY

Written Product	Response Paper	Historiographical Essay	Research Paper (Report)	Argument	Critiques of Article
<b>Rhetorical Purpose</b>	Reflect on a text and discuss/evaluate it	Analyze how historians have interpreted a particular event	Provide readers with reliable information	Ask readers to consider debatable ideas	Demonstrate comprehension and the ability to synthesize and critically evaluate information
<b>Variations</b>	Book Review		Academic Report	Argument to advance a thesis	
<b>Major Traits</b>	<ul style="list-style-type: none"> <li>• Thesis-driven (usually in response to a specific question)</li> <li>• Offers supporting evidence</li> </ul>	<ul style="list-style-type: none"> <li>• Thesis-driven</li> <li>• Uses reliable sources</li> <li>• Presents information clearly</li> </ul>	<ul style="list-style-type: none"> <li>• Objective</li> <li>• Uses reliable sources with supported evidence and/or claims and proper citations</li> <li>• Presents information clearly</li> <li>• Critically evaluates primary and secondary sources</li> </ul>	<ul style="list-style-type: none"> <li>• Thesis-driven</li> <li>• Supporting evidence</li> <li>• Refutation</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Addresses strengths and weaknesses of article with particular attention to research design, analysis, conclusions, and citation usage</li> </ul>
<b>Example LDC Template Task(s)</b>	<ul style="list-style-type: none"> <li>• Analysis</li> <li>• Evaluation</li> </ul>	Analysis	<ul style="list-style-type: none"> <li>• Synthesis</li> <li>• Analysis</li> <li>• Description</li> </ul>	<ul style="list-style-type: none"> <li>• Any template task within Argumentation</li> </ul>	Evaluation

## LABORATORY SCIENCES (CHEMISTRY, BIOLOGY, ETC)

Written Product	Lab Report	Poster Presentation	Research Paper (Report)	Argument
<b>Rhetorical Purpose</b>	Record a scientific experiment	Stand as a source of information and generate conversation	Provide readers with reliable information	Asks readers to consider debatable ideas
<b>Variations</b>	Scientific Research Report		<ul style="list-style-type: none"> <li>Academic Report</li> <li>Scientific Article</li> </ul>	<ul style="list-style-type: none"> <li>Argument to advance a thesis</li> <li>Scientific Article</li> </ul>
<b>Major Traits</b>	<ul style="list-style-type: none"> <li>Generally follow IMRaD format: Introduction, Methods, Results, Discussion</li> <li>May not contain a traditional thesis (though still a clear sense of purpose)</li> </ul>	<ul style="list-style-type: none"> <li>Focused on one message</li> <li>Includes charts, figures, and graphics and uses text sparingly</li> <li>Clear sequencing</li> </ul>	<ul style="list-style-type: none"> <li>Objective</li> <li>Uses reliable sources with supported evidence and/or claims and proper citations</li> <li>Presents information clearly</li> </ul>	<ul style="list-style-type: none"> <li>Thesis-driven</li> <li>Supporting evidence</li> <li>Refutation</li> </ul>
<b>Example LDC Template Task(s)</b>	Procedural-Sequential	Procedural-Sequential	<ul style="list-style-type: none"> <li>Synthesis</li> <li>Analysis</li> <li>Description</li> </ul>	Any template task within Argumentation

## LABORATORY SCIENCES (CHEMISTRY, BIOLOGY, ETC)

Written Product	Research Proposal	Journal Article	Literature Review
<b>Rhetorical Purpose</b>	Defines a problem and suggests how research will contribute to the solution	Presents primary research	Summarizes and synthesizes available information on a topic
<b>Variations</b>			
<b>Major Traits</b>	<ul style="list-style-type: none"> <li>• Defines a problem</li> <li>• Clear target audience</li> <li>• Considers reasonable options</li> <li>• Makes specific and realistic recommendations</li> </ul>	Often follow IMRaD format: Introduction, Methods, Results, Discussion	<ul style="list-style-type: none"> <li>• Uses a narrative structure (i.e., tells the story of the research)</li> <li>• Generally ends by pointing out a gap in the available research</li> </ul>
<b>Example LDC Template Task(s)</b>	Problem-Solution	<ul style="list-style-type: none"> <li>• Synthesis</li> <li>• Analysis</li> <li>• Definition</li> <li>• Description</li> <li>• Cause and Effect</li> <li>• Procedural-Sequential</li> </ul>	Synthesis

## ENGINEERING

Written Product	Research Report other than Lab Report	Lab Report	Progress Report	Critiques of Article
<b>Rhetorical Purpose</b>	Inform target audience on results obtained outside a laboratory environment; define a problem and possible solution	Record a scientific experiment	Informs on the intermediate stages of larger and/or more long-term projects (such as research or lab reports)	Demonstrates comprehension and the ability to synthesize and critically evaluate information
<b>Variations</b>	<ul style="list-style-type: none"> <li>• Case Study</li> <li>• Industry Report</li> <li>• Technical Report</li> <li>• Feasibility Report</li> </ul>	Scientific Research Report		
<b>Major Traits</b>	<ul style="list-style-type: none"> <li>• Generally follow IMRaD format: Introduction, Methods, Results, Discussion</li> <li>• May not contain a thesis</li> <li>• Clear purpose and target audience</li> </ul>	<ul style="list-style-type: none"> <li>• Generally follow IMRaD format: Introduction, Methods, Results, Discussion</li> <li>• May not contain a thesis</li> </ul>	<ul style="list-style-type: none"> <li>• Offers background and significance information on the larger project</li> <li>• Reminds readers of the overall aims or goals for the project</li> <li>• Explains studies done so far (and relationship to the aims of the project) as well as the results of those studies</li> <li>• Offers plans to meet the remaining specific aims</li> </ul>	Addresses strengths and weaknesses of article with particular attention to research design, analysis, conclusions, and citation usage
<b>Example LDC Template Task(s)</b>	<ul style="list-style-type: none"> <li>• Synthesis</li> <li>• Analysis</li> <li>• Description</li> </ul>	Procedural-Sequential	Procedural-Sequential	Evaluation

## ENGINEERING

Written Product	Memos	Technical Description	Annotated Bibliography	Proposal
<b>Rhetorical Purpose</b>	Provide readers with data and understanding	Describe a concept, process, or device to a lay audience	Summarize and assess sources	Define a problem and suggest a solution
<b>Variations</b>		Procedures/Process Description		Research Proposal
<b>Major Traits</b>	<ul style="list-style-type: none"> <li>• First paragraph states general purpose and intent of memo</li> <li>• Majority of information presented in main body</li> <li>• Emphasis on conciseness</li> <li>• Document design and inclusion of figures and tables (when needed) emphasized</li> <li>• Clear closing statement</li> </ul>	<ul style="list-style-type: none"> <li>• Establishes significance of the topic</li> <li>• When needed, uses tables and figures</li> <li>• Conveys information so that it is understandable to a non-technical audience</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Accurate bibliography of research materials</li> <li>• Describes/summarizes the content of each item</li> <li>• Assesses quality of each item</li> <li>• Explains the role work plays in project</li> </ul>	<ul style="list-style-type: none"> <li>• Defines a problem</li> <li>• Clear target audience</li> <li>• Considers reasonable options</li> <li>• Makes specific and realistic recommendations</li> </ul>
<b>Example LDC Template Task(s)</b>	Description	Description	<ul style="list-style-type: none"> <li>• Description</li> <li>• Synthesis</li> <li>• Evaluation<sup>8</sup></li> </ul>	Problem-Solution

<sup>8</sup> The focus of an annotated bibliography can differ. Some annotated bibliographies merely describe sources. Others may synthesize them and put them into conversation with one another. Frequently, annotated bibliographies will feature evaluative statements speaking to the usefulness of each particular source.

## BUSINESS

Written Product	Press Release	Cover Letter and Resume	Memo	Proposal	PowerPoint Presentation	Business Plan
<b>Rhetorical Purpose</b>	Provide journalists or the public with information on a specific topic	Apply for a job	Provide readers with data and understanding	Define a problem and suggest a solution	Present information visually and orally	Make a case to start or change a business
<b>Variations</b>		Curriculum Vitae	Hiring Memo Topic Memo Recommendation Letter, Email	Research Proposal		
<b>Major Traits</b>	<ul style="list-style-type: none"> <li>• Non-objective: press releases try to paint a business in the best possible light</li> <li>• Contains headline</li> </ul>	<ul style="list-style-type: none"> <li>• Attention to document design</li> <li>• Clear, concise language</li> <li>• Correct spelling, punctuation, and grammar very important</li> </ul>	<ul style="list-style-type: none"> <li>• First paragraph states purpose and intent</li> <li>• Majority of information presented in main body</li> <li>• Emphasis on conciseness</li> <li>• Document design and inclusion of figures and tables</li> <li>• Clear closing statement</li> </ul>	<ul style="list-style-type: none"> <li>• Defines a problem</li> <li>• Clear target audience</li> <li>• Considers reasonable options</li> <li>• Makes specific and realistic recommendation</li> </ul>	<ul style="list-style-type: none"> <li>• Strict attention to audience, purpose, and context</li> <li>• Integration of outside media sources (videos, links)</li> <li>• Attention to clarity and brevity</li> <li>• Clean visual design</li> </ul>	<ul style="list-style-type: none"> <li>• Attention to visual design and inclusion of tables and figures</li> <li>• Generally include title page, table of contents, executive summary, mission statement, company overview, financial plans</li> </ul>
<b>Example LDC Template Task(s)<sup>9</sup></b>			Description	Problem-Solution		

<sup>9</sup> Blanks indicate that the written product does not readily lend itself to be a written product for the template tasks included in the LDC Template Task Collection I. It does not mean that the written products in this section do not include various cognitive demands (for example, a business plan includes the cognitive demands of description, problem-solution, evaluation and more). It also does not mean the products should not/could not be used for other types of assignments and are not valuable for students to learn.

## PSYCHOLOGY

Written Product	Research Paper	Case Study	Lab Report	Critique Paper	Review
<b>Rhetorical Purpose</b>	Provide readers with reliable information	In-depth analysis of a human subject	Record a scientific experiment	Demonstrate comprehension and the ability to synthesize and critically evaluate information	Make a claim about the merit of something
<b>Variations</b>	Academic Report		Scientific Research Report		
<b>Major Traits</b>	<ul style="list-style-type: none"> <li>Objective</li> <li>Uses reliable sources with supported evidence and/or claims and proper citations</li> <li>Presents information clearly</li> <li>Critically evaluates primary and secondary sources</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Generally includes background information on the subject</li> <li>Describes the problem the subject is facing or has</li> <li>Determines diagnosis</li> <li>Outlines intervention strategies</li> </ul>	<ul style="list-style-type: none"> <li>Generally follow IMRaD format: Introduction, Methods, Results, Discussion</li> <li>May not contain an explicit thesis</li> </ul>	<ul style="list-style-type: none"> <li>Addresses strengths and weaknesses of article with particular attention to research design, analysis, conclusions, and citation usage</li> </ul>	<ul style="list-style-type: none"> <li>Thesis-driven (makes judgment)</li> <li>Establishes criteria</li> <li>Offers convincing evidence</li> </ul>
<b>Example LDC Template Task(s)</b>	<ul style="list-style-type: none"> <li>Synthesis</li> <li>Analysis</li> <li>Description</li> </ul>	<ul style="list-style-type: none"> <li>Description</li> <li>Analysis</li> </ul>	Procedural-Sequential	Evaluation	Evaluation