

## **To Not Lose Them at the Beginning: Nature and Human Values as a Writing-Intensive Course**

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On the first day of classes in January of 1982, I was sitting in a first-year philosophy course in the Willard O. Eddy Building on the Colorado State University campus. A balding, elderly man in a worn gray sweater walked in and wrote the words “Willard O. Eddy, Introduction to Philosophy” on the board, and I wondered why he had told us the name of the building but not his own name.

He started the class by telling us about atomic scientist Enrico Fermi, whom he called one of the great teachers of our century. Fermi, he said, once noted that teaching is vitally important, especially at the undergraduate level, because if you lose the mind at the beginning, you may lose it forever. Then the nameless professor looked at us and said, “When I retired from this University, I wanted to keep on teaching. The department said I could select any course I wanted—graduate level, undergraduate, whatever.” I believe it was in that moment that most of us freshmen realized that the name written on the board referred both to the building we were in and the professor standing in front of us. “I chose this introductory course,” he continued, “because I want to kindle your desire to learn. I want to do everything I can to make sure we do not lose you at the beginning.”

Nature and Human Values (NHV) is a writing-intensive course in part because we at the Colorado School of Mines (CSM) do not wish to lose our students at the beginning. This course introduces students to many of the tools they will need to meet the expectations for written communication in their academic and post-academic careers. Writing is also pivotal in this course since it provides a means for students to process the environmental, economic, and ethical ramifications of the issues they encounter in readings and in lectures as well as an opportunity to explore the issues they find most intriguing. Our hope is that the writing will kindle the kind of reflection and desire for learning that will enable students to become life-long learners and effective communicators. By that last phrase we do not wish to imply that we aim to produce novelists or poets, though those too are worthy endeavors; rather, we intend to avoid the tragedy of talent embedded in the following statement by George Heilmeier, corporate executive at Bellcore:

Communication skills are extremely important. Unfortunately, both written and oral skills are often ignored in engineering schools, so today we have many engineers with excellent ideas and a strong case to make, but they don't know how to make that case. If you can't make the case, no matter how good the science and technology may be, you're not going to see your ideas reach fruition.<sup>1</sup>

Our course—and a significant portion of the CSM curriculum—is founded on the idea that when students have both a solid technical and scientific background *and* the ability to convey their

ideas, they are ultimately in a greater position to influence their career paths, their chosen fields, and their world with the full fruit of their talents. The following course description, materials list, and objectives were designed with that larger perspective in mind.

## Course Description

The Writing (Recitation) Section of NHV is a process course that gives students the opportunity to express their ideas in writing and to gain experience with certain modes and formats common in business and technical writing. The written work in NHV accounts for 60% of the course grade while a midterm and final account for the remaining 40%.

The course is a crucial stepping stone in the training process. Just as a good skier learns to ski well by skiing often and learning from mistakes, a good writer learns to write well through practice and reflection. People who have achieved a high level of performance in playing a sport, a musical instrument, or anything else know that to be good at something takes consistent self-discipline and training. Writing is no different. One does not learn to be an excellent writer in one course just as one does not learn to be an excellent skier or tennis player or anything else with a handful of lessons. At the same time, the “lessons” in this course will recognize students’ current abilities as well as set some of the groundwork to be further developed in EPICS (the Engineering Practice In Communications Sequence) and in writing-intensive courses at the junior and senior levels within each student’s major. In NHV, students train to achieve two specific goals:

- To become more versatile writers who are able to write for a variety of audiences and purposes and
- To become more confident writers

Unlike the large lecture component of NHV, the writing component is deliberately capped at 20 students to facilitate more instructor-to-student interaction on students’ writing and to facilitate discussion on the topics raised by lectures, readings, and relevant issues that capture students’ interest. Students also keep journals as a way of tinkering with ideas that may then develop into longer, more involved reports.

## Course Materials

In addition to *Environmental Ethics*, *Our Ecological Footprint*, and a novel, the following texts are used in this course:

- ◇ Beer and McMurrey. *A Guide to Writing as an Engineer*. New York: John Wiley & Sons, 1997.
- ◇ Lunsford and Connors. *The Everyday Writer: A Brief Reference*. New York: St. Martin’s Press, 1997.

## Course Objectives

Students in NHV will improve their ability to

- Summarize the thesis and main supporting points of complex readings
- Read critically
- Collaborate on some writing and speaking tasks
- Support claims with ample evidence
- Identify and synthesize a range of positions on an issue
- Articulate a position on an issue in relation to other positions
- Deliver an oral presentation using visuals
- Analyze the elements of a formal report in the form of a topic proposal
- Conduct academic research on a focused topic related to sustainability
- Argue for a position and convincingly address counter-arguments
- Effectively incorporate persuasive strategies
- Use and cite an appropriate variety of sources
- Carefully evaluate research sources from the web, books, articles, etc.

Following the format outlined in *A Guide to Writing as an Engineer*, students will write

- A memorandum
- An e-mail message
- An engineering report

Students should also finish this course with an expanded understanding of these areas:

1. Rhetorical Knowledge -- Students should develop diverse ways of organizing and approaching assignments for a variety of audiences and purposes, particularly for argumentative writing.
2. Genre Knowledge -- Students should develop knowledge of appropriate genre conventions.
3. Writing-Reading Connections -- Students should learn to use writing and reading as tools for learning, thinking, and communicating.
4. Processes -- Students should conduct inquiry through various writing processes (this also includes revising, editing, and collaborating).

Points 1-4 above have been adapted from the 1997 CCCC Outcomes Statement, developed by members of the Conference of College Composition and Communication.<sup>2</sup>

How students work to achieve those objectives can be best illustrated via an explanation of the writing sequence, the role of oral presentations, team work, and the LAIS Writing Center.

## Writing Sequence

The sequence of assignments is guided by several principles, the main two of which are cognitive complexity and a progression in focus from self to community.

### *Cognitive Complexity*

This syllabus builds on the skills learned in previous essays so that students will use the thinking skills they learn in the first section in the second section, the skills they learn in the first and second sections in the third, and so on. It also “builds” in the sense that students are using gradually more complex skills as the course progresses—from knowledge and comprehension skills in the early essays to application, analysis, synthesis, and evaluation skills in the later reports.

### *Progression in Focus from Self to Community*

The syllabus also builds from I-Search to He/She-Search to Re-Search, incorporating whenever applicable previous types of searches. It is our hope that this progression from oneself to another individual to a community will allow students to begin to see the connections between what they value and what is happening in human-environmental interactions in their country and world. The sections and the cognitive skills as well as the focus of each writing section are outlined in Table 1.

Table 1. Overview of NHV Writing Assignments.

<b>ASSIGNMENT</b>	<b>COGNITIVE SKILLS</b>	<b>FOCUS</b>
Narrative Journal Entry (Not an essay)	Descriptive detail; ability to incorporate sufficient development for a specific audience and purpose; ability to make personal connections to the topic of the environment.	I (Self)
Abstract (written as a memorandum)	Ability to read critically; ability to distinguish an author’s main claim (thesis) from main supporting ideas; ability to summarize concisely; ability to show the interrelationships among key ideas.	He or She (Another)
Abstract and Response	Same as above as well as the ability to respond to an author’s ideas; ability to clearly identify one’s stance and support that stance with sufficient evidence.	He or She (Another) and I (Self)
Group Presentations (Not an essay)	Ability to communicate their understanding to the class of a range of positions on an environmental issue; ability to synthesize a range of positions; ability to evaluate those positions; ability to work in a team situation.	They (Others in a Specific Community) and Us (Selves)
Inquiry	Ability to identify and synthesize a range of positions on a focused issue; ability to articulate a position in relation to other positions on an issue.	They (Others) and I (Self)
Topic Proposal	Ability to analyze the main claim, reasons, and evidence prior to drafting the Arguing Report.	They (Others) and I (Self)
Arguing Report (following the guidelines for an engineering	Ability to conduct research on a focused issue related to the readings and course content; develop an understanding of the range of positions on that	They (Others in a Specific Community)

report)	issue; develop a position on that issue; marshal evidence to support their claims; effectively incorporate appropriate persuasive strategies (claims of fact, value, cause-effect and appeals to logos, pathos, ethos); gather, evaluate, and effectively use and cite an appropriate variety of sources (Internet, library, etc.); incorporate appropriate graphics, tables, charts; organize multiple ideas in a clear, long yet concise report.	and I (Self)
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Unit I assignments include the abstract and abstract/response, which are covered in approximately six weeks. Unit II includes longer, more complex business and technical writing assignments that are completed in the remaining nine weeks of a 15-week semester (excluding finals).

### **The Role of Oral Presentations**

Since students receive some experience with oral presentations in various facets of the CSM undergraduate curriculum and especially in another required freshman course, EPICS, Nature and Human Values places more emphasis on written rather than oral communication. But students do have an opportunity to experiment with presentation software, visual aids, and brief oral presentations. In the Group Presentation assignment listed above, students abstract and evaluate selected readings from *Environmental Ethics*. They evaluate the author or authors' credentials and credibility, the reliability of evidence presented, the date of publication (when applicable), the intended audience, and other facets of each reading in chapters on such topics as hazardous waste, pesticides, and nuclear power. Each group focuses on one of those chapter topics. In class, students present the themes that recur in many of the articles they have read, themes that most or all of the authors address directly or indirectly. Students also convey the two or three most intriguing discoveries of their search on their issue—particular concepts in the readings, particular threads that were woven through several readings, the conversations the group had about them, etc. These abstracts and evaluations are then posted to the course Web site ([http://www.mines.edu/academic/lais/course/lais\\_100/student\\_resources/abstracts/index.shtml](http://www.mines.edu/academic/lais/course/lais_100/student_resources/abstracts/index.shtml)) as a resource for students doing more in-depth research on those particular topics. The oral presentations also have the added benefit of catalyzing students' interest in a wide range of topics, and hence they are placed chronologically just before the Inquiry and Arguing Report. Additionally, the oral presentation allows students the opportunity to practice working in teams.

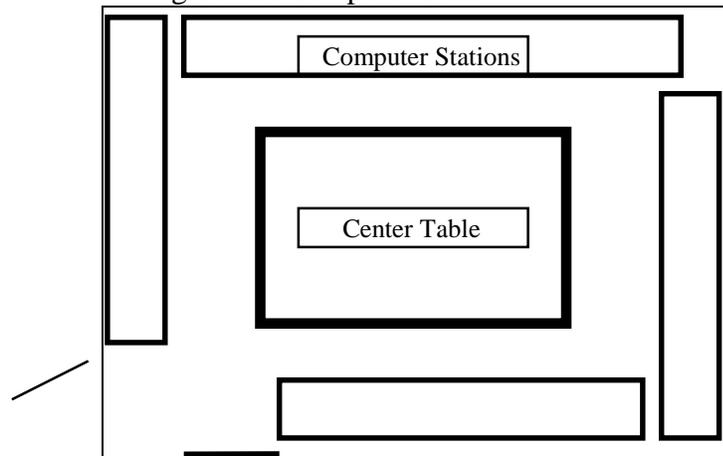
### **The Role of Teamwork**

Since students encounter collaborative projects frequently in their EPICS sequence in the freshman and sophomore years and beyond, such projects are among the secondary objectives of NHV. However, in addition to the group presentation, a great deal of collaboration occurs as peers review each other's written assignments in "workshops," peer review sessions that occur with each of the four formal writing assignments (Abstract, Abstract/Response, Inquiry, and Arguing Report) as well as on sample reports.

## The Role of the LAIS Writing Center

When we designed the floor plan for the Liberal Arts and International Studies (LAIS) Writing Center in June of 1997 (see Figure 1), we set out to design a room that would serve both as a writing center and as a computer classroom. Since the computer classroom needed to comfortably fit 20 computer stations, 20 students, one instructor and a printer as well as be conducive to discussion, we designed the room with one large “table” (actually several tables put together) in the center and the computer stations around the perimeter of the room.

Figure 1. LAIS Writing Center/Computer Classroom.



This design is particularly conducive to two of the main uses of the computer classroom: as a discussion room where students and an instructor mull over ideas together and as a workroom where students have an opportunity to express those ideas in writing. A video and computer screen projector also allow NHV instructors to display videos and demonstrate online search techniques, Usenet Groups, e-mail, and presentation software. The projector also enables discussion—and live revision—of sample essays, student essays, or the instructor’s writing.

Since written expression is a focal point not only in NHV but at several junctures in the Mines’ curriculum, this room also serves as the LAIS Writing Center when NHV classes are not in session. For 40 hours a week, our Writing Center provides tutorial support to writers at any phase of their writing process, whether students have just received an assignment and are brainstorming for ideas, whether they are placing the finishing touches on their work, or at any point in between. Writers come to our Center both to discuss academic course assignments and to consult with a tutor on everything from scholarship applications and resumes to graduate school applications and cover letters. Since we would like students to know about the availability of our services throughout their academic careers, all students in NHV and in EPICS are given presentations about the variety of services the Center provides.

In addition, we believe that if students are being required to convey their learning and their ideas in writing, they should also have access to both tutorial and online writing resources. This will help meet the needs of a diversity of learning styles. Through a grant and the collaboration of

other writing centers, we are developing a statewide consortium of online resources for writers. The shared resources will include online, interactive tutorials to assist student writers as they collect, shape, draft, and revise their ideas. Specifically, we will have online tutorials on generating ideas, evaluating, solving problems, analyzing audiences, and revising. In addition to the tutorials, we will have an online submission form called “Send a Paper” that will enable students to submit their written work electronically to tutors in the LAIS Writing Center.

At this writing, we are in our pilot year of NHV, learning a great deal from the experience of teaching the course and learning from the comments and advice of students and faculty. We aim to continue building and revising as we work toward a writing-intensive course that can serve as a cornerstone in an exciting and challenging undergraduate curriculum. We remain committed to helping students become more confident, effective communicators so that those abilities will benefit our students, our industries and universities, and ultimately our world. Comments or questions about the writing portion of our syllabus can be directed to [jleydens@mines.edu](mailto:jleydens@mines.edu).

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#### REFERENCES

1. “Educating Tomorrow’s Engineers,” in *ASEE Prism*, May/June 1995, p. 12.
2. Wiley, Mark. “CCCC 1997: Outcomes Forum (Session L.17): Session Results: Synthesis.” Available via the WWW at <http://www.nwmissouri.edu/~0500202/outcomes/mark.html>.

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