TIME TO WRITE

THE NEWSLETTER OF THE WRITING ACROSS THE CURRICULUM PROGRAM AT THE UNIVERSITY OF WISCONSIN-MADISON

Supporting faculty, staff, and teaching assistants as they teach with writing

THE CHANCELLOR REFLECTS ON THE VALUE OF WRITING IN UNDERGRADUATE EDUCATION

Rebecca M. Blank
Chancellor, UW-Madison

When I travel around Wisconsin talking to alumni, community groups, and business leaders, one of the most frequent comments I hear from employers is how much they value writing skills when they hire our students—and I hear this from employers who hire engineers as well as those who hire business or social work or history majors. Personally, I think there is no skill as valuable as the ability to write accurately, quickly, and clearly. Whether through long reports, short memos, or email and social media, good writing means good communication. And good writing demonstrates clear thinking about and deep understanding of complex ideas in every discipline.

I am happy to tell people that we have a university that values strong writing in all majors. In part, this is because we do not build barriers between our schools of agriculture and engineering, or business and music, or mathematics and history. All of our students take important courses in every school and college and in every major that help build their writing skills.

At UW-Madison, we prepare students for a career, not for a job. Writing, critical thinking, technological competence, the ability to speak a second language, and the ability to work in diverse and multicultural environments—those aren't luxuries for people in leadership positions of the future. They are necessities.

As a teacher, I know how much work goes into teaching good writing. In the many years I taught economics and public policy, assigning writing projects was always part of the curriculum. As chancellor, I deeply value the work that faculty, instructional staff, and TAs do to integrate writing assignments into courses across the curriculum. And I appreciate the time it takes for instructors to meet with students to discuss drafts and to give students detailed critical feedback on their work.

The Writing Across the Curriculum Program is key to our successful writing instruction. It offers excellent resources for instructors in all departments who are looking for creative ways to incorporate writing and speaking assignments into coursework. I encourage those who teach here to take advantage of the WAC staff's expertise, whether that is through attending a workshop, scheduling a one-on-one consultation, or reviewing the hundreds of pages of advice and examples they have assembled on the WAC website, writing.wisc.edu/wac. Your students, and their future employers, will thank you. •

Chancellor Rebecca M. Blank

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A Semester-Long Writing and Research Project in a Genetics Capstone Course

Kathleen Daly
Writing Across the Curriculum

Ahna Skop
Genetics

While taking a plant pathology course during her undergraduate career, genetics professor Ahna Skop completed a writing assignment that she says helped her become more confident that she could be a scientist: "I was learning plant pathology, but I was also learning how to ask questions and how to apply my own approach to a problem through writing. So when I became a faculty member, I wanted to replicate that experience for my own students."

Skop now teaches a genetics capstone course for juniors and seniors in genomics who are interested in having a "true research experience." On the first day of class, she tells her students that they will be doing a lot of writing for her course, rather than multiple-choice exams. Skop explained, "I don't come to work and fill out bubble sheets. That's not what a scientist does. I do a lot of writing and I think a lot."

In a semester-long project, Skop's students complete an in-depth genomic and bioinformatic analysis of a human disease gene or trait. This semester, students completed projects on a wide range of topics, including Alzheimer's, prostate cancer, Von Hippel Lindau disease, Angelman syndrome, and schizophrenia.

To learn about the different approaches they can take in their research project, each week students read, evaluate, and discuss papers from the primary literature on genomics and proteomics. They also attend a lab section during which they discover how to apply what they've learned about genetics and get hands-on experience with different bioinformatic methods of analysis. For their project, students are asked to "write specific aims for [their] project to help [them] craft a hypothesis and an experimental approach," and then present their research project to their peers and defend the ideas central to their specific aims.

Rather than write a traditional research paper for their final product, students are asked to create websites on which they publish what they've learned about their gene during their research. All student websites must include information about their research methods, specific aims, and findings. Students are also asked to post draft materials so that visitors can get a glimpse into their writing and research processes.

The website platform motivates students to work harder on their projects because they are presenting their ideas to a public audience. Creating a website, Skop said, pushes students to think critically about how they can use visual and written components to make their argument more clear for a diverse audience.

Clear Learning Goals & Built-In Process

Skop emphasized the importance of having clear learning goals for writing assignments: "I want to make sure that they learn skills that are going to use in their careers as scientists." For the semester-long project, the central goals are to develop a complex understanding of genomics and proteomics, become confident in modern experimental methods, and effectively communicate scientific information to a variety of audiences.

Skop helps her students succeed with what could otherwise be an overwhelming project, by building process into their projects. At the start of the semester, she walks students through multiple examples of student drafts and final papers from previous semesters in order to demonstrate to current students what a successful project, as well as substantial revision, looks like. As the semester continues, students receive extensive feedback from their peers and meet individually with Skop multiple times to discuss their progress and brainstorm strategies for completing their projects.

Fostering Student Engagement

It only takes five minutes of observing Skop's classroom to see that her students are genuinely invested in the work that they and their peers are doing. What motivates students to do the hard work required for this course? Skop explained, "There is a real sense of community in this course. The students have a lot of interaction with me and they work collaboratively to revise their websites and think through their ideas." Skop makes sure that her students know that she wants them to succeed.

Skop is also dedicated to helping underrepresented students gain the confidence they need to succeed in the class and in their future professions. Reflecting back on the challenges she faced as a person with dyslexia coming from a working-class background, Skop said that she helps students learn to identify their strengths and weaknesses, especially in terms of their communication skills, and motivates them to continue working even after they fail: "I tell them that they will learn how to be better by being persistent and continuing to try to communicate their ideas to others."

Although Skop has assigned this project many times—she first used it in a course she taught in 2008—the details of the project have changed a lot over the years. Many of these changes, she says, are based on recommendations from her previous students. At the end of each semester, Skop asks students to provide feedback on their experience in the course: "They help me become a better teacher for students taking this course in the future. I use their comments to revise the assignment and my pedagogical approach to better meet student needs."

See page 3 for excerpts from Skop's Genetics 546 syllabus and assignment description. To learn more and to see sample student projects, visit the course website at **genetics564.weebly.com.**•

(continued from page 2)

Genetics 564: Course Learning Goals

1. Learn to read and evaluate papers from the primary literature in the areas of genomics and proteomics

2. Gain confidence in modern experimental methods used to ask fundamental biological questions

3. Learn to probe current genetic data repositories, such as bioinformatics databases for useful information

4. Learn to synthesize, present, and critique original research in the selected areas of genomics and proteomics

5. Effectively communicate work to the public in written form by publishing own research in a website format

6. Effectively communicate work to peers/public in spoken form through in preparing and giving presentations

7. Effectively use visual aids to communicate work

8. Address ethical, scientific and societal issues related to your project by researching information from various sources.

9. Learn the scientific peer review process by experiencing several in-class peer reviews of student presentations,

10. Learn how diversity (social and intellectual) makes you more creative and harder working in science

Genetics 564: Semester-Long Project Description

The goal of this project is an in-depth genomic and bioinformatic analysis of a human disease gene or trait. This disease gene must be homologous to one or more genes in one or more model organisms (the bacterium E. coli, the single-celled yeast, S. cerevisiae, the budding yeast, S. pombe, the roundworm C. elegans, the arthropod D. melanogaster, the mouse M. musculus, the plant, Arabidopsis thaliana).

Keep in mind that your project should include both a "global" analysis of your selected disease gene and the implied "local" analysis of a single, isolated gene. A global analysis reflects the central themes of the course: structural, functional (both transcriptomics and proteomics), and comparative genomics. A local analysis reflects the gene's structure and function and its primary role in the disease etiology. Both analysis types should reflect the intricate relationships among sequence, structure, function, genome organization and expression, and evolution. The lab activities throughout the semester will assist you in conducting these analyses.

Some specifics in your research should reflect the ways in which you have been studying genomics and bioinformatics. For example, how was the gene discovered and mapped? How was the gene sequenced? What is its sequence? What are the molecular features and properties of this gene (i.e., describe and analyze its gene "anatomy")? ... These questions cover a full range of analysis, from cytogenetics, to gene and protein molecular characterizations, to functional and evolutionary comparisons with other genomes in other organisms.

You will, of course, be making extensive use of bioinformatics programs and databases found on the Internet (NCBI, etc.). My evaluation of your project will be based in part on the depth of your analyses, and on how well you use available bioinformatics tools. But a tool is only a tool, and its use generates data that must be interpreted, analyzed, compared, and critiqued from a variety of perspectives. Finally, conclusions must be drawn along with recommendations for future experiments or analyses.

The format of your project should be that of a website, so you will want to use Weebly.com (or any other web-based program you are familiar with) to construct the final version with all text and images. The length depends on the amount of information associated with a particular disease gene, and you should strive for brevity and clarity but not at the expense of completeness.

- Find a disease or trait and an associated gene/protein mutation.
- You will be working on this gene/protein for the entire semester.
- You will present your findings at the end of the semester in a 15-minute presentation to the class.
- You will have built a website with all of the research and bioinformatic information you have obtained in class, outside class, and in lab. This website will be your published work which can be used in your résumé as published research.
- Your final talk and website will be peer reviewed by the class as well as by the instructor.

The Meaningful Writing Project:
Strategies for Designing Effective Assignments

Kathleen Daly
Writing Across the Curriculum
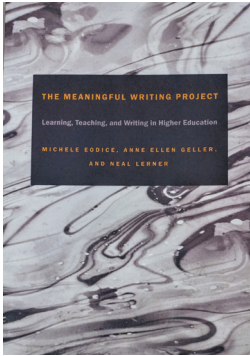
The Meaningful Writing Project

In *The Meaningful Writing Project*, a major new study of the undergraduate experience with writing that was published in 2016, three writing scholars have tried to answer the question of what makes writing activities meaningful to students. The good news is that many students report that they have had meaningful writing experiences in college. The other good news is that, according to the study's findings, there are many ways for instructors to design writing assignments that make their courses meaningful.

A Collaborative Four-Year Study

Michele Eodice from University of Oklahoma, Anne Ellen Geller from St. John's University, and Neal Lerner from Northeastern University conducted a collaborative four-year study, not only to better understand the range of different types of writing that undergraduate students do, but also to explore the different attitudes that students have toward their college writing.

The researchers asked 707 graduating seniors to describe their most meaningful writing experience. The study's central research questions were as follows:

"What are the qualities of meaningful writing experiences as reported by seniors at three different types of institutions?

What might students' perceptions of their meaningful writing experiences reveal about students' learning?

What might faculty who offer the opportunities for students to gain meaningful writing experiences conclude about the teaching of writing in and across the disciplines?" (4)

"We Were Pleasantly Surprised"

Eodice, Geller, and Lerner's findings offer a counternarrative to the widespread belief that undergraduate students are too often unmotivated, lazy, unprepared, or uninvested in college writing. Instead, almost all of the students surveyed were quick to identify a meaningful writing project that they had done during their college experience.

According to their data, meaningful writing projects most often "have the qualities of personal connection, applicability, and immersion in processes of research and writing while balancing required elements and student choices" (24). Students reported that what made writing projects especially meaningful was "engagement with instructors and peers, passion for the subjects they wrote about, personal connection with those topics, and a belief that their meaningful writing projects would connect to future writing" (7). However, not all meaningful writing experiences have to involve all of these characteristics. For instance, some students reported meaningful writing projects that they did not necessarily have a personal connection to, but they did feel as though their instructor and peers were invested in the work that they were doing.

Additionally, meaningful writing experiences occurred in a wide variety of courses at all levels of study and in disciplines across the university. They also came from a range of different types of courses, from large lecture courses to small, discussion-based courses, with faculty at all ranks, full- and part-time. And not all of the assignments that students found to be particularly meaningful were completed in writing-intensive courses—some students' meaningful writing experiences happened with assignments that were low stakes or relatively small in scale.

Instructors Who Assigned Meaningful Writing Projects:

- A theology professor teaching a first-year seminar builds in reflection on content and on personal connection.

- A dance teacher designs reflective assignments that push students to think critically about the principles of dance.

- A geneticist teaching a laboratory course assigns writing assignments that help students learn about professional genres and how to communicate effectively to the larger public.

- An accounting professor teaches students to tackle unstructured problems and to use writing as a tool for learning and for communicating that learning.

- A pharmaceutical scientist conducts a writing-intensive independent study with a student, immersing her in the research and writing practices of her field.

- A writing program instructor engages health science students in researching, writing, and collaboration, stressing students' personal connection to the content, development of expertise in the genres of their disciplines, and application of their school-based project to the writing they might do after graduation.

- A psychology professor immerses students in research, writing, and peer-review practices appropriate to her field, despite the constraints of a large class.

Excerpted from *The Meaningful Writing Project*

Making Your Writing Assignments More Meaningful

To demonstrate the many different possible contexts within which meaningful writing experiences can occur, Eodice, Geller, and Lerner provide multiple examples of when meaningful writing occurs (see "Instructors Who Assigned Meaningful Writing Projects" on page 4). They also provide advice for instructors seeking to make the writing assignments they use in their courses more meaningful for students. For instance, they suggest that instructors ask students to reflect on what about the writing they are doing in the course is meaningful and why. Although it may seem circular, instructors have had much success simply pausing and asking students what they see as most meaningful in the writing they are doing. Taking a straightforward approach, the researchers explain, is the easiest way to gain a better understanding of the reality of students' writing experiences.

They also advise instructors to think critically about their writing assignments and identify which aspects of the writing assignment "can be made more expansive, more inviting, more past connected, and more future oriented in ways driven by students' goals and interests" (136). Doing so requires that instructors look beyond the boundaries of the classroom and ask themselves how the writing assigned in their courses will affect students moving forward. Specifically, instructors can help their students see how the kinds of writing they do will transfer into future academic and professional careers.

Finally, Eodice, Geller, and Lerner emphasize the importance of paying close attention to students' writing processes and being clear about their evaluation criteria. This attention typically involves not just asking students to write multiple drafts of their projects, but providing them with multiple opportunities to receive feedback from their instructor and peers. Students explained that writing assignments were especially meaningful when "their faculty supported them as they developed the arguments they wanted to make, imagined where they might want to take those arguments in the future, and encouraged their positions and their goals" (138).

Final Thoughts and Next Steps

Overall, *The Meaningful Writing Project* offers an encouraging look into undergraduate students' perceptions of college writing and shows that instructors in every discipline can provide their students with meaningful writing experiences.

If you would like to learn more about ways to incorporate these principles into your teaching the Director of the Writing Across the Curriculum Brad Hughes (bthughes@wisc.edu) would be happy to meet with you.

***The Meaningful Writing Project* is available for University of Wisconsin-Madison faculty, instructional staff, and students online via Project Muse eBooks. •**

Eodice, Michele, Anne Ellen Geller, and Neal Lerner. *The Meaningful Writing Project: Learning, Teaching, and Writing in Higher Education*. Logan: Utah State University Press, 2017.

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Thanks for your incredible work!