



UMS: Fall 2017 Case Study in the Sciences

UMS believes that experiences with the performing arts can enrich and enliven academic inquiry across all disciplines. We are committed to creating uncommon learning opportunities for students and faculty, both in and outside the classroom. Through our Course Development Grants and Classroom Ticket program, we support faculty from across UM's disciplines in the integration of performance into their courses.

Collaborating with our Campus Engagement Specialist, faculty creatively incorporate music, theatre, and dance events into their syllabi. This is one of two detailed case studies of UMS performances integrated into science courses in Fall 2017.

Theatre as a Lens for Communication of Science

Laura J. Olsen: Andrew F. Thurnau Professor of Molecular, Cellular, and Developmental Biology

A UMS Faculty Fellow, Olsen incorporated performance into *Writing in Biology*, her upper-level writing course for biology students. In her view, the class encompasses not only writing but communication of scientific information broadly and, with most of these 25 juniors and seniors approaching choices about graduate school and medical school, she sees the class as part of their professional development. As a pre-requisite, all students must currently be participating in research labs or have research experience; this research is the content of their writing for Olsen's course. She characterizes the course as "a little more laid-back than the usual science course."

THE COURSE

Olsen's goal for the course is to help students understand how scientists communicate; the course covers the specifics of reading, writing about, and presenting research, as well as the communication of scientific ideas broadly. She includes units on the research community, proposals, conferences, and science for the general public, cohering around the course's central question *How do you communicate scientific ideas in different settings, to different audiences?* She regularly assigns "Thanksgiving Science" to her Writing in Biology students, asking that they describe their research to a non-scientist over the holiday and report back what strategies they used and how it went. Four themes—audience, ego, money, and collaboration—are threaded throughout the course, identified and discussed with each unit.

FITTING PERFORMANCE AND COURSE TOGETHER

Olsen had planned to include a UMS performance in her team-taught (with Alexandra Minna Stern, American Culture) non-majors course *Health, Biology, and Society: What is Cancer?* Because of its interdisciplinary nature, the course seemed like an easy fit. However, when this course wasn't offered in Fall semester (2017), she agreed to try incorporating performance into *Writing in Biology*: "I was a lot more hesitant when I realized that we weren't actually doing our cancer class this year. But when we met in the summer, [a UMS consultant] came and we all [UMS Faculty Fellows] brainstormed and picked an event, and then I thought okay, let's give it a try. Let's see how it works."

The event they chose was *Every Brilliant Thing*, a play commissioned by UK theater company Paines Plough, that manages to be heartwarming and funny despite its darker themes. Olsen understood that the play touches on depression and suicide, topics loosely related to neurobiology. In addition to the thematic connections, she was eager for her students to experience the theater as a means of communication, foregrounding questions like *How might humor help advance understanding of serious topics?* and *How might this visual, experiential form communicate to a range of people?* She wanted them to attend to how this type of visual, experiential communication differs from the written forms they are so used to. Olsen was also aware of the lighter aspects of the play, and was curious to see if its use of humor could be relevant to her course material.

The timing of the play, in the second week of the semester, required a bit of finessing for Olsen. The type of inquiry she imagined around the experience would have been ideal for the unit on the general public, which she covers at the end of the semester. However, it was still relevant for the class's early discussions about the research community, and because Olsen returns to the theme of "audience" throughout the semester, *Every Brilliant Thing* had traction within her syllabus even in that very early time slot.

FRAMING THE PERFORMANCE

Every Brilliant Thing ran for six nights, and Olsen's students could attend any of the performances that fit their schedule. In class just before the show opened, Olsen reviewed the logistics of claiming tickets at the box office and made suggestions for transportation to the performance venue, the Arthur Miller Theater on North Campus. More importantly, she primed the students for the experience, putting the play in a larger category of story-telling that includes forms familiar to the class ("Remember, [scientific] seminars tell a story. Writing about your research also tells a story of what you do.") and prompting them to engage with the play as another mode of communication.

Olsen reminded students of the two-page reflection they were required to write about the experience (worth five per cent of the total grade), nudging them to write succinctly and thoughtfully. The reflection assignment functioned as more than a writing exercise; by putting out the expectation of a considered response, Olsen cued students that the performance demanded their critical attention. Different from letting the show wash over them as pure entertainment, they were expected to both actively attend to their experience and respond to it analytically. The assignment prompt included:

- How did the medium affect the experience? i.e., what do you think you got out of SEEING the play that is different from what you would have gotten out of READING it?
- How did the target audience affect the performance? How might you adapt this play for a different audience? e.g., if the target audience were physicians or psychiatrists or sixth graders? (or pick a different target audience and explain how it would change the performance).
- What made the play funny? Was it the script? the movements of the actors? How could such a potentially grim topic be made funny? Do you think the same effect could have been achieved if the topic were a different issue than mental health? e.g. if it were about HIV/AIDS or cancer or climate change?

Before moving on to the day's lesson, Olsen asked students, "How many think it's a weird assignment?" and "How many of you would prefer to just read the play?" Although only one or two students raised their hands to each of these questions, posing these questions aloud gave students tacit permission to have a range of reactions, including negative ones, to the experience.

By the time of the class session immediately following the run of *Every Brilliant Thing*, students had already submitted their assigned reflections on Canvas. Olsen began their discussion by asking students to rate the show, using a ranking scale (excellent-very good-good-fair-poor) that students are familiar with from the scientific grant review process. Fourteen students rated the play "excellent" or "very good" and the remaining three students in class that day rated it "good"—their enthusiasm for the show and eagerness to talk about it

was evident.

Olsen immediately moved the discussion from evaluation to open-ended questions about students' experience: "What did you base your rankings on? Were you surprised?" Audience participation quickly emerged as a powerful element of the performance. Students were impressed with actor Jonny Donahoe's skill at incorporating strangers into the action of the play extemporaneously, and with the bravery of those audience members who chose to participate. More importantly, they recognized the effects that these moments of interaction had on the performance; the resulting vulnerability and humor made the play both light and, as one student commented, "like depression, or group therapy. We got the experience of highs and lows." Other students thought that the audience interaction made the themes more personal and immediate, one noting, "We laughed along with them. We felt all this, we experienced it rather than just reading about it."

Olsen solidified this emerging understanding, asking, "Doesn't interaction make things more interesting and engaging?" and "Do you think you'd have given the same ratings if you had just read the script?" Students made numerous observations on the effectiveness of the live performance as a means of communication: they had been moved to empathize with the actor, his physicality and the incorporation of music had added

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layers of meaning, and the interactive format made a difficult topic easier to talk about. Olsen related these student insights back to their work as scientists, and particularly to the familiar format of the research panel. Students pounced on this connection, saying, "It gets boring, but [a speaker at a recent panel] breaks it up with jokes. He pulls you back in with humor and examples," and "I saw a Nobel

prize winner speak, but he used accessible language and the post-docs and grad students didn't. As an undergrad, that worked for me. It makes a difference in how I pay attention. I think it engages people outside the field, and those in the field." Their statements indicate a growing understanding—gleaned from their experience at the theater—of how conventional communication in science might be recast to be more effective.

While the discussion did not delve into the topic of tailoring content to a target audience, students' written reflections did. They carefully analyzed how *Every Brilliant Thing* was effective, and for whom, some proposing modifications that would help it communicate its themes to other demographics: "If this play were to

be adapted for a different audience such as physicians or psychiatrists, I believe that there would need to be more details pertaining to Donahoe's mother's depression. There would probably be more references to what types of medication she was on or the specific therapy she was undergoing. Additionally, the play might have had a lesser emphasis on Donahoe's college years as young adults are no longer the intended audience. Instead, other scenes where health professionals are present such as in hospitals and therapy offices should be used to better relate to this new target audience. The jokes would be more sophisticated and might include medical terminology that a general audience might not necessarily understand or find humorous." Another student's analysis led to the conclusion that *Every Brilliant Thing* hit a perfect balance just as it was, that any adaptation to a target audience would either make it too simplistic or weigh it down with jargon.

While specific responses to them varied, Olsen's reflection prompts served their ultimate goal; student papers were not only well-written, they demonstrated considerable critical thought about the topics of humor, a live medium, and audience.

THE TAKE-AWAY

Many aspects of *Every Brilliant Thing* were not part of Olsen's original vision for integrating a UMS performance into her class, including its timing within the semester, its content relative to the Writing in Biology course, and its participatory nature. However, her willingness to risk these unanticipated elements ("I thought, well this is going to be fun. I guess I wasn't too worried; even if it totally failed, we'd just keep going.") yielded exciting results for her students.

—**Building classroom community.** While Olsen would have preferred to take her class to the theater later in the semester, when they had established more of the course content as context and covered the unit on audience, she found that the experience early on set the tone for the rest of the term: "I think it built more of a sense of community than my class often has...This was such a unique experience for them, that they all wanted to talk about it. I mean, how many MCDB (Molecular, Cellular, and Developmental Biology) or EEB (Ecology and Evolutionary Biology) classes have to go see a UMS performance?"

—**Promoting critical thinking.** In addition, the experience jump-started students' critical thinking about communication; students faced open-ended questions about how it is effective. Olsen says, "[It was a unique opportunity to] discuss something and come up with ideas. You know, how would you have done this differently for a different audience, and things like that where there's not a right or wrong answer. Having that early on in some ways set the tone...It was also good because it's not really a writing class; it's really a communication class. It started them thinking a lot more broadly."

—**Focus on process over content.** Likewise, although the themes of *Every Brilliant Thing* had seemed like a tenuous fit with Writing in Biology, Olsen found that

her four course themes of audience, ego, money, and collaboration were all there, providing fodder for discussion and analysis. Even more, the medium of theatrical performance was a powerful engine for student learning: “One thing that emerged, not surprisingly, was just the power of the audience participation. And of course I didn’t expect that because I hadn’t seen the play, but that has been good because we try to talk about active learning, and how much more effective it is when you’re involved and engaged than when you’re not...Some of them had said yeah, they would just rather have been given the assignment, read the script, and come back and talked about it. After the play, they all agreed they would have much rather seen the play, and even my hard-core scientists agreed that they got much more out of it seeing it performed than simply reading about it.”

The power of the experience continued to resonate throughout the semester, coming back in discussions about how, for instance, voice and clothing are considerations when presenting at seminars. Olsen again drew on *Every Brilliant Thing* in her closing unit on how scientists make “adaptations” such as graphics, narrative, and analogy when communicating with non-scientists: “Back in *Every Brilliant Thing*, what did they use to make their point? So there was narrative, there was humor too, which isn’t an official one, but mostly narrative I think is the one that we pick up on there...and how that gets their [the audience’s] interest.”

Reflecting on her initial trepidations, Olsen credits her willingness to take the risk—pairing this particular performance with Writing in Biology—to her years of teaching experience:

“Junior faculty are often much more focused on content, and not as much on process...Maybe the surprise was that it wasn’t so much about the science of suicide or mental illness; we didn’t really touch on that a lot. That was our initial connection to the course, but the more impactful experience for the students was actually the play itself.” Finally, Olsen comments that seeing your own topic from an unfamiliar angle and finding connections where none may be evident, “is kind of a fun challenge.”

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