



# Putting it Into Practice: Integrating UMS Performances into Science and Medicine Classrooms

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, theater, and dance events into their syllabi. This detailed look at UMS performances in science and medicine courses comprises a brief account of a unique program connecting medicine and the arts in the Medical School, and two studies of performance integrated into science courses.

## Spotlight: The performing arts and medical students

Dr. Joel Howell teaches in both the Medical School's Department of Internal Medicine and the College of Literature, Science, and the Arts' (LSA) Department of History. He co-founded the U-M Medical Arts Program, which aims to enhance medical students' ability to provide high-quality, humanistic clinical care through experiences with the arts. Howell offers many reasons why the arts should be included in medical students' curriculum; among the most compelling are his explanations of how live performance promotes "appreciation of complexity and tolerance for ambiguity."

Of the former, he observes that doctors must pay attention not just to detail, but to knowing which details to pay attention to, a skill that live performance sharpens. He cites as an example the UMS 2012 production of Phillip Glass's four-hour long, complex opera, *Einstein on the Beach*, which he and his students attended. He recalls, "One of the things that happens is that a dancer's moving diagonally across the stage for what seems like an eternity. And then she's only moving halfway across the stage. And there are other subtle changes like that. Maybe they're not subtle to a dancer, but if you're in the midst of all this, nobody's knocking you over the head and saying, 'Pay attention now: this is about to change.'" He likens this process to medicine, to a situation in which, for example, doctors are caring for a stabbing victim: "Her [blood] pressure is a hundred and ten, her pressure is a hundred and ten, her pressure is a hundred and ten, her pressure is a hundred and five, her pressure is a hundred. Is that an important change, or not? It probably is. It probably means it's time to rush her to the operating room right now. So it's learning to appreciate those subtle changes." Both as audience members and as doctors, his students must take in a complex field of stimulus and figure out which are the salient details.

Of the tolerance for ambiguity, Howell notes that his trainees in the Medical Arts program are all high achievers, used to having the right answer. However, when making rounds in the hospital, he says it's striking how often he and other experienced physicians say, "Gee, I don't know," or, "Let's try this and see what happens." He observes, "We're constantly not sure what to do. And there's two ways to deal with this ambiguity if you're a trainee. You can freak out; you can say, 'I want to know the right answer.' Or you can revel in it. If you go to a work of art, be it dance or music or whatever, and you ask, 'What did the creator of this art *mean* by this?' you come up with at least two or three answers. Which one is right?"

## Case study 1: Connecting performance to patient care

**Dr. Jeffrey Evans: Clinical Associate Professor Emeritus in the Department of Physical Medicine and Rehabilitation, Lecturer in the Residential College**

### THE COURSE

Evans regularly brings his classes to UMS performances. In the Winter 2017 semester, his *Mind, Medicine, and the Arts* (RC NatSci 260) students attended the UMS presentation of Meredith Monk's *On Behalf of Nature*.

### WHY INCLUDE PERFORMANCE?

"These kinds of experiences affect us right down to our cells."

Evans took his *Mind, Medicine, and the Arts* class to a performance so they could experience firsthand what they read about and discuss in his class. His students study the psychological and biological effects of the

aesthetic experience — how it impacts the immune system, emotions, and stress levels — with special reference to medical patients. Evans says, "These kinds of experiences affect us right down to our cells." He also stresses the importance of the communal experience in the theater, saying, "You can't ignore context; context always matters. Being with other people is part of what moves us so deeply...This was not a new idea for many of my students, and I learned as much from them as they from me." When they attend a UMS performance, his students are themselves having an aesthetic experience in a communal setting — precisely the phenomenon whose effects on patients they are studying. Going together as a class, and discussing the performance both before and after, gives them the opportunity to reflect more deeply on all aspects of that experience.

### APPROACHING THE PERFORMANCE

Evans often has guest artists speak with his class before a performance, but this was not possible with Meredith Monk. He did assign a short response paper on "what you thought and what you felt about the Meredith Monk concert, *On Behalf of Nature*." He encouraged students to take notes during the concert — to keep track of their internal states as well as the physical facts of the concert and the setting of the theater — reminding them how fleeting the experience of live performance is. The assignment then prompted students to "go beyond 'I liked it; I didn't like it' to include specific thoughts and feelings...to articulate what it was about the performance that led to those thoughts and feelings. For most of your paper, focus on the performance itself — what you see and hear from the stage."

## AFTER THE PERFORMANCE

Although *On Behalf of Nature* “was not a big hit with the students,” Evans asked them “to be open about it, to be balanced in their assessment and description.” Monk’s work is theatrical but seldom literal, employing her signature interdisciplinarity (the stage is filled with music and movement, images and objects) and extended vocal techniques (she uses the voice as an instrument, pushing the edges of human-generated sound). Some students wrote of how their experience changed, how for the first half hour they were lost and thought it was weird but then began to respond to the metaphorical content. They picked up on the clue inherent in the work’s title and began to find connections to nature. (In Evans’s class, they learn that many of the same biological responses involved in the aesthetic experience are active in human encounters with nature as well.) In particular, many students referred to “this amazing part” wherein Monk, who had been silent, came forward and “made this wordless entreaty. She *howled*.” Students remarked upon this moment, connecting it to the recent presidential election and proposed changes to environmental policy.

## WHAT HAPPENED NEXT

Later in the semester, Evans’s class visited the University Hospital and the University of Michigan Health System (UMHS) Gifts of Art program. Gifts of Art encompasses bedside art and music programs as well as galleries and performance spaces. In the class session immediately following this visit, Evans gave open-ended discussion prompts, encouraging students to talk about the things that stood out to them at the hospital. Their interest in the logistics of such a program was evident; they asked about the career path of the director of Gifts of Arts and about funding for the program, and they shared their observations of the many small details the program must account for and of how the professional staff interacts with volunteers.

However, the discussion also revealed how deeply students’ own encounters with *On Behalf of Nature* — and Evans’s framing of it — had affected their understanding of the patients’ aesthetic experience. A large part of the discussion centered on the context of a hospital room, and on the importance of the immanence — the “liveness” — of the aesthetic experience. For example, through Gifts of Art, patients can choose poster art for their rooms from an “Art Cart.” When the classroom discussion turned to the possibility of replacing these actual framed pictures with projected images of artwork, the class largely rejected this change. One student compared it to the difference between live music and recorded music, recalling how the Gifts of Art bedside musician’s presence affected patients differently from a recording. Another student commented that the human presence is important: “It’s the personalized nature of a person coming in and asking you what you want. It’s the gesture.” Similarly, Evans had reminded students early on that “Patients have complex lives that they’ve been pulled out of,” and that their worlds had been reduced to the hospital room. Later, one student identified the framed

posters as the “insertion of real life,” saying, “They’re in a room with no nature, no art. They need actual physical things that are not typical hospital things.”

## THE TAKE-AWAY

“We’re an audience for life.”

“In a way,” Evans says, “We’re an audience for life.” The world around us is immediate and physical and experienced communally; being present as an audience member in the theater is a distilled version of this.

## WHAT HE WOULD DO DIFFERENTLY

Although a long-time fan of Meredith Monk’s, *On Behalf of Nature* was not quite what Evans expected. He notes that he’d like “to be more thoroughly prepared for what students are likely to experience, so I can better connect it to the course for them — at least in terms of rationale, if not concretely what they will see and hear.”

## Case study 2: How music and science resonate

### Associate Professor Christine Aidala: Physics

#### THE COURSE

Aidala’s class, *Physics 288/489 Physics of Music*, satisfies a University Natural Science or Quantitative Reasoning distribution requirement. The course attracts students from across the humanities and social sciences, as well as some music and physics students. Winter 2017 was Aidala’s third time teaching the course, but the first time she had incorporated live performance into the syllabus.

#### INCLUDING PERFORMANCE

Attending a UMS concert was a natural fit for the course’s unit on performance-based acoustics, allowing students a chance to experience first-hand the acoustics of Hill Auditorium. However, performance is present on a nearly daily basis in Aidala’s lecture hall, in several ways. Students from the class who can play an instrument volunteer to do brief demonstrations; for example, one student played the piano following Aidala’s discussion of that instrument. He explained how the upright piano in the lecture hall differs from a grand piano and how the damper pedals affect the sound, demonstrating their effect with music by Brahms that uses the pedal and music by Bach that does not. These in-class student performances have traction beyond Aidala’s class; she explained, “Students take pictures [of their classmates playing an instrument] on their phones and then post this stuff on Snapchat.” When there is no student volunteer for a particular instrument, Aidala herself fills in: “I’m demonstrating the harmonic series on my flute. It’s really about the bugle, but I don’t play the bugle.”

These mini-concerts actually lie on a spectrum of performance already taking place in *Physics of Music*, where the front of the lecture hall is the stage and students are the audience. Of course, there is a measure of theater present in a Powerpoint presentation. When Aidala shows a slide of the West African talking drum, she explains how it is a two-dimensional percussion instrument and how musicians change the tension on its membrane in real time. However, students are accustomed to Aidala's frequent breaks from lecture and Powerpoint slides as when, for instance, she demonstrates the "stick-slip" bowing mechanism of a violin. She pulls a bow across the strings, explaining how the bowhairs stick to the string and pull it aside but then slip away, alternating between static and kinetic friction. Students watch and listen as she contrasts this sound with the sound of a plucked string. The class is peppered, too, with tiny performances that make use of the gadgetry of the lab. Aidala ramps up the speed of a motor driving a ball on a spring so that students can see its amplitude suddenly increase when its resonant frequency is reached. They cover their ears as she plays a pitch tuned to the resonant frequency of a wine glass, and when the glass inevitably shatters, they applaud.

#### CONNECTING THE PERFORMANCE TO COURSE MATERIAL

Aidala required her students to attend either one of two UMS concerts: the Bruckner Orchestra Linz or the Budapest Festival Orchestra. Both were symphonic concerts held at Hill Auditorium and both fell within the time-frame of her unit on performance-based acoustics, which she had moved earlier in the course, allowing for students to choose between two relatively similar offerings. During one class period, a former UMS staff member led Aidala's students on an acoustic tour of Hill. The 1913 structure is renowned for its excellent acoustics, made possible in part by its unusual parabolic reflector behind the stage. Students listened to onstage sound from different locations in the auditorium — the main floor, mezzanine, backstage, and the stage itself — noting that they could hear a dime drop on the "focal point" of the stage and that voices were just as clear when speakers faced the back of the stage as when they faced the audience.

Aidala assigned her students a brief written response to the performance, describing their listening experiences. While students could write about any aspect of the concert they wanted, she included a number of prompts relating to the sound — "Did you feel immersed in the sound from all sides? Did you feel you could hear a particular section of the ensemble particularly clearly? Immediately after the piece ended and in the moment before the applause, could you hear the reverberant sound lingering in the hall?" — as well as more open-ended ones such as, "Which piece did you enjoy the most, and why?" Aidala noted that her students weren't used to writing like this in the context of a science course. More familiar for them were the homework questions assigned around the concert experience: calculating reverberation time and evaluating which

reverberation times are best for different types of performance — such as speech, chamber music, or symphonic music — or for live versus recorded music.

#### CONNECTING THE PERFORMANCE TO LIFE

Because the Budapest Festival Orchestra concert included a section with the UMS Choral Union, Aidala arranged (with the assistance of the UMS Campus Engagement Specialist) for the Director of the Choral Union to visit *Physics of Music* after the performances. He spoke about the relationship between his choices of repertory and the various spaces where the Choral Union performs, but Aidala noted, "He also talked about taking gigs even though the acoustics [of the concert hall] were lousy, because there was a significant fee offered. That's important, too. My students learned a little bit about life, about the trade-offs we make for money."

These ancillary "life lessons" are not trivial for Aidala; she perceives a lack of attention to science grads who don't go on to a PhD, and a need to "build their awareness and skills around jobs." She noted that her students develop analytical thinking and complex problem-solving, but also must build "the soft skills you need to go out and be successful." She observed that attendance at a UMS performance was itself a life lesson, a new experience for some of her students who had never been to a concert hall and asked, "What am I supposed to wear?"

#### THE TAKE-AWAY

For Aidala, the inclusion of live performance in *Physics of Music* makes it "feel like a more dynamic, fun course." She is aware, though, that the particular subject matter of her course makes performance a natural fit. Other science instructors may find it more difficult to justify a live performance requirement, both because the relevance to their courses might not be so readily apparent and because there often is no time to spare for "extras"; the syllabi for most science courses are fixed, with just enough time to cover the set amount of material necessary to prepare students for the next course in a sequence. In courses such as these, Aidala speculates that students could still experience the benefits her students have — the fun, the life lessons — by scaling back the performance experience, perhaps by bringing in a performer for a portion of one class period or by offering live performance as one choice among several enrichment activities.