Faculty and staff at all three University of Washington campuses are using their experience with recorded lectures, online discussions, and other teaching technologies both to improve learning for their students and to serve as resources for other faculty. “You get a handful of users in an academic unit who start to work together and then they create best practices that are disseminated to other folks in the department,” says Phil Reid, Professor of Chemistry and Associate Vice Provost, UW Information Technology (UW-IT), Academic Services. This report highlights the work of innovative faculty and staff working collaboratively to engage students through use of technology in face-to-face, hybrid, and online courses.

In all cases, the faculty profiled here put learning first: focusing on a learning goal and then determining which technology tool could help them best to reach that goal. Some find creative ways to use video, lecture capture, and Active Learning Classrooms in Seattle’s Odegaard Undergraduate Library. Others give careful consideration to guiding online discussions, replace traditional papers with digital assignments, run complex simulations, and ask students to act like professionals. Many share digital materials and expertise with colleagues department-wide. These faculty represent only a fraction of the excellent teaching at UW’s three campuses. For more profiles, see other reports in the Provost report series on “Trends and Issues Facing Higher Education.”
There’s a learning curve in setting up a hybrid course, says Lynn Hankinson Nelson, “especially for those of us my age, with 35 years of teaching experience. But the support is wonderful.” Nelson, who was a Teaching with Technology Fellow in summer 2013, credits the staff at the Center for Teaching and Learning, UW Information Technology, and UW Educational Outreach (UWEO), with helping her set up her first hybrid and online courses. “The UWEO Instructional Designer, Maggi Kramm, walks on water, as far as I’m concerned,” says Nelson. Here are Nelson’s suggestions for adding technology to teaching:

When creating a video, imagine you’re facing a class, not a camera: Nelson was nervous at the thought of filming a dozen videos for an upcoming UWEO online course. “I’m really camera shy,” she says. However, she says the process was easier than she’d feared, because Kramm and the UWEO videographer were so helpful and professional, telling her they could re-record any portion of a lecture and setting lights at a comfortable level. “What happened finally, with that kind of encouragement and the knowledge that I could do any lecture over, I just forgot I was speaking to a camera,” says Nelson. “I just made believe I was standing in front of 200 students, which doesn’t frighten me at all, and the muse took over.”

Take advantage of the Active Learning Classrooms in the Odegaard Undergraduate Library: The round tables facilitate discussion, says Nelson. So do the computer screens at each table. At the beginning of class, which Nelson opens with a mini-lecture, she sends her presentation to the screens at the tables. When the class breaks for small group discussion, “the recorder for each group can link his or her laptop to the screen and take notes that are visible to the whole table so the students can edit together. When the time comes to report out, I can send the presentation from each group to all the tables,” says Nelson, adding that groups can also choose to write their report on one of the room’s orange glass walls, which function as white boards. “There’s also a microphone at each table, which can be important for students who have softer voices.”

“I encourage colleagues to take a workshop. When I go, I learn, I get refreshed, I get invigorated.”

LYNN HANKINSON NELSON
Professor, Philosophy

“The Active Learning Classrooms are just fabulous,” says Lynn Hankinson Nelson (top left, above), meeting in an ALC with students in her hybrid class, Philosophy of Science (PHIL 460). “The flexibility is great. I can roll my chair from one group to another, or I can say, ‘Roll to the middle of the room, we’re all going to work on something together.’” The course meets officially once a week and a subgroup of students also meets in the room informally for additional in-person discussions.
Butch de Castro: Helping students succeed in a group video assignment

Butch de Castro replaced an individual paper with a group video project to help his nursing students understand the views and concerns of residents in south Seattle neighborhoods where industrial pollution causes health problems, such as increased rates of asthma. Students reported that they loved the project and found it meaningful, says de Castro.

In their videos, students were asked to tell a story that captured environmental health issues and illustrated the mission of community advocacy organizations that partnered with de Castro in teaching the class: the Duwamish River Cleanup Coalition and Puget Sound Sage. Staff from these groups took students on a boat tour of the Duwamish River and a land tour of the South Park and Georgetown neighborhoods where students shot video and learned about the impacts of pollution on residents’ health.

“Initially, I had no idea how to manage a video assignment,” says de Castro. “Salem Lévesque of the UW Bothell Learning Technologies team was very supportive and provided me with the safety net I needed.” Lévesque says, “We help faculty develop media assignments that will allow students to produce a good-quality product in a 10-week course.” Here are suggestions from de Castro and Lévesque for guiding students through a group video project:

Consider class size in developing assignments: Small class size was crucial to the success of the video assignment, says de Castro. His class, a section of Partnerships in Community Health (B NURS 409), has no more than 15 students, who worked in teams of 5 or 6. He considered the same video assignment for another class of 48 students, but decided against it, due to concerns about accommodating a large group on the tours and in the UW Bothell media labs. Instead, he had students in the larger class create a multimedia presentation that could include video that students curated or created on their own.

Set constraints on video length to keep the project manageable: Lévesque coaches students to shoot no more than 30 seconds of video per clip, and advises faculty that final videos should include no more than 6 clips of less than 30 seconds each.

Structure the assignment to ensure participation by all students: Each group video was required to include at least one clip from every member, but each student could contribute any number of their 6 video clips so long as the overall length of the video didn’t exceed three minutes. The full group met to view and select clips, and storyboard the video. Then groups divided into smaller teams for tasks such as editing, selection of a sound track, and writing and recording any narration.

Encourage students to focus on a specific issue: To help students decide on a manageable topic, de Castro tells them, “Your job is not to try to capture everything you’ve learned in terms of environmental pollution and human health consequences among at-risk communities, but rather to pick a specific issue.” Video topics have included asthma rates among children exposed to air pollution and food deserts (a lack of stores selling affordable, healthy food).

Explain privacy issues: To respect confidentiality of residents, especially those who might not want to be identified with environmental problems, students learned that they shouldn’t photograph recognizable faces, license plates, and addresses. The students didn’t use photo release forms.

Provide access to equipment: Students checked out small flip video cameras and tripods from the UW Bothell Information Technologies Circulation Equipment desk.

Provide basic media training: Lévesque taught students basic videography techniques. “Nothing complex, because this is not a media class,” says de Castro. “Just simple information and tips, such as ways to frame shots, and ideas specific to our project, such as suggesting that a way to show pollution from diesel exhaust is to focus your shot on a truck tailpipe.” Some groups used this information to plan their shoots, deciding that some students would focus on wide shots and others on close-ups, says de Castro. “Others decided that they should all just shoot what they thought best at the time.” After shooting video on the tours, students met in a campus media lab where Lévesque demonstrated basic video editing.
Chemistry faculty build on a long tradition of collaboration to share best practices in teaching with technology. “There’s very much an open-door policy about help with teaching. That really set the tone for me,” says A.J. Boydston, who has advised numerous Chemistry faculty about setting up online office hours, recording lectures, and other technologies.

Many other faculty also share their experiences with using technology to increase in-class time for active learning. For example, recording some lectures allows Colleen Craig to offer students in Introduction to General Chemistry (CHEM 110) the option to work on case studies, and Boydston to have his organic chemistry students tackle problems together in class. “I break lecture to pass out slips of paper with exam-level questions on them and have students work on them in small groups,” says Boydston. The problems are set at a level that challenge the majority of students, so there’s inevitably an initial stunned silence, then a buzz of discussion. After about five minutes, he asks for students to volunteer their ideas and guides them to a solution. “It’s not that hard to have the discussion in a large class of 300 because the three or four responses you hear on how to approach the problem end up representing everyone in class.” Boydston, Craig, and Stefan Stoll were Teaching with Technology Fellows in summer 2013.

Initial, informal results indicate that the changes faculty have made can improve learning. Stoll, who created about 70 online lectures for the winter 2013 session of his course Physical Chemistry (CHEM 455), found that average student scores increased about 10 percent on midterm and final exams that were similar in complexity to those offered in previous quarters. “The students had a very, very positive response to the video lectures,” says Stoll. Craig reports that students showed higher levels of engagement and demonstrated greater achievement on assessments after she redesigned her course.

Producing these materials can involve substantial time and thought. “The mini-lectures don’t come out of thin air,” says Boydston. However, once a module is created, maintenance and revisions take considerably less time, according to Boydston and Stoll. Modules can also be shared with other faculty, a process that is easier in the newest version of the Canvas learning management system. Once a faculty member gives other faculty access to modules, they can pick and choose elements to transfer to their own course modules. “Maybe they like and use a third of the lectures,” says Boydston. “Or maybe they revise or add to the information in ways I can transfer back and use.” Here are suggestions from the Chemistry faculty on using technology to enhance teaching and learning:

**Record nuts-and-bolts lectures to free up in-person class time for more interesting topics:**

“The first lecture I recorded was basic chemical nomenclature,” says Phil Reid. “That was really liberating for me because I hated that lecture. I was bored giving it, so you know the students were bored.” Boydston records two to five short lectures on fundamental, introductory material for each week of his in-person organic chemistry class. Each lecture, as is common among Chemistry faculty, shows the screen of Boydston’s tablet with voiceover. One of the topics he recorded first was how to draw molecules using software. Students who already have this skill can skip the lecture and go straight to the module quiz, while those who need more help can re-watch if they need to. “That way when we get to class, we can move onto more interesting topics, such as how a molecule’s structure affects the way it reacts with other molecules,” says Boydston.

**Record lectures to provide an introduction to difficult material:** By recording seven lectures a week, Stoll says he created a sort of video textbook for his section of Physical Chemistry (CHEM 455), which covers quantum mechanics. The online lectures provide an introduction to concepts and equations that Stoll explains more fully during in-person class. “You always need to reinforce the basic concepts,” says Stoll. “Just because students have seen a video once, that doesn’t mean they really understand the topic. They’re just a little prepped.”

Stoll’s video presentations start with an empty slide and then show him hand-drawing a series of equations, diagrams, and terms while explaining them via voiceover. “Because quantum
Creating online videos is an upfront investment that's going to pay off. Now that I have the slide designs and scripts, I can modify and re-record them, which takes a fraction of the time.

STEFAN STOLL
Assistant Professor, Chemistry

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Focus on audio quality when recording presentations: “The podcasting literature says that if your audio quality is not good, you're going to lose audience,” says Stoll. “You need to make sure your voice is clear and there's no noise in the background.” Stoll purchased his own microphone to improve recording quality and, to minimize background noise, records late at night in his kitchen with the refrigerator turned off.

Require a syllabus quiz: Craig has begun requiring that students in her introductory chemistry class pass a quiz about the class syllabus before they can access any other course materials. “Students don't have to memorize the syllabus, they just need to know that they can look up information there on things like department policies, important due dates, and what students should do if they miss a lab or an exam,” says Craig. “The goal is to empower them to answer their own questions.”

Create video quiz keys: “I've recorded a short five-minute video where I work through the answer key of the weekly quiz and explain my reasoning,” says Jasmine Bryant, adding that she got the idea from Boydston. “A minority of students viewed the video, perhaps 80 out of 300, but those students really liked it.”

Offer online office hours: “When you offer online office hours on Sunday evening, you'll have 60 to 70 percent attendance; it's just amazing,” says Stoll. About 120 students attended office hours that Bryant recently offered on the Sunday just prior to the final exam. “Most just listened,” says Bryant. “The students with questions type them in the chat window, and I answer them. I share the screen of my tablet so I can draw pictures to explain concepts. It's basically a broadcast.” Boydston’s advice on online office hours is available on page four of the Provost report “Putting Learning First: How Students Learn and How Technology Can Help.”
For Dian Million, online discussions provide a safe space for students to explore challenging issues. She has always promoted discussions as a way to engage students. “I’ve never liked lecturing. I hate it,” she says. “I come from communities that are dialogic.” She was pleased to find that online discussions in her hybrid-format course, Indian Children and Families (AIS 340), can not only match but can exceed the quality of in-person discussions by providing another safe place for students to discuss difficult issues. “You can't teach this subject without speaking about colonialism, race, class, gender, and sexuality,” says Million, who was a Teaching with Technology Fellow in 2013. “The online groups give them some space. It prepares them to have more personal conversations when we're together.”

Keeping discussion groups small is extremely important, says Million, who reports that her students say they felt safer first exploring these issues with just a few other students. Here are some of Million’s suggestions for leading discussions online:

**Keep discussion groups small when discussing complex or potentially emotional issues:** Million divides the students into groups of four that will meet all quarter, online and in person. Students first discuss issues online in their small group. “I set up questions and lead them in. Then they develop their own questions,” says Million. During face-to-face class, Million pairs small groups to talk together, as she works to deepen the discussion. When students prepare presentations, another step is added. Each group posts its project online to the whole group for comment, then is allowed to make revisions before presenting it in-person to the class.

**Monitor discussions:** In her class of 40 students, Million follows all 10 discussion groups of four students each. “It takes a lot of time,” she says. Through short comments, she works to keep discussion flowing. “I try to keep people on track, saying, ‘This issue seems to have become key. What do you think about it?’”

Million uses material from the online discussions to shape the content of in-person sessions, and to guide team interactions. “I sometimes have a group that’s really interested in problems. I pair them with a group that’s upbeat about successes in Indian Country, so they can be brought together into a discussion about what’s working.”

**Scaffold questions:** Million says it’s crucial to structure the discussions, first to help students get started and then to guide them through class content. “In the first discussion, they discuss their own families. That’s how I warm them up.” As part of this task, Million asks, “Is there an ideal American family? Has there ever been?” This first discussion isn’t graded, so students can become comfortable with the topic, the online format, and most importantly, the other three students in their group.

Then Million introduces information on Native American families, noting the link between health and economics so the students can “begin to understand how it might be difficult to have a healthy economy if the people don’t have good health,” says Million. Then the students tackle bigger questions, such as, “Which should come first? Should the people get healthy to make a healthy economy or do they need more economic health to get healthy?” As the class progresses, Million guides students through a series of additional topics, including positive trends, such as successful education programs.

**Hold students accountable:** After the first warm-up discussion, students are graded on their participation in the online and in-person discussions, and contributions to group projects. As needed, Million discusses team roles and may assign students to serve in certain roles (such as timekeeper). She also helps them focus and organize group projects, such as the creation of infographics and other presentations. During in-person class she’ll tell students, “I want to see your plan today. I’ll be visiting with all of you and I want to see how you’re going to divide the work, what your product is going to be.”
In Sean Munson's introductory course in Interactive Systems Design and Technology (HCDE 310), students learn computational thinking and gain experience with tools they would encounter on a professional software team. This requires them to learn to program software, a prospect many find intimidating. So Munson crafts programming assignments that build to a capstone project, designing and coding an application in an area of interest to them. “I wanted to empower students,” says Munson. “To get them to think, ‘This is cool! I can make something!’”

Student capstone projects have included an application that translates text messages, a tool that pulls up recipes by ingredient, and a parking spot reminder application that was a semifinalist in the Shobe Startup Prize. “My goal is that students understand how different pieces of a development team fit together and how to communicate with other members of the team,” says Munson. This includes being able to ask appropriate questions, developing design specifications, and submitting useful error reports, as well as using tools common to modern development environments. Several students told Munson they believed their learning in his course was a major contributor to getting industry jobs and internships, and that it prepared them to meaningfully contribute to research groups in the department and elsewhere on campus. Here are some of Munson’s thoughts on using technology to help students gain professional practice:

**Record lectures for students who need extra help or want additional challenges:** Munson says he is gradually recording lectures that review material for students who need more time to cover the material, or provide advanced content for students wanting to move ahead of the class. He says that recorded lectures are also a good place to cover step-by-step technology set-up for students who need that support.

**Standardize software to reduce time required for tech support:** At the beginning of the quarter, Munson distributes open-source software to his students so that each has the same “virtual machine” to use for programming. This reduces support time and confusion among students who have little or no programming experience. Munson uses the same software during demonstrations, so students can follow along in the same interface. Some students with more experience ask to work in a different environment. Munson tells them, “We’re not responsible for supporting that platform, but you’re welcome to make that choice.”

**Give students practice working with professional tools:** Repositories of computer code are a crucial tool for large collaborative software projects. Therefore, the virtual machine Munson provides to students connects to a basic repository that hosts lecture and assignment code. Students also set up their own repositories, where they check in code that they have written and tested so it’s available to their teammates, just as they would on a professional development project. The repository also serves as a backup if a student’s computer crashes.

**Provide a safe place to ask questions:** After exploring several options for discussion spaces, Munson settled on an optional Facebook group. Students primarily answer each other’s questions, but Munson and a teaching assistant drop into the discussion to coach students who ask incomplete or confusing questions, for example, by neglecting to include the code that is failing or the error message it generates. This practice in asking questions effectively prepares students to ask for help in a professional environment, such as Stack Overflow, a public question-and-answer site for programming and development issues, says Munson.

**Model professional practice and problem-solving:** Munson polls students during class using a basic tool he built. His polling tool gives him a way to gauge student understanding and also gives students an unintimidating window into software development, in this case, detecting, reporting, and repairing errors. “I deliberately left some bugs in the software, ways that students can submit an answer a thousand times if they want to,” says Munson. “So, as they learn about the technologies the tool is based on, they have fun seeing if they can break it.”
Faculty in the online Early Childhood & Family Studies (ECFS) degree learned that video feedback can help student-teachers progress as quickly, or even more quickly, than in-person coaching. Their techniques could also be used to coach students practicing other interpersonal activities, such as leading discussions, says Gail Joseph.

“In our program, students video themselves teaching children, using a practice that we’ve discussed in class, and receive quick, targeted feedback from the instructors and a small group of peers, their community of reflection and practice (or CORP, for short),” says Joseph. In addition to frequent feedback linked to coursework, a key factor in students’ learning is the ability to observe themselves and reflect on their own work practices. Joseph says that even students who are initially uncomfortable with the video assignments quickly come to see their value. “One student said, ‘I hated the idea of video in the beginning. It was the worst part of the program for me, but now I can’t ever imagine teaching without a camera in the room, capturing what I’m doing so I can go back and watch later.’”

The video assignments used in the online ECFS program, the first online bachelor’s degree offered by the UW, build on techniques developed for in-person ECFS and other classes, and by the National Center on Quality Teaching and Learning (NCQTL), which provides professional training to teachers in Head Start programs. The ECFS program has been recognized for its efforts by Nonprofit Colleges Online, which ranked the ECFS program the nation’s No. 2 online education bachelor’s degree. Here are the team’s suggestions for coaching students through video and online discussions:

Create assignments that build observation skills over time: Video assignments are part of almost every ECFS course. This allows time for students to build observation skills before they’re asked to analyze their own work. Through a process the team calls “Know, See, Do, Improve,” students learn about teaching techniques in online lectures and videos and practice identifying them (see Joseph and Brennan in Resources). Students then post baseline videos of themselves at work, and observe and reflect on their own use of a specific teaching method. They make a plan to improve, and record themselves again. Students comment on their own teaching as shown in the videos they’ve posted, and on the videos posted by other students in their learning community.

Train students in effective evaluation: ECFS instructors provide feedback on three levels: on students’ teaching as shown in their videos; on students’ understanding of their work, as shown by their comments on their own videos; and on their ability to coach others, as shown by their comments on other students’ videos. The feedback on comments is a critical part of helping students hone their skills of observation and reflection. Joseph says, “I might ask a student for more detail, or tell them ‘I think you did this very well.’” The goal is for students to learn how to give very specific feedback and constructive comments to their fellow students. “We call that providing coach-quality feedback,” says Joseph.

Require students to keep evaluation videos short: For each assignment, students post only three to five minutes of video. “Selecting the video is an important problem-solving exercise,” says Susan Sandall. “The students have to be able to distinguish a specific teaching activity from others that may be similar.”

Schedule time for video reviews: Reviewing student videos “isn’t easy and you have to keep on top of it. It’s a substantial commitment,” says Sandall. “Tell yourself, ‘I’ll watch the videos every week at this time’ or ‘I’ll watch some videos every day.’”

Require students to obtain permissions from video participants: “Students are required to get permissions from parents to video the children in their class or childcare, as well as from any adults who may appear in their videos,” says Joseph. “When they upload a video, they click a box stating ‘I certify that I have all the permissions on file.’” Students keep the paper consent forms. Faculty need to decide how broad they want to make consent forms, especially if they want to build a library of video examples.
In our discussion forums, we’ve found that we’re hearing more equally from all of our students, and we’ve been pleasantly surprised at how deeply they’ve taken these discussions.

COLLEEN O. DILLON
Clinical Psychologist and Director of Training, Barnard Center for Infant Mental Health and Development; Senior Lecturer, Family and Child Nursing

Have students use the same equipment: ECFS faculty require students to purchase a specific technology bundle in lieu of a textbook. “In other courses that used video where I didn’t specify a certain camera, all my TA’s time was taken up with technical issues, such as trying to figure out how to get video off of someone’s phone,” says Joseph. When students use the same equipment, Joseph can instead direct TA time to developing tutorials and providing extra help for students uncomfortable with technology. To help offset the costs of the equipment, the ECFS faculty assign free open-source readings as often as possible.

Keep discussion groups small when discussing emotional topics: Most ECFS classes also involve discussions of videos curated by the instructor. Keeping discussion groups to 15 or fewer students is important when discussing emotions, say Miriam Hirschstein and Colleen Dillon, both 2014 Teaching with Technology Fellows. They are translating another ECFS in-person class to an online format, Infants and Young Children: Risk and Resilience (NSG 432/ECFS 302). In addition to asking students to identify interactions between babies and caregivers in videos, Hirschstein and Dillon will also ask them to monitor their own reactions. “We might ask them ‘What did you notice or feel as you watched the older sibling pushing aside the baby? What did that bring up for you?’” says Dillon. “Essentially, we’re asking students to reflect on how their emotional responses influence what they notice, and perhaps what they don’t notice in the videos. Our experience has been that this kind of sharing and reflecting goes very deep quickly in an online forum, perhaps more so even than in face-to-face coursework.”


UW Today reported the stories of ECFS students after one year in the online program: Molly McElroy, “‘I see it, learn it and do it’: A peek into the lives of some of UW’s online students,” 2 July 2014.

With support from the College of Education and the NCQTL, the ECFS team developed the “Coaching Companion” tool, an online system for coaching via video. “Coaching Companion” is available for use by UW faculty through UW Educational Outreach.

“Our goal is to create online forums that allow for deep reflection in a safe and protected community of learners. That means breaking a large class into multiple subgroups or ‘neighborhoods,’ ideally of no more than 15 students.”

MIRIAM HIRSCHSTEIN
Senior Research Scientist and Director of Evaluation, Barnard Center for Infant Mental Health and Development; Lecturer, Education

Students enrolled in the online ECFS degree program include Jeni Zaffram (above left), who runs a licensed child care business from her home in Sultan, Washington; and Miho Wright (above right), who is the director of St. Mike’s Tikes Early Learning Center in Olympia. (Photos are courtesy of Zaffram and Wright, and first appeared in UW Today.)
John Wilkerson’s initial goal in developing LegSim, a web-based mock legislative session, was to find a more convenient way to manage the one- or two-week capstone of his course on the United States Congress (POL S 353). Now LegSim serves as the centerpiece of the course, and is used by thousands of college and high-school students, whose fees help pay for maintenance and continued development of the site.

Running the simulation presents a multitude of challenges, including balancing the breadth of conceptual knowledge that can be presented in lectures against the depth of operational knowledge that project-based learning promotes, says Wilkerson. He was pleased a recent study showed high school students in classes that used the simulation had better scores on the Advanced Placement exam on U.S. Government and Politics and other measures (see Walter et al. in Resources). Engagement among Wilkerson’s students is high during the simulation, and the majority report that they enjoy the experience. Here are Wilkerson’s suggestions for managing a simulation, advice that can apply to other complex, collaborative group projects:

**Develop your inner coach:** Wilkerson begins the class with a few weeks of lectures, and then steps down from the podium to serve as a coach and consultant. As the quarter progresses, demand for his time is so high that groups must make appointments to meet with him.

**Boost your tolerance for ambiguity:** Despite his years of success with LegSim, Wilkerson still worries when the class inevitably stalls midway through the quarter, after students have completed the straightforward assignments required to set up the simulation (e.g., claiming legislative districts and setting policy agendas) and are faced with the complexities of actually crafting and passing legislation. “At this point in the course, as with any coaching assignment, there are moments of doubt,” says Wilkerson. “How long will it take students to figure out that they should not be waiting for me to tell them what to do? Will the Defense Committee overcome its collective action problem? When will someone discover the power of the Previous Question motion?”

**Trust the process:** Inevitably something, often a surprising defeat, will galvanize the class, says Wilkerson. Participation shoots up. Posts and views on LegSim soar, from hundreds to thousands per day, and students query Wilkerson about details of Congressional procedure he had covered in the weeks earlier in lecture. “The students take ownership and that makes a huge difference in terms of their level of interest and involvement,” says Wilkerson.

**Embrace the unexpected:** “After using LegSim for 10 years, I am confident that students are going to have a positive experience,” says Wilkerson. “I am much less certain about how events will unfold. This makes the class eminently more interesting to me as the instructor.” Once, he had to improvise a Supreme-Court–style arbitration to settle a dispute between two groups of students. One group wanted to extend the LegSim session by a day to hold a legislative vote; the other had thus far successfully delayed the vote and wanted the session to end so it couldn’t occur. Wilkerson scrambled to find a qualified volunteer willing not only to evaluate student briefs, but to do so overnight. A local attorney stepped up and rendered a decision in favor of the students who wanted to extend the session.


Wilkerson and a long-time student collaborator, Nicholas Stramp, have also developed Legislative Explorer (http://www.legex.org), a site that visualizes the progress of more than 250,000 Congressional bills and resolutions introduced since 1973. Through the site animations, students and citizens can see, for example, exactly where and when bills get stalled. The site has been featured in *The Washington Post* (John Wilkerson, Nick Stramp, and David Smith, “Why bill success is a lousy way to keep score in Congress,” 6 February 2014) and *The Huffington Post* (HuffPollster, 28 April 2014).
“Teaching online allows me to talk to each student personally every week,” says Christine Stevens. “I don't get that in a big in-person class of 45 students. Some students are too shy to talk to me in person.” Stevens teaches multiple online and hybrid classes that involve graded, online discussions. Students are required to respond to questions prepared by Stevens in a forum open to the full class. Stevens also emails each student individually. “I comment on what they've said in the forum,” says Stevens. “I point out that they've made a good connection to the research, or made a good point. If for any reason, they're having difficulty or need a push on their thinking, I don't go into the discussion and point that out, I do it privately.”

In personal emails, Stevens may also address cultural and other issues. In her class Representations of Adolescents in Film (T HLT 330) international students or students who have just immigrated to the U.S. may have difficulty interpreting specific cultural nuances of language of the films under discussion, which include Remember the Titans and Rebel Without a Cause. “They can get help with their questions without having to bring them up before the whole class,” says Stevens.

This kind of communication and review does “take a lot of time,” says Stevens. So does setting up online modules. She credits the staff at UW Tacoma, including Colleen Carmean, Assistant Chancellor for Instructional Technologies, and Darcy Janzen, E-Learning Support Manager, Academic Technologies, with providing the help she's needed to be successful in her online and hybrid classes, which include Genetics, Genomics, and Nursing Practice (T NURS 345) and Promoting Health Through Social Marketing (T HLT 320). “They understand technology and they love it, and they understand pedagogy and teaching outcomes,” says Stevens. Here are her suggestions for teaching online and hybrid courses:

**Meet in person at least once, if possible:** “In the online classes where I have students meet in person for the first class, students tend to feel more connected than in the classes that are completely online. There's something about the visualness of seeing each other when we meet together that they can take with them,” says Stevens. “I ask my online students every quarter if they think I should continue to hold the first class face-to-face. The majority — 85–98 percent — say yes.”

**Start with a “free” ungraded discussion:** The first assignment, where students introduce themselves, is ungraded. During the quarter, Stevens increases the grading requirements as students get used to the discussion format. “I have a clear grading rubric for points in online discussion,” says Stevens. “Students have to show evidence that they've considered the readings and that they're thinking critically about them with the other students.”

**Set clear limits for online communication:** “The students live online, so they feel very comfortable contacting you and talking to you, and that's really thrilling. But I tell other faculty you have to make a rule about when you respond,” says Stevens. “I had one student who wrote me at 2 a.m. and then at 7:30 a.m. was calling my boss saying I was unresponsive. Well, at 2 a.m., I am unresponsive.” Stevens advises setting clear expectations. ‘If you send me a question on Canvas, it's going to be 24 hours before I respond.’ Others say ‘Weekends are mine.’ The students don't care what the rules are. They just need to know about them ahead of time. Otherwise, they assume you're online all the time.”

**Give students the chance to lead:** “I think the ability to respond respectfully to people online or to lead an online discussion will be very important in my students' work as nurse educators or health leaders,” says Stevens. So she has students in her master's class Curriculum Development in Nursing and Health Education (T NURS 511) take turns leading the online class discussion. “It's been very, very successful,” says Stevens. “Students take their online leadership very seriously. The questions they come up with are deep and detailed, because they've really spent time in the reading, which inspires a great conversation.”
UW Cities Collaboratory: Replacing the five-page paper with online exhibits so students become authors

Margaret O’Mara’s urban history students used to write a five-page research paper that only she and peer reviewers read. But when she most recently taught The City (HSTAA 208), the students’ work was posted on a public website, available to anyone interested in Seattle history. Students learned that they could become authors who drew new insights from source documents. “You learn history in 4th grade,” says O’Mara, winner of the 2014 Distinguished Teaching Award for Innovation with Technology. “You produce history in college.”

Each of O’Mara’s students created a multi-media blog post detailing the history of a single block in the South Lake Union neighborhood of Seattle. “The students did as much work as they would have for a paper, in some cases more, with more enthusiasm and often better results,” says O’Mara. “They took ownership. They’d talk about ‘My block this, my block that.’”

The student work was posted in the Lake Union Lab, part of the UW Cities Collaboratory, an interdisciplinary effort led by O’Mara, History; Kim England, Geography; Susan Kemp, Social Work; and Thaisa Way, Landscape Architecture. Classes taught by Way and England have also posted exhibits in the Lake Union Lab, and additional courses are planned for 2014–2015. The team is mentoring an interdisciplinary group of graduate students in a project to research the history and changing geography of North Lake Union neighborhoods.

The UW Cities Collaboratory is an experiment in collaborative research and teaching among the more than 100 UW faculty who study and teach about urban issues. “In addition to serving the students in our classes, the Collaboratory is also proving to be a great platform for research and scholarship,” says Kemp. Here is some of the team’s advice for managing digital projects:

**Budget time for start-up challenges:** “When engaging in new technologies in the classroom, a range of unanticipated issues arise,” says England. The complex website presented a host of technical issues, as well as some academic challenges. Because students’ work is public, the team must hold them to higher standards for attribution and other issues than they would for a traditional final paper. “Our students’ research is now reviewed in ways never possible before, which is both exciting and intimidating. We need to develop new ways of curating materials for accuracy, appropriateness, and usefulness,” says Way.

**Bring in speakers who are experts in digital skills:** Guests in Way’s classes included an expert on sound environments, who taught students not only about the technology of recording and mixing sound, but also a little about how to listen. “He went out with us into the city and taped places that we thought were quiet,” says Way. “And then we played back the tapes and realized how noisy these spaces really were. We also learned how illiterate we were about sound, that we couldn’t tell the difference between the sound of the wind and a passing bus.”

**Find technical support:** “Teaching with technology requires more human power than less. So it’s really important to have your village around you, to have that support,” says O’Mara. Technical support, both from UW Information Technology (UW-IT) and IT staff in their home departments has been critical, according to the team. The History Department provided TA support in the quarter prior to the course to create a tutorial for the web platform, and scan historical documents.

**Be willing to experiment with technology:** The team started with the digital platform Omeka for class projects and is now adding another platform, Scalar, that facilitates research collaboration and deep annotation. The Simpson Center provided training in Scalar, as well as support for faculty and students to attend the Digital Humanities Summer Institute.

**Develop protocols for use of materials from archives and other sources:** Team members realized that they needed to help students learn to trace the source and ownership of seemingly anonymous images and resources found online. They are developing protocols for citing sources to help students gain an understanding of professional practices in research, “what attribution and authorship mean,” says O’Mara.

**Curate and promote student work:** O’Mara is grateful that once her students’ site began to
To me, learning always engages student initiative. That means in good teaching you should always get to a point where you’re not sure where the students are going to go, what connections they’re going to make.

THAISA WAY
Associate Professor, Landscape Architecture

“Draw media attention (see Resources), the History Department paid for a research assistant to improve the presentation of student work by editing site content and creating an interactive map on the landing page.

Allow students who don’t want their work posted publicly to opt out: The default for O’Mara’s class was that students’ work would be public, but she offered an option that students could, with no impact on their grade, request that their work be visible only to the class.

Know your metadata: As the team worked with the technology, they realized the possibilities for using metadata, the information attached to every digital file. For example, geocodes in the metadata of photos allow them to be linked to interactive maps. “The good news is that photos students take on their phones include geocodes,” says O’Mara. Unfortunately, files for historical photographs do not. The team is developing a protocol for confirming or adding geocodes before new images are posted, as well as site standards for all types of metadata, which will facilitate searches and the ability to link and annotate site resources.

Assign projects that meet community needs: The teaching team decided to research neighborhoods undergoing rapid change, to document issues such as the historical sources of industrial pollution in Lake Union, and current social stresses such as those caused by loss of affordable housing. Another key decision was that students should present their findings in ways that community members could easily understand, for example by describing issues without disciplinary jargon and illustrating findings with clear infographics. Students interested in research need to become familiar with visualization technologies and learn how to work with designers, so their findings on critical urban issues are accessible, says Way. “Then you can start talking to community groups and explaining complex issues in a way that makes sense and encourages engagement.”


Above, a team of graduate students are studying both the north shoreline of Lake Union and its “blue space,” submerged lands and the lake’s waters, to develop an interactive exhibit for the UW Cities Collaboratory. Pictured here at Waterway 15 in summer 2014, the team has also supported the development of digital tools for teaching and helped curate undergraduate and other Collaboratory exhibits. Left to right, Jennifer Porter, Geography; Odessa Benson, Social Work; James Thompson, Architecture; Eleanor Mahoney, History; Megan Brown, Geography.

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Teaching with Technology Fellows
Seven of the faculty featured in this report participated in the 2013-2014 Teaching with Technology Fellows (TTF) program, redesigning their courses with training and support from pedagogy and technology experts at the Center for Teaching and Learning and UW Information Technology (UW-IT) Learning Technologies. The TTF program was based on the philosophy that technology is not an end in itself, but an entry point to new ways of teaching that can engage students both face-to-face and online. Overall, 59 Fellows from 25 departments redesigned more than 40 courses (in which more than 5,000 students are enrolled), first determining which evidence-based pedagogies would best help their students learn, and only then selecting an appropriate technology tool or platform to meet their goals. They received ongoing IT tech support to assist in first offerings of the revamped courses and met throughout the year with TTF peers. They then shared their experiences with faculty outside the TTF program. The result was an increase across the UW in innovative teaching. TTF participants featured in this report are: A.J. Boydston, Colleen Craig, Colleen Dillon, Miriam Hirschstein, Dian Million, Lynn Hankinson Nelson, and Stefan Stoll.

Resources
The Center for Teaching and Learning: The Center for Teaching and Learning offers workshops and Faculty and Professional Learning Communities (FPLCs), as well as extensive resources on teaching with technology, active learning, large lecture instruction, and flipping the classroom.

UW Libraries: Resources at Odegaard Undergraduate Library include active learning classrooms, a new sound studio available for recording voice and instruments, and the newly remodeled video studio, which offers video recording, web conferencing, and media viewing.

UW Information Technology (UW-IT): UW-IT offers workshops for learning technologies including the learning management system Canvas and the new lecture-capture system Panopto. UW-IT Learning Technologies also offers one-on-one consultations for faculty and instructors looking to use technology for teaching. Faculty interested in speaking with a specialist in educational technologies can email help@uw.edu.

UW Bothell: The UW Bothell Teaching and Learning Center (TLC) offers faculty support, including monthly Teaching in Progress Seminars (TIPS), and resources on topics including online tools for collaboration and publishing to make student work public. For upcoming events, check the TLC schedule.

UW Tacoma: UW Tacoma's Faculty Resource Center offers individual consultation and workshops on pedagogy and technology. Teaching Forum at UW Tacoma is a faculty-led group that meets monthly. Past forums include “Work smarter, not harder: Using technology to be a more productive teacher.” To join the conversation, post comments on the Forum blog.

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An interdisciplinary student team studies Lake Union for an online exhibit in the UW Cities Collaboratory (see page 12 in this report). Above, left to right, Eleanor Mahoney and Megan Brown.