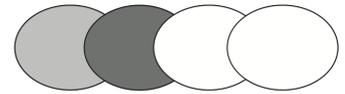


Beyond the Essentials



HELPING STUDENTS THINK LIKE A SCHOLAR

Using your discipline as a framework for learning engages students and enables them to develop skills integral to your field. To provide a disciplinary context for learning, first identify concepts, perspectives and problem-solving skills necessary for success in the field. Because these may be skills and processes that you've long since internalized, you may find it useful to observe the approach beginning students take toward material and compare it to your own expert approach to identify the skills new students lack. Next, develop lessons and assignments that engage students in the practice of the discipline. Finally, plan assessments to measure students' thinking processes and approaches to problem-solving within the field, as opposed to focusing on course content alone.

Additional considerations when planning your course:

Model the ways scholars work by posing questions at the start of lecture, allowing students to pose possible answers, then using lecture material to discriminate among correct and incorrect answers.

Challenge students to apply the ways of thinking you are teaching to other aspects of their lives; this will close the gap between students' lived experience and academic disciplines.

Pay attention to learning as a developmental process as you plan lessons. What differences exist between the kind of thinking we might expect of students who are just beginning study in your discipline versus those who are ready to graduate?

COGNITIVE APPRENTICESHIP

Brown, Collins, and Duguid (1989) explain that knowledge of any kind can never be separated from the activity in which it is deployed, and, as such, learning is always situated within authentic activity (activities that are the ordinary practices of a culture). Classroom instruction, then, should be a process of enculturation, by which students learn the tools they need for an activity within a context that allows them to see how community members—that is, scholars in the field—use those tools. Learning should not be imparting abstract concepts devoid of context from the instructor to students, who then apply those concepts to artificially created situations. Rather, learning should always be situated, so that students can use the environment, context, and knowledge they already have to solve problems and make generalizations.

One of the stated goals of my Research Methods in Psychology course is to help students think like scientists. A danger of this goal is the unstated implication that they start the class thinking like non-scientists, or believe that scientific thinking is in some way superior. This is a bad tone with which to start the course.

To overcome this problem, I try to identify ways in which students intuitively “think like scientists” already. I also try to show how scientists are human and how we also sometimes ignore our own rational approach. This helps demystify science for the students and makes them ready to consider scientific thinking as an everyday tool with which to approach information.

—Paul Atchley

FOUR PHASES OF MENTORING RELATIONSHIPS

Zachary (2000) describes four phases through which mentoring relationships usually progress:

Preparing—In this phase, the essential task is to clarify expectations and roles to establish a productive mentoring relationship.

Negotiating—Here, mentoring partners come to agreement on learning goals and define the content and process of the relationship.

Enabling—This is the implementation phase of the learning relationship, when most contact between mentoring partners takes place. Both the mentor and mentee should monitor the learning progress and the learning process to ensure that goals are being met.

Closure—This involves evaluating, acknowledging and honoring achievement of learning. Closure provides an opportunity to evaluate personal learning and apply that learning to other relationships and situations.

MENTORING STUDENTS AND ADVISING INDEPENDENT WORK

Mentors are more than academic advisers or teachers. Johnson (1989) defines mentoring as an ongoing one-to-one relationship in which a more experienced individual offers advice, counsel, or guidance to someone less experienced. Jacobi (1991) identifies three components of mentoring: direct assistance with career and professional development, emotional and psychological support, and role modeling.

Most successful mentoring experiences happen when groups meet regularly, set clear goals, and balance friendly discussion with talk about academic matters. The best relationships are built on foundations of shared interests and mutual respect. The mentor/mentee relationship should be mutually beneficial, with each person gaining new perspectives and ideas from the other.

New faculty members would do well to consider suggestions from Ann Cudd:

One-on-one work with students is some of the most rewarding work we do; it's also the most time-consuming. The most important thing to do is to set the terms of the interaction from the beginning. First, I insist that the student come up with the topic area and describe it in some detail. Next we agree on how much face-to-face interaction we'll have and what we'll do each time we meet. Then, we agree on readings and a schedule for handing in work that I'm to evaluate.

I've developed two forms: one for independent study and directed readings, another to track students who are writing theses or dissertations (see Appendix B). I give students the first form when they ask me to work with them; it explains what I expect from them and what they can expect from me. The second form is for me; I record topics, meeting dates, work handed in, committee members, etc. The second form is essential for me not to forget who's working on what with whom and what I've committed myself to.

Finally, two warnings: First, don't take on much of this your first year of teaching. Develop your courses and observe how others in your department do this mentoring work first. If you do plunge in, then ask experienced faculty for advice. Second, don't rehash a course your department is already teaching for individual students. Don't consider yourself an overflow resource, nor should you take it on yourself to offer a course for a student who, through no fault of yours, is unable or unwilling to take the course when offered by the department.

TEACHING GRADUATE STUDENTS

Based on her research on teaching graduate students, as well as her experience as a graduate student at KU, Ann Volin (2003) suggests that what makes graduate seminars successful includes clear goals, adequate preparation and follow-up. Often professors begin seminar preparation with their experience as a student as the sole blueprint. Augmenting that experience with the following ideas can streamline benefits and increase student learning:

Model your professional leadership. You are an expert about the seminar topic; thus, you should model relevant skills for teaching, learning and presenting in your profession. A seminar offers the chance for you to relay to graduate students the professional expectations of your discipline. It's best not to assume that students know what these are—make them explicit.

Set clear course objectives. Articulate not only what you plan to achieve for the semester, but also what each session will accomplish so you can judge the effectiveness of your plan.

Structure each class meeting. Allowing classes to “go with the flow,” which may sound like an idealized intellectual process, leads away from course goals. You have limited time for learning in a seminar.

Plan student-led discussions. Students can—and should—lead discussions based on papers they have written or topics they have researched. Teachers can coordinate, facilitate and comment on presentations. An interactive format is crucial; there must be a reason for students to attend class instead of reading material on their own. Watch out for sessions that center on a presenter and fail to draw out the group's expertise.

Encourage students to help each other. No doubt many students are in class because of their deep interest in a subject. By joining their peers, they own material in a way that professors cannot create on their own. Let seminar interactions build upon skills that each student brings to the seminar. Through these interactions, graduate students become each other's professional colleagues.

Have an obligatory follow-up. Not only do graduate students need the opportunity to practice and demonstrate skills, but they also need feedback. If that feedback exists in a vacuum—for instance, at the end of the semester when there will be no opportunity to correct and modify skills—it's less than optimal. Figure in a realistic revision that will demonstrate the application of the feedback.

RE-THINKING GRADUATE SEMINARS

In his course portfolio titled *Re-envisioning Teaching Graduate Seminars*, Anton Rosenthal describes how he implemented backward design (see *Aligning Goals, Assignments and Practices*, p. 3) in a graduate course, “The Global City.” Rather than beginning with a set of readings and expecting students to fit into a “one size fits all” approach, Rosenthal first identified goals he wanted students to achieve by the end of the course.

Since one goal was to prepare graduate students for their professional lives, Rosenthal developed assignments that reflected that goal. Students didn't write a long research paper; instead, they wrote multiple short papers (five–six pages) that employed methods, theories and sources. For their cumulative work, students developed a teaching unit.

Rosenthal observed students' improvement in several areas, such as writing, research analysis, understanding journal articles, and performing comparative analysis.

For more about Rosenthal's work, see his portfolio in the CTE gallery: cte.ku.edu/portfolio.

To allocate GTA time and skills:

1. Calculate the total GTA hours you have for the term.
2. Identify the range of tasks the GTA is capable of doing.
3. Rank the order of those functions as activities that enhance student understanding.
4. Distribute the hours accordingly.

WORKING WITH GTAS

Graduate Teaching Assistants play a large role in the undergraduate teaching experience, with responsibilities varying from grading assignments and taking attendance to holding office hours, designing and presenting lectures, and writing exams. Given the many obligations that both professors and GTAs must fulfill, positive interactions between them can help all class members have a successful experience. Poor interactions, on the other hand, can negatively impact the effectiveness of the teaching team. Therefore, concerted efforts should be made to ensure that interactions are positive for everyone involved. Supervising professors should remember that they are responsible for a GTA's performance. As David Perlmutter discusses in his article "Supervising Your Graduate Assistants," faculty members need to find a balance between maintaining standards for GTA work and remembering that GTAs are students too, who occasionally need leeway.

The TA Experience (1993) suggests that an essential starting point is making sure roles and expectations are discussed at the start of a course. When roles aren't clearly stated, GTAs must infer what their responsibilities are, which can affect their level of confidence and their commitment to their tasks. See the box at left for steps to ensure that GTA time and skills are allocated effectively.

To maximize benefits for you, the GTA, and your students:

Make teaching a team project. Before the semester starts, meet with GTAs and review the course structure and goals. Review the course organization and syllabus, or consider writing the syllabus together. Sharing with GTAs why you made decisions will expose them to the course development process, as well as make it easier for them to address student questions.

During the semester, involve GTAs in class on a daily basis. Require them to attend lecture; this will make them visible to students, provide you assistance with logistics, and keep them abreast of material you're teaching. To further involve GTAs, ask for their input on your lectures, have them give a lecture of their own, and write/grade exams as a team.

Ask your GTA to be an information source about student learning. Provide GTAs with a rubric to ensure quality and consistency of assessment. Meet with GTAs weekly to discuss challenges they have encountered; have them summarize questions they are getting from students. Or, ask the GTA to provide you with representative lab write-ups, essays or assignments from their class; this way, you can record benefits and pitfalls of assignments and gauge student progress.

Provide feedback on their work. While GTAs should have autonomy, most require guidance. Offer to observe classes (as support, not as a check-up), then note their accomplishments and offer advice. During the semester, meet weekly to discuss issues from previous classes and help them prepare for future lessons. To maximize their development, meet with GTAs individually at the end of the semester. Finally, direct GTAs to resources that may help them enhance their teaching (e.g., the *GTA Essential Guide* at cte.ku.edu/cte-publications).

TEACHING LARGE CLASSES

Faculty members who teach large classes face many challenges, such as:

How does a teacher offer meaningful instruction in a large lecture class?

Are there ways to reduce student anonymity?

How can I make a large class interactive?

How can I encourage student writing in large classes?

What types of tests are feasible in large classes?

Instructors of large classes have found ways to meet some of the challenges this particular teaching situation presents.

Val Smith, former KU professor of ecology and evolutionary biology/environmental studies, offers these ideas:

My first and most important goal was to personalize a lecture: When I taught large classes, I learned names of several students, tried to learn something about them, and then referred to them periodically in class. I often walked up to and called them by name during lecture. For example, "Mike is sitting just in front of me right now taking notes. Is he thinking about breathing while he is writing? No! He doesn't need to, because his central nervous system takes care of that automatically." In doing so, I tried to make students feel like they were in a smaller classroom setting, that each of them was not a faceless member of a large crowd, and that I cared about them as individuals.

My second goal was to demand active participation. Here's an example: There's a difference between the behavior of non-myelinated neurons (along which nerve impulses are conducted smoothly and without interruption, akin to an electrical current flowing through a strand of wire) versus

CTE RESOURCES FOR ACTIVE LEARNING IN LARGE CLASSES

In CTE's portfolio gallery, these KU faculty members describe ways they have incorporated active learning into a large class:

The Evolution of a Term Project: Iterative Course Redesign to Enhance Student Learning—
Andrea Greenhoot
cte.ku.edu/portfolio/greenhoot

Enhancing Student Engagement and Critical Thinking in a Large Classics Course —
Pamela Gordon, Emma Scioli, and Tara Welch
cte.ku.edu/chrp/portfolios/classics

Out of the Comfort Zone and Into an Engaging Experience: Flipping a Course to Improve Students' Critical Thinking—
Kathleen Nuckolls
cte.ku.edu/out-comfort-zone-and-engaging-experience-flipping-course-improve-students-critical-thinking

FIVE WAYS TO REDUCE ANONYMITY IN LARGE CLASSES

1. Meet with students in small groups. Either pass out invitations to several students to join you for coffee after class, or announce that you'll meet with any students who are free for coffee after class.
2. Pass out brief student observation forms to several students at the start of class and ask them to meet you to discuss their observations.
3. Circulate among early-arriving students to get acquainted before class starts.
4. Use a seating chart so that you can call students by name when they participate.
5. During your lecture, move out into the aisles to get students' comments.

myelinated neurons (in which nerve impulses hop from one node to another, more like a frog hopping along a rope). I first asked students on the ground floor of the classroom to start a continuous “wave,” beginning with students along the left aisle, sweeping across the classroom, and ending at the right aisle. I likened this flow of movement to nerve impulses in non-myelinated neurons. Then, I asked students in the central section of the classroom to stay still, and students on the right-hand side of the auditorium to begin their portion of the wave at the very instant that the left-hand section’s wave ended: The flow of movement jumped over the central section of students, just like a nerve impulse jumps and speeds past the sections of myelinated neurons that are covered by Schwann cells. No one leaving the classroom that day forgot the difference!

Smith’s suggestion to personalize lecture delivery is a good starting point for reducing students’ feelings of anonymity in large classes. As McKeachie & Svinicki (2010) report, social psychological research has shown that people who are anonymous feel less personal responsibility, which damages morale and order. Also, the distance students feel from an instructor and a loss of interpersonal bonds with a teacher and with other students diminishes motivation for learning. To combat these, see the box at left.

Paul Atchley shares these ideas regarding attendance:

If your class is a recapitulation of lectures, students will choose to stay in bed, rather than come to your class. Use class time to guide students through exercises to achieve higher levels of learning (application, analysis, synthesis, evaluation). Emphasize the importance of attendance: if you don’t care, they won’t, either. Enforce attendance through whatever combination of carrots and sticks are appropriate for your course. In a large class, taking attendance is onerous, but in-class writing assignments or peer grading can serve as evidence of attendance. Avoid announcing when graded in-class activities will happen, because you will find that students will show up on due dates, and stay home when they think nothing is due.

Mark Haug, KU School of Business, suggests:

Apply theory to real-life cases during class, which makes course material relevant to the student experience.

Have small groups of two to three students work on a problem during class; one of these for every 40 minutes of class time is ideal.

Other ways to involve students include in-class debates or interviews, or out-of-class study groups and online discussions.

Many faculty members hesitate to use writing assignments as part of a large lecture course. For formal papers, using rubrics is an effective way to ease the grading load; see *Designing Writing Assignments*, p. 9. Not all assignments must be formal, graded papers, however. Bean (2011) suggests that teachers shouldn't feel "compelled to read everything students write, which is equivalent, I would argue, to a piano teacher who listens to tapes of students' home practice sessions ... The trick is to read some of it, not all of it" (p. 99). Using short, informal writing activities such as reading logs or journals or practice essay exams will benefit students. For other ideas, contact the Writing Center (785-864-2399).

In large classes, giving exams presents unique challenges. In a class of 30, it takes a few minutes to hand out exams. In a class of 1,000, passing out exams can reduce testing time by ten minutes. See the box at right for suggestions regarding exam logistics.

When you're handing back graded papers, Lowman (1987) recommends asking GTAs (or student volunteers) to take stacks of alphabetized papers to different sections of the room. You can direct students to the section where their paper will be (e.g., last name A-F in the right front corner of the room).

TEACHING STUDIO OR ONE-ON-ONE CLASSES

Teaching individual students occurs in various settings: architecture, music, physical education, as well as independent study in any discipline. McKeachie & Svinicki (2010) note there's little research on one-on-one teaching, but several principles apply:

Allow students maximum freedom to experience successful completion of a task or part of a task, but give enough guidance so that they won't get bogged down by errors. Learning experiences should move from simple to complex, with steps ordered so that each new problem can be solved.

Students need practice, followed by feedback.

Too much feedback may be more than the student can assimilate. Don't try to correct everything on the first try.

Feedback can discourage students. Provide some encouragement, as well as identification of errors.

Feedback about mistakes won't help if the learner doesn't know what to do to avoid errors. Suggest what to try next.

High-level skills are developed through much practice. One successful performance doesn't signify the automatization that's necessary for consistent success.

LOGISTICS FOR TESTING IN LARGE CLASSES

Prepare tests well in advance so you'll have plenty of time to proofread and check for unclear wording. As Lynda Cleveland (2002) notes, "A typo discovered by one student escalates to an uproar in the mega-class. Likewise, wording that is unclear escalates to a fever pitch during the mega-class exam" (p. 21).

Ask GTAs to take an exam before it's given to students so you can be sure students will have time to complete it within the allotted testing time.

Before the test, determine how you'll distribute exams. Counting out papers for each row of students will consume five to ten minutes of exam time, or more if you don't have GTA help. You may want to pre-count, package and label exams for the rows in your classroom (Cleveland 2002).

THREE KEYS TO ONE-ON-ONE TEACHING

1. Students are helped by seeing a model of the desired performance, such as an instructor's demonstration, a videotape, or an observation of a skilled performer. When instructors perform, they should direct students' attention to crucial aspects of the technique.
2. Students are helped by verbal cues or labels that identify key features of the skill. Irrelevant details usually distract students.
3. Simplified simulations or demonstrations are more useful starting points than complex, real-life situations, which may overwhelm students with too many details (McKeachie 2002).

Practice with varied examples is motivating and more likely to transfer to later performances than simple drill and repetition.

Students need opportunities for self-evaluation with feedback about the evaluation, as well as the work being evaluated.

Cynthia Colwell, KU music and dance, shares these observations about teaching one-on-one:

Individualized instruction requires a special set of teaching skills, whether analyzing students' work in studios, mentoring a graduate student through a research project, or evaluating behaviors in off-campus practica. There are a variety of issues to think about prior to, as well as during, one-on-one experiences that are different from the typical classroom experience.

When teaching one-on-one, it's important to determine guidelines for availability, as well as setting boundaries for the relationship. In the area of availability, will you establish set office hours or be available by appointment or on a drop-in basis? What kind of contact will you have with students outside the arranged time? Will you establish a personal relationship? Will this be impacted by gender or by age? How will you balance professional versus personal "sharing" (i.e., teacher versus therapist role identification)? Both of these areas are impacted by your philosophy and the situation but are imperative to consider prior to and/or during the establishment of the teacher/student interaction.

Approaching your teaching preparation is markedly different in the one-on-one setting. When formatting a lesson, you have to determine what balance of teaching strategies and student engagement is going to be appropriate. Will you lecture or do more exploratory or seminar type teaching? How much will students be responsible for presenting content information? How will you provide feedback—oral, written or both? What types of prompts will you use to facilitate discussion when it is just the two of you? Will you create a learning agreement that functions much like a contract of what the student hopes to accomplish, how he or she will accomplish it, and by when, or will you create a syllabus with pre-established criteria?

Although there aren't easy, right answers to these questions, thinking about them as you embark on one-on-one teaching can mark the difference between success and frustration.

TEACHING QUANTITATIVE COURSES

In a broad sense, a “quantitative course” is one in which mathematical or statistical analysis of quantitative data is a main component of the syllabus or the prerequisites for such a course. The three main issues are placement, technology and active learning.

PLACEMENT—STUDENT PREPARATION

When teaching such a course, it is essential to understand students’ preparation. High school students enroll at a public state university, like KU, with a wide range of quantitative backgrounds. The first step is to have clearly defined prerequisites for the course and enforce them. Even with enforced prerequisites, students will enter the course with a broad range of skills. The current teaching of mathematics in high schools varies from one school district to another and is different than what most instructors experienced (see NCTM standards reference in the sidebar at the right). It is not enough to require a passing grade in a high school college algebra course; scores on a national examination, e.g., math ACT, are a better determination of required skills. Students should be held accountable for skills required for the course. On-line supplementary material or handouts can be used to help students review the skills without consuming class time.

TECHNOLOGY

Technology should be integrated in a quantitative course. From graphing calculators to Google spreadsheets, there are endless possibilities for using technology. Students use technology daily in many sophisticated venues. Incorporating technology in the course makes the content real and applicable and extends exploration in and outside the classroom. Additional resources (technical support and release time to develop or implement new material) need to be considered in courses where technology has not been used before. If not carefully planned and tested, the technology component could result in a big loss of time and learning.

ACTIVE LEARNING

As with any other subject, students learn better when they are engaged. Learning a new concept or methodology can be developed as a creative process. Students will learn to appreciate the possibilities and constraints of a discipline. Solving problems in small groups is still one of the most effective methods. Different approaches to the same problem should be encouraged and motivated. Students must learn the logical foundations of the subject to insure that they understand the critical certainty of their solutions.

REFERENCES FOR TEACHING QUANTITATIVE CLASSES

Principles and standards for school mathematics from the National Council of Teachers in Mathematics: standards.nctm.org

Mathematical Association of America quantitative literacy resources: maa.org

Mathematics Technology tools at Math Forum: mathforum.org/mathtools

Kim Glover, Center for Online and Distance Learning, recognizes that in many instances, “online students can feel isolated by the impersonal nature of the online environment.” She suggests that, from Day 1, you build a sense of support into your online course:

Use icebreakers at the beginning of a course.

Build relationships with online users.

Make the course easy to navigate.

Make short videos of yourself each week, explaining assignments and material that will be covered that week.

ONLINE TEACHING

Teaching online courses requires much of the same preparation as teaching face-to-face courses, but it can also pose challenges for students and instructors who are not used to an online learning environment. A well-designed online course can provide an excellent means of learning, especially because it offers the flexibility that many students need. This environment can seem impersonal at first, though, especially compared with the more familiar classroom, but it doesn’t have to be. You won’t be able to meet with students in person, but there are many ways to interact with students, get to know them, and create a sense of community.

As you prepare your online course, don’t just put your physical course online. You may use many of the same materials, but you will need to adapt them for the web, taking advantage of such things as video, audio, hyperlinks, journals, and online discussion boards. Most online classes are asynchronous, meaning that students won’t meet or do the work at the same time. Partly because of that, the online environment requires more preparation up-front, more guidance for students, and more thought in how you display course materials. Here are a few things to keep in mind.

CREATE A CLEAR PATH FOR STUDENTS

Students will get their first exposure to the class in Blackboard, so it is especially important to create an introductory page, often called “Getting Started,” that explains what the course is about, what is expected of students, what types of work they will complete, and how they will communicate with you and with classmates. These introductory pages often include these elements:

Welcome message. This can be written, but a video or audio introduction provides an immediate personal element by allowing students to see or hear you as an instructor and listen to you explain the general expectations for the class.

Course objectives. List the objectives on the introductory page and explain how students will achieve those goals.

Assignment calendar. This helps students plan their online work. Explain the types of assignments (papers, projects, quizzes) they will complete, and when each is due.

Communications expectations. Tell students how to contact you and set guidelines for when students can expect a response.

Required course materials. Provide information about a textbook if you are using one and about any other materials, including technology, that students will need for the course.

Academic resources and services. Make sure students know where to go for assistance.

Introductions via a discussion board. Encourage students to introduce themselves and engage with others in the class.

Lessons or modules. These won't go on the introductory page, but they are an important element for organizing your course. Create a folder for each week of the course or for each learning module. Provide a list of learning goals, an explanation of how students will achieve those goals, a list of readings and other assignments, a list of discussion questions, and any other material students need to complete the work. Creating modules or folders for this material helps students find course material easily and allows them to follow the progression of the class.

COMMUNICATE CLEARLY AND FREQUENTLY

Creating a sense of community is important in an online course. You, as the instructor, are the community leader, so you want to make sure you communicate with students frequently and make them feel part of a course. Here are some ways to do that.

Survey students. A pre-class survey provides useful information about who students are, what they know and what they expect from the class. Consider sharing the survey results with students so they get a sense of who else is taking the class. Surveying students again at midterm (or earlier) can alert you to problems they might be having, allowing you to adjust elements of the course.

Email students or use Blackboard Announcements at the start of each week. A weekly message to students adds additional structure to your online course. It signals to students that a new component of the class is beginning, allows you explain the focus and expectations for the coming week, and helps you tie up loose ends or clear up misconceptions from the previous week. Much of this information might repeat what you provide in the weekly modules or folders, but you can use it to add a personal touch, as well. For instance, include personal insights about the class or class material, links or current events that tie in to course material, or other outside material that students might find interesting.

Set communication guidelines. Students will want to know how best to contact you and when they can anticipate a response to questions and inquiries. They will also want to know when their assignments will be graded. Because students will submit material at varying times, it is in everyone's best interest to set expectations at the beginning of a course. Many instructors tell students that they can expect a response to email queries within 24 to 48 hours. Once you set a timeframe, though, stick to it. A caveat: 24 hours is a long time to wait if a student is working in a condensed format class (four or eight weeks), so consider a shorter window for those types of classes. Some faculty schedule virtual office hours when via chat or video link (Skype for Business or Zoom, for instance). You can specify times for these or recommend an appointment.

AUDIO GRADING

I've found audio to be one of the most effective means of engaging students online. Written feedback is important, but audio provides a more personal element. By adding my voice, I can reassure students about their work even as I critique and offer advice.

Here's how I use audio:

iPad. I use an iPad app called iAnnotate for grading. It allows me to highlight passages of a document and add written comments with a stylus. More importantly, it allows me to add one-minute audio clips anywhere on a PDF. I use these to elaborate on written comments, explain difficult concepts, and ask questions about things I don't understand. Other apps, including GoodReader and PDF Expert, provide functions similar to iAnnotate.

Audio recorder. For more detailed advice, I use an audio recorder that creates .mp3 or .wav files. These formats are easily played on a variety of devices and can be shared on Blackboard, or via OneDrive, OneNote or other online services.

Podcasts. I use these to lead students through concepts and ideas, and to introduce other voices into the class through interviews and conversations. I have found them especially effective for master's students, who say they listen to the podcasts while commuting, doing the dishes or engaging in other activities.

—Doug Ward

ONLINE DISCUSSION BOARDS

From looking at other people's rubrics and my experience in using discussion boards, I learned to be very clear about my expectations of how I wanted students to use discussion boards. I used discussion posts to count for participation, check for understanding, and encourage peer learning. I would design several open ended questions about the topic we were studying that week and would assign students to answer one of the questions by Friday night at midnight. This gave them time to read the material before answering. I gave very specific instructions on their answer: They had to make a strong argument for their answer and had to back it with references to resources they used for their argument. I then expected them to respond to a classmate's post. Again they had to back up their response with resources. The response had to be completed by Sunday night. I checked daily for their discussion (you can also set up Blackboard to e-mail you when there is a new post).

I also set up a discussion board for Q&A, so that when a student had a question he or she could post it and everyone could benefit from the answer. It is good to subscribe all students to this discussion board so that they automatically get an e-mail note when something is posted.

—Kim Glover

Set up an online forum for questions. You can do this on Blackboard or with other online tools. It's a great way to provide information to all students when one student asks a question. Students are generally eager to help peers and will often answer questions that others have posted online. Encourage that, but also correct errors or misconceptions. Most forums allow you to subscribe to them so you will get an email alert when students post questions.

Join online discussions. Online discussion are a great way for students to engage with one another and with you. Students who may not speak up in face-to-face classes often thrive online. Consider assigning roles for discussions. For instance, designating a leader to start discussions empowers students. Assigning roles like devil's advocate, synthesizer and reporter help students approach discussions in different ways and can cut back on "me too" posts. You don't have to respond to every post, but make your presence known. Highlight good responses, emphasize important concepts, or redirect conversations that go astray. Remember that online forums lack the nuance that you can provide with your voice, so consider how students will perceive your comments.

PROVIDE COURSE MATERIAL IN A VARIETY OF FORMATS

Video and audio provide great ways of leading students through difficult concepts. They also add a personal touch, allowing students to hear you and see you. If you do use video or audio, take time to create short videos intended especially for the class. Don't just record 50- or 75-minute in-person class sessions and post them online. Most students won't watch those (*would you?*), and they aren't an effective means of learning. Videos of five to 10 minutes are generally the most effective way to break up course content into smaller pieces that students will work through. That shorter format also helps you focus on what is truly important.

Choose the right format. Keep in mind that video is a visual medium best used when you need to demonstrate something, show images or diagrams, or lead people through a sequence. If you don't have visual elements to provide, consider using audio, which students can listen to on their phones. That can save you production time and provide a more effective means of conveying information than a face on a screen.

Add captioning. If you create videos, make sure to provide closed captioning or a written script. Many students watch video with the sound off and rely on captioning to "listen" to the instructor. International students rely on captions to pick up on words they may not be familiar with. You can get help with captions by contacting KU IT. Check out their website at: content.accessibility.ku.edu/captioning-services-available-ku The Center for Online and Distance Learning (codl@ku.edu) can help you create and caption course-related videos.

Make text readable. Even if you use video and audio, most course material will take the form of text. Keep paragraphs relatively short. Use subheads, lists, tables and similar elements. Add illustrations to enliven pages. Your students are used to a well-designed, media-rich online environment. An engaging display will help students find and use your course materials.

Provide ALT tags for images. Images, charts, and other illustrations can help make numbers or abstract concepts easier to understand. Make sure to describe images for students who might be using screen readers, though. Including an ALT tag when you add an image on Blackboard is simple and quick: content.accessibility.ku.edu/alt-text-images

EVALUATING DEGREE-LEVEL AND GENERAL EDUCATION LEARNING

Teachers aggregate evidence of individual students' learning up to a group-level distribution as a way of gauging the overall success of a course's structure, assignment sequence, and instructional method. Similarly, teachers are sometimes involved in helping their colleagues and the university at large with two other types of aggregation: at the degree level, where evidence of student learning across courses is aggregated to provide a picture of an individual department's major; and at the university level, where evidence of student learning across departments with courses included in the Core curriculum is aggregated to provide a picture of general education at KU.

These larger-scale data collection and analysis processes are oftentimes referred to as "academic assessment" or the "study of student learning." Whether related to an individual department's degree or the university's general education curriculum, the study of student learning aims to answer these types of questions:

1. What are faculty interested in learning about their students? For example, faculty might ask "What skills are our students learning in our major's capstone senior course?" or "Does our research methods sequence effectively train students in our discipline's approach to research?"
2. What types of data – or student assignments – most effectively capture the outcomes we're interested in examining? What sorts of metrics would we apply to this data and how would we collectively interpret the results with our colleagues?
3. With these results in hand, are there any revisions we can make to our program or curriculum to improve student learning and enhance faculty teaching?

REACH OUT FOR ASSISTANCE

Instructional designers at the Center for Online and Distance Learning are an invaluable resource for instructors. Set up an appointment with one of them before you put your course together. They can help you set up a timeline for completing the course, provide advice for creating course material, and provide an all-important review of your course once it is completed.

The CODL team also includes media specialists who can help you with the planning, creation, and captioning of your videos and test proctoring options.

Contact CODL at 785-864-1000 or onlinelearning@ku.edu

KU Libraries provides several streaming media databases with documentaries, films, and newsreels you can use for your course as well. Check out their streaming media databases at guides.lib.ku.edu/streamingvideo

ASSESSMENT RESOURCES

There are many resources available on campus to support your department's assessment efforts. Three useful starting points are the following:

1. assessment.ku.edu
2. kucore.ku.edu
3. cte.ku.edu/assessing-learning

DEGREE-LEVEL ASSESSMENT

As one of the two major assessment processes at the University, degree-level assessment focuses on any undergraduate, master's, or doctoral degree that a department issues. The Provost's Office asks that departments conduct an annual assessment process that samples student assignments from one or more courses within the degree's curriculum. These examples can include responses on exams, writing assignments, presentations, portfolios of multiple assignments, or any other form of skills demonstration the department chooses to collect. This data is then analyzed by and discussed with department colleagues, perhaps during an annual meeting or planning retreat. In addition to helping the University gather information for external accreditation and review, this cycle is intended to provide departments with an opportunity to reflect on learning in their programs and, if necessary, make revisions to their curricula or teaching practices.

Different departments manage this process in different ways. In some settings, the departmental leadership team oversees and curates assessment; in others, faculty committees on undergraduate and graduate studies take an active role. Some departments have crafted standalone assessment committees that bring together subsets of faculty on a temporary basis to collect and evaluate student work. Regardless of a department's internal method, KU and the Center for Teaching Excellence offer extensive resources and guidance in the form of online examples and a full-time assessment specialist who is available for in-person consultation. See assessment.ku.edu for more information about degree-level assessment.

GENERAL EDUCATION ASSESSMENT

Many departments across the University have courses, sequences, or extracurricular experiences that have been included in KU's general education curriculum, or the Core. The Core articulates a set of six goals or skillsets that each undergraduate student should possess at graduation. Every six years, the individual courses that contribute to one of these goals or skillsets comes up for periodic review. Instructors of courses in a given goal are asked to provide the University with evidence of student learning in those courses.

Each academic departments manage Core-related assessment in different ways according to department culture, resources, and personnel. The University Core Curriculum Committee, which is comprised of faculty representatives from across the various schools at KU, serves as a university-level source of support and guidance for departments in their Core assessment efforts. For more about the Core, see kucore.ku.edu.