**ALIGNING GOALS, ASSIGNMENTS AND PRACTICES**

Course design involves identifying course goals, planning what to teach, what opportunities students will have for learning, and how you’ll evaluate whether students are meeting course goals. Designing a course can be done adeptly with backward design: determine concepts you want students to master, then plan how you’ll determine whether they have learned the concepts. This guides which resources and methods you use to facilitate learning.

As you plan, you may experience some tension about how much you should cover in your course. Identifying key course topics can help you achieve balance. Three questions from Wiggins and McTighe (1998) can help you identify these key topics:

1. To what extent does the idea, topic, or process represent a “big idea” having enduring value beyond the classroom?
2. To what extent does the idea, topic, or process reside at the heart of the discipline?
3. To what extent does the idea, topic, or process offer potential for engaging students?

Consider students’ goals and characteristics. Students may take your course to understand principles, learn to communicate effectively, learn to organize ideas or interpret data, or understand how researchers gain knowledge. Use this information, along with course goals, to guide your course structure and teaching pace.

After you choose material, establish criteria for obtaining evidence of learning. A key feature of backward design is that understanding increases across time, as students process, reassess and connect information. Therefore, assessments to measure increasing levels of understanding should be conducted throughout the semester by various means such as discussions, tests and quizzes, and projects in which students analyze their own understanding. Once you decide upon course concepts and assessment criteria, focus on which teaching strategies will help students reach course goals; key concepts, rather than a methodology, drive teaching.
When you’re writing a syllabus, start with basic information: the year and semester of the course, title, class number, number of credits, and meeting time and place. Provide your name, office address (and a map if it’s hard to find) and contact information. Indicate whether students need to make appointments or may just stop in. If you list a home number, specify restrictions for its use. Clarify prerequisites, knowledge, skills or experience you expect students to have or courses they should have completed. Suggest how they might refresh skills if needed.

Outline the course’s purpose: What is the course about and why would students want to learn the material? Describe three to five general goals, and explain why you’ve arranged topics in a given order and the logic of concepts you’ve selected. Tell students whether the class involves fieldwork, projects, lectures or discussion, and indicate if any activities are optional.

Explain why textbooks and readings were chosen. Show the relationship between readings and course objectives. Also provide details about additional materials that will be needed.

Specify the nature and format of assignments. Give exam dates and indicate the nature of the tests (e.g., essay, short-answer). Explain how assignments relate to course objectives. Describe your grading procedures, including components of the final grade and weights for each component. Explain whether you’ll grade on a curve or use an absolute scale, and if any grades can be dropped. Also explain any other course requirements, such as study groups. Clearly state your policies about class attendance, late work, missing homework, tests or exams, makeups, extra credit, requesting extensions, reporting illnesses, cheating and plagiarism. You might also list acceptable and unacceptable classroom behavior (see Communication Guidelines, page 64). Let students know that if they need an accommodation for any type of disability, they should meet with you to discuss what modifications are necessary. You can find a sample statement for this at www.disability. ku.edu/~disability/faculty/syllabus_statement.shtml.

Include a calendar with a sequence of topics and readings. Exam dates should be firmly fixed; dates for topics or activities may be tentative. Also list the last day students can withdraw without penalty. Give them a sense of how much work the course requires.

A syllabus is a contract between you and your students. Consider adding a statement to protect yourself if changes must be made: “Course schedule and procedures are subject to change in the event of extenuating circumstances.” For more information, contact CTE for resources on writing a syllabus.
DEVELOPING ASSIGNMENTS

One of the most important features of course design is developing opportunities for students to demonstrate what they know, how well they understand course material, or how well they can use skills they are developing in the course. Some of these occasions will be low-stakes, for practice to help students grow in their understanding of course material, and some will be high-stakes, for a significant portion of a final grade. Whether for practice or for evaluation, the performance asked for on assignments should closely represent your course goals (see box on page 3), and students should always receive informative feedback on their performances. Learning is maximized when students use their understanding in challenging ways and find out from you which features of their work match your expectations and which don’t.

The performance appropriate for any individual course is likely to cover various domains, and most courses should include a range of performance. Within a single course, students will identify basic terms, facts or information about a field and also apply concepts in new, untaught situations. It’s possible that they may combine ideas or generate their own evaluation of observations or findings. It’s not possible to engage in complex analysis or critical thinking without some basic knowledge of a field, but merely reciting basic knowledge without being able to use it or evaluate it is equally limiting. As an instructor, you’ll decide how to distribute the assignments you give across that continuum, from remembering to using to evaluating. Research on memory consistently finds that rote learning is forgotten most quickly, but ideas and information that are used in new contexts or connected to existing understanding will be remembered best.

Consider work done by Benjamin Bloom (1956) and his colleagues many decades ago. They framed a set of categories of learning performance, ranging from rote remembering to complex evaluation, hoping that teachers would include a variety of opportunities for students. Subsequent scholars have added new language to the basic ideas (often called Bloom’s Taxonomy), and many people list verbs that go with the different categories of skills. When you give assignments using those verbs, the notion goes, you are likely tapping into that category of learning. In the box at right, we reproduce one contemporary treatment of these categories and accompanying assignment verbs for your use. Consideration of these categories will help you distribute student work across the range of this useful intellectual continuum.

BLOOM’S TAXONOMY

Descriptions of each level and appropriate terms for asking questions at each level follow:

Evaluation—Make judgments about the value of materials or methods for given purposes; make appraisals that satisfy specific criteria: appraise, compare, conclude, contrast, criticize, describe, discriminate, explain, justify, interpret, support.

Synthesis—Combine elements to form a whole; arrange elements to form a new structure: categorize, combine, compile, tell, devise, design, explain, generate, organize, plan, reconstruct, revise.

Analysis—Break material down into elements; make relationships between ideas explicit: differentiate, distinguish, illustrate, infer, point out, relate, select, separate.

Application—Use abstractions in concrete situations: demonstrate, modify, operate, prepare, produce, relate, show, solve, use.

Comprehension—Use information without necessarily relating it to other material or seeing fullest implication: convert, defend, distinguish, estimate, explain, extend, generalize, give examples, infer, predict, summarize.

Knowledge—Recall specific facts, general concepts: define, describe, identify, list, match, name, outline, select, state.
ASSIGNMENTS AND ASSESSMENT

For testing to be effective and worthwhile for you and your students, consider the exams you’ll implement when you’re designing a course. If evaluation is considered only in hindsight, it’s likely your time will be used ineffectively and students will be discontent with how their learning was assessed.

Design tests that will measure the goals you set out to achieve in the course and be clear in your instructions. Walvoord and Anderson recommend teachers ask themselves the following question: “By the end of the course, I want my students to be able to (fill in the blank).” Use your responses to guide assessment design.

It’s often advantageous to mix types of items (multiple choice, essay, short answer) on a written exam or to mix assessments throughout the course (e.g., a performance component with a written component). Weaknesses connected with one type of item or aspect of students’ test taking skills will be minimized. It’s also useful to ask how students in the future would be likely to use what they are learning in your course. If they’ll be expected to recognize an example of a phenomenon or category, then give them opportunities to attempt such recognition in your course. If they’ll be asked to evaluate the evidence for a claim relevant to your field, then your assignments should give them practice in such evaluation and graded feedback on their skill at it. Be sure that your assignments (both for practice and for grading) engage students in the kind of knowing or understanding that will be useful to them in future courses and in application to real life.

Grading student work is rarely easy. In some cases, you can simply count the number of factual or simple items done correctly, but understanding measured by a more complex performance will need to be judged. Walvoord and Anderson (2010) outline strategies for grading in various fields. They claim that establishing a set of clear criteria ahead of time will make grading easier for a teacher, more consistent across students, and even faster to get done. The key is to think through the range of feedback you want to give (e.g., points from 1 to 10 or letters from A to F) and identify how you would recognize or characterize a performance in each category. What are the strengths of an answer at each level, and what might be missing that would keep it from being in a higher category? What are the habits of mind or the kinds of knowledge demonstrated that characterize levels of understanding?

When you engage in this kind of thinking, your work giving feedback will be less challenging and more efficient. If you then share those criteria with your students, they can learn more clearly what you mean by understanding, and there will be fewer occasions for disagreement about feedback. Ambiguous or unstated criteria are
a common cause of conflict and frustration for students. Investing time up front to think through your grading criteria will pay dividends in saved time and hassle later.

DESIGNING WRITING ASSIGNMENTS

John C. Bean (2011) states that writing assignments, particularly essay exams, can help students exhibit their mastery of material, synthesize course material, and better understand the goals and direction of the overall course, thus increasing overall retention and understanding of material. He states, “Essay exams send the important pedagogical message that mastering a field means joining its discourse, that is, demonstrating one’s ability to mount effective arguments in response to disciplinary problems.”

In order for students’ writing in assignments and exams to improve, students need to be taught how to write essays. One strategy is to provide students with copies of essays from previous years’ classes, without any instructor comments. Have students rank the essays from best to worst, and ask the class to list which factors they think distinguish an A paper from a B, C, and so on. After that, explain your grading criteria and discuss them with the class. In that way, students are more likely to internalize these criteria and apply them to their own work.

Allowing students to assess previous writing assignments could also be used with a Primary Trait Analysis-designed rubric. With PTA, the teacher determines criteria for each score within the rubric and describes this in a handout given with the assignment or included in the syllabus. Having students work with the rubric to assess another student’s work will help them understand the assignment and hopefully aid them in their own work.

Other ideas for teaching students how to write essay exams include allowing students to practice writing cogent thesis statements in small groups, thus gaining insight and guidance from others, and allowing students to revise an essay, so they receive guidance and learn strategies for future writing assignments.

Another method for increasing processing of information through the design of in-class essays is including time for pre-writing and synthesis before the essay is given. Some ways to achieve this include providing students with a list of all potential essay questions before the day of the exam, requiring students to create and bring to the exam a crib sheet for each essay question, which they can use to answer the essay questions, or assigning take-home essay exams. All these methods allow students time for deeper critical thinking and organization of their arguments.

For course-specific guidance on developing writing assignments, contact the KU Writing Center at 864-2399 or writing@ku.edu.
Once you’ve created assignments for students to carry out, you’ll need to give students feedback on how well they’ve performed. To be efficient you’ll need to accomplish all your feedback goals with a single consideration of the work. You’ll do this for several reasons. One version of the multiple purposes of feedback in the form of grades comes from Walvoord and Anderson (2010), who identify four roles of the grading process:

1. The overall distribution of grade categories evaluates student learning in relation to course material and goals; the performance lets the instructor (and an academic program) know how well the course has succeeded in generating learning.

2. The grade category of an individual student communicates the level of learning to the students, as well as to employers and to other teachers; it serves as an indicator of individual achievement and likely subsequent performance in the field.

3. Since our academic and employment communities value successful learning, grades also function as a motivation device for students; to the degree that students desire recognition for their work, they will focus on their achievement.

4. Graded assignments also organize course components by marking significant transitions between topics and by bringing closure to particular segments of the class; both students and the instructor know how well prepared everyone is for the topics that follow.

Conventional grading can accomplish these goals when criteria for grading are made very explicit. This would include general descriptions of the kind of performance that would be recognized in different categories of grade, as well as individual feedback on how and why performance did or did not match the features of the grading categories. Research evidence consistently shows that students who receive more detailed feedback on the reasons for their grades improve their performance more than students who simply receive a grade.

In order for grading to be an effective and meaningful part of the learning-centered classroom, it must be part of the teaching and learning process as a whole. Walvoord and Anderson (2010) write that grading must be integrated into all planning, teaching and interacting in the classroom, but that learning must always remain the central function of the classroom. In her essay “On Design and Liberation,” Sharon Bass, KU professor emerita of journalism, remembers grading a student’s 2,000-word essay with a 4,000-word comment. She realized at that point that neither she nor her students had enough time for that kind of help and that
she needed to redesign her course to make grading more efficient and more effective for increasing student learning. By prioritizing what she wanted her students to learn, she was able to pare down the number of course assignments from 15 to four, a move that helped her tailor each assignment more specifically to her learning objectives. This change earned her better reviews from her students, who were able to see exactly how each assignment they completed contributed to their learning. Bass immediately noticed that, with some extra planning, she was spending less time on grading, office consultations, and emails, and that she had more time for her own professional and personal life.

**ASSESS THROUGHOUT THE SEMESTER**

To assess student progress, try to collect information continuously on student learning and growth. According to Angelo and Cross (1993), the most effective times to provide low-stakes feedback to students are before chapter tests and before the midterm and final exam, so that both instructors and students gain information about areas that are clearly understood and areas that are not. It’s also helpful for instructors to test students early in the term and consider discounting the first test if results are poor; students often need a practice test to understand the format and anticipate the best way to prepare for and take particular tests.

Empirical evidence for Angelo and Cross’ recommendation to assess often was supported recently in a series of studies done by a group of memory researchers at Washington University in St. Louis (Glenn 2007). Their studies showed that giving short quizzes to students early and often helps implant facts in long-term memory. Tests written in a short-answer format proved to be superior to multiple-choice tests in regard to helping students retain information. Other studies cited in the report demonstrated why cramming doesn’t work: When students studied an unfamiliar fact again and again in immediate succession, it felt better embedded in their memory than it actually was. Creating an interval between the times students studied an item led to higher retention rates.

**ADMINISTERING TESTS**

Time-limited assessments such as tests or presentations can be very stressful for all concerned. Especially in large classes that play a role in sorting out students’ future careers, there can be tension and challenges to academic honesty. Whenever possible, it’s best to create testing occasions that avoid some of the tension and potential for abuse. If your tests are mostly at the rote end of the Bloom framework of understanding (see page 5), students will perceive that their primary job is to memorize and regurgitate bits of knowledge; these are the kinds of tests that are most amenable to various forms of unacceptable collaboration or information transfer. Whenever possible, include items that ask students to do

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**GRADING STRATEGIES**

Walvoord and Anderson (2010) have established nine grading strategies to make the task more efficient and effective:

1. Separate commenting from grading, and use them singly or in combination according to your purpose.
2. Do not give to all students what only some need; for example, give unofficial grades to those students who need them, and only comments to those who don’t.
3. Use only as many grade levels as you need; grading work A, B, C, etc. is more time-efficient than grading work A+, A, A-, B+, B, B-, etc.
4. Frame comments to your students’ uses; if students do not need or want your comments at a particular time, don’t waste time writing them.
5. Do not waste time on careless student work.
6. Use what the student knows. If a student can evaluate parts of her own work, there is little need for the instructor to do so as well.
7. Ask students to organize their work for your efficiency. For example, having students fill out a checklist of completed tasks can save time on worrying about assignment logistics.
8. Delegate the work, such as instituting peer reviews to check for certain issues on papers.
9. Use technology to save time and enhance results.
more than merely memorize. You can even provide the basic information in the question, but ask students to demonstrate their ability to use intellectual skills to analyze the information given. Items that involve written answers present fewer issues than items with multiple choice formats. Exam items that are more complex in the Bloom framework are not as amenable to academic misconduct. That will relieve your testing situation of some tension due to mistrust and avoid the necessity for maximum security procedures.

If you decide to use test performances that lend themselves to various forms of misconduct, then you’ll need to adopt a more skeptical attitude. There are many sources of practical advice, such as alternating forms and mixing bluebooks. See Davis’ (2009) guidelines in Tools for Teaching for more suggestions.

REPEATED TESTING

An additional strategy for relieving some of the tension around testing is to provide more than one opportunity for students to demonstrate their understanding; e.g., students take an exam, but if they’re not satisfied with their grade, they are given the option to retake it. If students know that they can learn from their experience of the first test to prepare for the second, they have less reason to be anxious and less rationale for misconduct. With two tests, you have the opportunity to provide feedback and re-teach the more challenging parts of the work that students showed they didn’t understand well. Particularly in a foundation course, in which your goal is to prepare students for further study in your field, it’s most important that students learn as much as possible. No one benefits from students moving forward in a sequence of courses if there’s still a substantial body of understanding, knowledge or skill that hasn’t been learned.

This strategy has advantages and disadvantages. If more students learn, then grades will be higher and some people will complain the course doesn’t differentiate the best students. With more time taken on testing (and re-teaching), there will be fewer in-class hours for content coverage, and some audiences will consider that a problem. On the other hand, nominally covering material isn’t of much value if the evidence from tests suggests that many students have failed to learn much of it; a tactic that generates more learning is more valuable. And it’s worth remembering that most academic work we care about (theses, dissertations, journal articles, grant proposals) are always done over and over until they reach a high level of quality. It seems odd to presume that students should get one try and one try only for their work.

If you want to set a tone for your course that learning is a shared goal and cheating isn’t a sensible option, using complex forms of assessment and encouraging repeat work will go a long way toward establishing a climate that supports learning.

TEST DRIVES

Robert Magnan (1990) suggests taking your students on a “test drive” to help them prepare for your exams. When you design a test, save items you decide not to use. Make a practice test with these items along with instructions for the exam, including the percentage or points for each section or exercise, and have students complete this practice test in class.

This technique has two advantages: You can test your exams and expose students to instructions. If an exam structure is weak, you can improve it before the exam. If instructions are unclear, you can clarify them.

The test drive should include only a sample of test items. Correct and discuss them as a group. If there are several possible answers, indicate which are better and why. If you’ve included essays, ask students to list the essential points they think should be included when they answer the essay question, and then evaluate their responses.

The key is to use the minimum amount of time to get the maximum benefit for you and your students.
GRADING WRITING ASSIGNMENTS AND ESSAY EXAMS

When it comes to grading student work, a number of instructors fall into one of two traps: undergrading or overgrading. Some instructors simply mark mistakes or note negative points and give a grade. However, telling students to “clarify this” may be like telling them to “be tall”; they might not know how to do what you ask. Other instructors give too much feedback, spending too much time marking students’ careless mistakes. This overhelms students and unnecessarily overtaxes faculty members. When you grade, consider how you can help students see why they might have made particular errors, to help them focus their thinking on areas where they need the most work.

Bean (2011) offers four recommendations for grading essay exams. First, don’t look at students’ names when you read the exams, or have students write an ID number [editor’s note: not a Social Security Number] on the test instead. This way, you’ll be able to eliminate grader bias. Second, grade the exam one question at a time, rather than reading the whole exam of each student. This will help with grading reliability.

The third recommendation Bean provides is to shuffle the exams after you complete each question so that you read them in a different order. Record scores in such a way that you don’t know what a student received on Question 1 when you grade Question 2. Finally, if time permits, you should skim a random sample of exams before you make initial decisions about grades. Your goal is to establish anchor papers that represent prototype A, B, and C grades. Then, when you come to a difficult essay, ask yourself, “Is this better or worse than my prototype B or C?”

Another method that works well for grading papers and essays is using a scoring rubric. Developing a rubric requires four steps (see right). The advantage of using rubrics is that, rather than writing out extensive comments, you score the essay or assignment using the rubric, making this an efficient way of grading. Students can refer to the rubric when writing the assignment, as well as use their scored rubric to examine their work’s strengths and weaknesses. This method also increases inter-grader reliability when multiple individuals grade assignments. Examples of rubrics used in KU courses are provided in Appendix D. See Walvoord and Anderson’s Effective Grading (2010) for more about rubrics.

In his book Engaging Ideas: The Professor’s Guide to Integrating Writing, Critical Thinking, and Active Learning in the Classroom, John Bean also provides useful advice about developing rubrics, as well as dealing with issues of grammar and correctness (chapter 5) and coaching the writing process and handling the paper load (chapter 15). Copies are available in the CTE library in 135 Budig Hall.

FOUR STEPS TO CREATING A RUBRIC

1. Choose a test, assignment or group of assignments that you’ll evaluate. Clarify your objectives.
2. Identify the criteria or traits that will count in this evaluation. These are usually words or phrases such as “thesis,” “use of color,” or “use of relevant examples.”
3. For each trait, construct a two- to five-point scale. Each point relates to a descriptive statement; e.g. “A 5 thesis is clear and appropriate for the scope of the essay; it neither repeats sources nor states the obvious.”
4. Try out the scale with a sample of student work and revise as needed. CTE also has samples of rubrics available.

Jorge Pérez’s course portfolio contains an excellent example of both a means for developing a rubric and ways to use it effectively.

Kim Warren’s course portfolios also provide excellent examples of rubrics.

You can find all of these in the CTE portfolio gallery: www.cte.ku.edu/gallery.
It took me years to realize that my course content was driven more by the content of books, with 14 chapters miraculously mapping to 14 weeks in a semester, than by goals I had set for the course. Laboring to cover that much content in a brief period left time for nothing but lecture, and ultimately left me with a bad impression of the lecture style.

As I developed goals for my courses, and decided to reduce the scope and increase the depth of my teaching, I’ve returned to lecture as a way of providing depth to material through example and in-class problems. This works best when students come to class prepared through work on their own and have mastered the basics of the material. Lectures add a richness to a simple conceptual framework that the students have already developed through their own reading.

—Paul Atchley

**USING CLASS TIME WELL**

Your teaching will be most effective if the assignments you give are related and similar to the exams and assessments you give throughout the semester. In a similar way, activities that students engage in (both during class time and between class meetings) should be closely related to how students will be evaluated. In general, there will be more learning if students’ in-class activities are most similar to the activities you want them to show you as examples of deep understanding and rich knowledge. There is a place for sharing information in class, but optimal teaching practice is not simply repeating orally what’s written in a textbook.

One of the nation’s leading researchers on higher education practice and theory is a cognitive psychologist named John Bransford (1998). He and a colleague wrote a powerful article describing the best uses of lecturing in higher education, noting there certainly is a “time for telling” students what we know and how we know it. Their research suggests that lectures are very effective tools for learning when the audience is already very familiar with the general topic being discussed. Such listeners are able to process the arguments and examples, and they can evaluate them and re-work them in real time; their experience includes ready recall of what is said and individual re-analysis and consideration. In contrast, they found that novices who are getting their first exposure to material spend most of their energy during a lecture simply trying to recognize what’s being said as they attempt to create a record of the content. Their experience is more like someone taking dictation and not at all that of someone considering arguments or putting recognizable ideas and facts into an organized system of understanding. They’re very unlikely to be able to evaluate or challenge what they hear, or engage in the kind of critical analysis or synthesis that’s so often the goal of higher education.

As a practical matter then, how can college teachers take best advantage of the efficiency and insight characteristic of a good lecture, when most often the audience is made up of novices in our fields? This is an important challenge for all college teachers, and developing the optimal use of class time is not an easy matter. It seems clear that class time needs to be a mix of presentation by the instructor and construction of a meaningful understanding by the student, but there is not one single way of facilitating that mix which is always best.

To get you started in thinking about your own strategy, we begin by describing some of the ways that students can be engaged in the content of a course during class meetings. Any course should include some time that allows and requires students to discuss, analyze, argue or even write about the day’s topics. These activities will be aligned with the performances that are required of
students on assignments and tests, and they will constitute the backbone of the learning activities in a course. The insights and examples provided in lectures by the teacher are woven around those activities to provide context, to give additional examples of professional thinking and analysis, and to stretch the students’ horizons on the topic. In the end, the period of an optimal class meeting will likely be broken into several segments, each with its specific contribution to students’ learning. The variety itself is even an asset, as all human beings have limits to their attention span, and mixing up the activities will sustain better engagement.

ACTIVE LEARNING

Active learning involves implementing “learning experiences in which the students are thinking about the subject matter” (McKeachie & Svinicki 2011). It’s based on the premise that students must do more than just listen to fully comprehend new information: They must read, write, discuss and solve problems. By using active learning, you’ll increase your teaching effectiveness and your students’ learning.

Reading

One active learning method is The Treasure Hunt (Magnan 1990). It’s based on the premise that if you’ve assigned a reading, there must be something valuable in it. Choose several pages or sections, then ask students to find the most important point, idea or argument and write it down, along with a sentence or two justifying their selection. If you choose assigned passages well, you can increase understanding and participation immediately.

Writing

John Bean (2011) suggests several ways to incorporate writing into a class. See the box at right for three recommendations.

Discussing

While the most common approach to encouraging active learning in a classroom is discussion, not all discussions are equal, and there are other methods by which to achieve the difficult task of drawing students into lectures, discussions and readings.

One method asks students to frame a discussion or determine the direction of the discussion. Ask students to identify one question from their readings that they would like to have answered in class. Ask them to share their question with three peers, and then have the group pick one of the four questions to present to the instructor. Allow each group to ask its question.

USING WRITING IN CLASS

Bean (2011) describes three ways to use writing for active learning during a class:

1. At the beginning of class to probe a subject: Ask students to write short answers to a question that reviews previous material or stimulates interest in what’s coming.

2. During class to refocus a lagging discussion or cool off a heated one: When students run out of things to say, or if a discussion gets too hot, ask students to write for a few minutes.

3. At the end of class to sum up a lecture or discussion: Give students a few minutes to sum up the day’s lecture or discussion and prepare questions to ask at the start of the next class.
Problem-solving

Over the past decade it’s become more common for college teachers to punctuate their classes with opportunities for students to solve a problem related to the content of the day’s reading and presentation. The instructor will pose a problem or question that should be amenable to a solution, given what has been covered to that point; students are invited to work for just a minute or two with fellow students to come up with an answer.

In the pre-technology era this was often called Think-Pair-Share. Students teamed up with another person and then told the class what they decided. Many instructors now use classroom response systems (aka “clickers”) to allow everyone in the room to vote for an answer. Eric Mazur (1997) of Harvard University is well known for demonstrating that his students often were not getting a conceptual understanding of physics from his lectures; only when he initiated paired discussions and reporting answers did their work improve. Many practitioners believe that discussion between students produces the richest learning, and a lecture surrounding discussions serves more as a summary than a driver of learning. With or without clickers, this method shows improved learning over uninterrupted lecturing.

TEACHING INDUCTIVELY

Inductive teaching, also known as inquiry or discovery teaching, centers around the idea that knowledge is dependent on an individual’s experience and interaction with material. In inductive teaching, the instructor provides students with problems to solve or data to interpret, and the students eventually recognize the need for facts and skills, which the instructor is then able to provide (Prince & Felder 2007). As a result of this method, students find patterns and applications, explore and extend material, and make connections from the instructor’s examples, thus inductively learning a concept that these examples indicate. This is opposite of deductive teaching, in which a teacher defines a concept and then exposes the class to examples of it.

Structuring your class so that students learn inductively is outlined in Teaching for Understanding (Wiske 1998). In this framework, the role of the teacher is to direct students’ attention and analysis through focused and often ongoing assignments. These assignments should attempt to increase the “uncoverage” of a subject, which requires that the students receive “lessons that enable them to experience directly the inquiries, arguments, applications and points of view underneath the facts and opinions.
they learn if they are to understand them. Students have to do the subject, not just learn its results” (Wiggins & McTighe 1998).

This manner of teaching is beneficial for all instructors whose course goals include the statement, “I want my students to be able to think like a _______ (scientist, mathematician, writer, etc.).” Wiske recommends shaping assignments such that they increase in complexity across the semester, as well as move from group projects to independent learning tasks. Learning thus occurs through observation and guided performances, and assessment of students’ increasingly honed inductive reasoning skills occurs through on-going assignments. A culminating performance is often used at the end of a course or unit, which requires independent application of inductive thinking, synthesis, and a demonstration of understanding that extends beyond the learning that was attained from group work.

Four steps should be followed when teaching inductively:

1. Provide examples—From these, encourage students to discover applications and patterns.
2. Explore and extend—Ask students to consider deeper and broader facets of the class material.
3. Make connections—Have students describe how the material is interrelated, then ask them to describe a concept based on it.
4. Offer a conceptual scheme—After students have tried to construct their analyses, offer your own conception that organizes and connects material.

Prince and Felder suggest that instructors considering inductive teaching for their classroom ask themselves a few questions before they begin to make sure this method of teaching, which is accompanied by a number of possible difficulties, is right for the class they are teaching. They should ask if their course objectives ask students to think at a high cognitive level, if they have any experience using inductive teaching methods, if they are already tenured or on a tenure track, and if the resources needed for inductive teaching are available to them.

LECTURING

The appropriateness of using a lecture format depends on your course goals, and as an instructor you should evaluate course aims before determining whether lectures will most effectively achieve your goals.

The strengths of the lecture are that it “can communicate the intrinsic interest of the subject matter, and it can present the newest
developments” (Cashin 1985). Another strength of lectures is their ability to restructure information into a unique manner, relevant to course directions. Lectures also provide a large amount of material to many students at the same time. Finally, they can be used as examples for how professionals approach an intellectual question.

Negative aspects of lecturing include lack of feedback to students, a presumption that all students learn material at the same pace, and the problem that poorly-designed lectures are not well suited for higher levels of thinking, such as synthesis and application. To overcome these hurdles, Cashin offers several recommendations for improving lectures (see left).

Another way to enhance your lectures is by effectively using a chalkboard, Elmo or overhead projector. Students’ notes are often an exact copy of what appeared on the chalkboard or overhead, with very few additional points or connections. Effective board work highlights and emphasizes the organization required in problem-solving or the evolution of an argument. Remember that even the best students will occasionally lose the thread of a lesson or forget the original objective of a discussion. The chalkboard is their major, and often their only, resource for reentering the lesson. Therefore, be organized, use headings, write clearly, and when solving problems on the board, show each step in a logical sequence. If at the end of a lecture, you can stand back, look at the board, and reconstruct the lecture using what is written, then you are developing good board skills.

Carefully designed lectures can serve as a mechanism for encouraging higher levels of thinking in your students. In What’s the Use of Lectures?, Bligh (2000) addresses how to promote thought using lectures. He recommends the following: Make sure your lectures encourage application and discovery (see Teaching Inductively, p. 14), as opposed to only serving as a platform for the presentation of material. In this way, students learn how to use the information provided to analyze novel situations. Next, ask questions throughout the lecture, focusing on questions that promote critical thinking, not rote memorization (see Leading Discussions, p. 19). To assist student thought, provide a visual display of the presented material, include handouts so students can focus on thought rather than note taking, require students to pre-read material so that lecture isn’t their first exposure to it (see Facilitating Learning Outside of Class, p. 30), and watch your lecture speed. Bligh found that students performed best with thought-provoking questions when lecture material was presented slowly, as compared to when the lecture was presented at a faster pace; a slower pace allows students time to think about material. For more information related to promoting critical thinking, see Active Learning (p. 13).
FINDING A GOOD COMBINATION

One interesting example of a well-balanced course comes from the work of history professor Lendol Calder at Augustana College. He was teaching a survey course in American history to beginning college students—exactly the kind of course typically taught in pure lecture format. His goal was to have students begin to think like an historian, to understand how history is constructed by historians, and to analyze historical artifacts using an historian’s tools. Calder’s solution is not for everyone, but it offers one example of how to combine the insights of people like Bransford (1998) and Mazur (1997) within the practicalities of teaching a course.

There were three class meetings each week. For the first class, students did some background reading, then watched a film or other visual material that set the context for the week’s topic. In class Monday, he gave each person a document, photograph or other historical artifact, and the assignment was to write an historical analysis of it for class on Wednesday. That writing was required; without it a student wasn’t admitted to class. Students spent Wednesday sharing their writing, arguing their analyses, and trying to reach conclusions about the meaning of the document. On Friday, Calder gave a lecture in which he offered his analysis of the artifact and reasons for his conclusions and observations. During the lecture, his students listened as he described his version of the very analysis the students had undertaken. It wasn’t first exposure, they knew a lot about what he was discussing, and they already had an opinion on the subject. For those students, lecture was highly interactive, as they privately questioned, challenged and appreciated what Calder was saying.

Calder found that his students did very well on exams and other assessments, much better than his students did when he lectured only. Lectures were of enormous value to his students, and they were eager to hear them since they were engaged in the same inquiry he was. Still, this is only one way of organizing a class. There are other forms of engaging students and mixing critical benefits of lecture with components of active learning and students’ engagement.

DEVELOPING POSITIVE CLASSROOM INTERACTIONS

McKeachie & Svinicki (2011) suggest several ways to encourage students to be active in the classroom. Create an expectation of participation early in the semester by defining various facets of the course and explaining why participation is valuable. Understand that boredom, lack of knowledge, passivity, cultural norms, and above all fear of being embarrassed may keep a student from talking in class. To reduce that fear, use small groups and help students get to know each other. Ask questions that have no

PROMOTING CRITICAL THINKING WITH LECTURES

Bligh (2000) recommends the following to promote students’ critical thinking during lectures:

- Be sure your lectures encourage application and discovery of information and material.
- Ask questions throughout the lecture. Focus on questions that promote thinking, not rote memorization.
- To facilitate critical thinking, provide a visual display of lecture material, provide handouts so students can focus on thought rather than note taking, require students to pre-read material so that lecture isn’t their first exposure to it, and watch your lecture speed.
wrong answers to help students get used to participating. Learn students’ names, and call on them by name. Ask students to write short answers to questions. A shy person will likely respond to being asked, “What did you write?” Get to know students who don’t participate, so you’ll find any special knowledge they may have; ask them to contribute it at appropriate times.

In some scenarios, students may assume negative roles. If we deal successfully with these situations, we can preserve a positive classroom environment. If a student feels trapped and assumes a Prisoner role, be clear about the course’s benefits. Ask the class to brainstorm 12 reasons why they shouldn’t be there. Review this list with them, and tell them you can see why they may not want to be there. Then, promise you’ll do your best to make the course worthwhile and ask students to meet you halfway. Sometimes asking a student to help (e.g., passing out handouts), or talking one-on-one, will bring the student around.

If a student is terribly quiet and assumes the role of Introvert, use small group projects or group-generated questioning. This will give shy students a chance to succeed and may make them more willing to participate in a large group. Most importantly, allow students to participate at their comfort level; forcing introverted students into an uncomfortable situation will probably cause them to retreat further.

Finally, if a student is aggressive and assumes a Domineering role, establish ground rules that discourage this behavior. Use small groups, and rotate group membership and leadership in the groups. Be proactive; if you can tell early on that someone will be a monopolizer, speak privately with him or her. Say you’ve noticed that others aren’t participating much and ask for help drawing them out. This gives the student a positive role to play, rather than a negative one.

If a few students still refuse to participate, after you’ve tried to engage them, keep in mind that many of your students are engaged. “If some students opt out, don’t let it bother you—it’s their loss, not yours” (Felder & Brent 2003). Focus on the fact that most students are engaged, and move forward.

**ENGAGING STUDENTS IN LEARNING**

All of us hope that students will take advantage of the time they spend on our courses to acquire knowledge and skills that can be used broadly and flexibly. For our part, we create activities and organize resources to help students build understanding. However, these efforts will be successful only if students spend time doing the reading, thinking, writing, arguing and problem solving that we make available. In short, students learn only if they fully
engage in these activities, without distraction and with sufficient time. Yet, many faculty members report low levels of student engagement, and there’s a growing frustration with the perceived inability to get students’ full attention to their studies.

As noted in the Introduction, there are mutual responsibilities for learning. Faculty members need to use well-crafted and up-to-date teaching methods, and students need to spend adequate time on preparation and study. Without presuming students have no interest in learning and without pandering to imagined youthful tastes, there are ways teachers can make it likely that students will give time and energy to studying that optimizes learning.

Generating meaningful discussions during class time is the traditional favorite of teachers, though some instructors feel their classes have become too big for discussion as a single group. In that case, many activities can be done in small groups organized within a class (large or small), in which discussions are held among a handful of students, often directed toward a particular aim or focused group product. A third approach grows from research on memory that suggests that the best understanding is one that’s connected to already existing knowledge. If course ideas are used in the analysis of topics, situations or questions that are already part of students’ interest, there will be more engagement and more long-lasting effects of the thinking and talking that are done. This last strategy is a form of student-centered teaching. The instructor starts by asking what questions or social contexts are most important to students, so that teaching is embedded in those contexts, not just applied as an afterthought.

**LEADING DISCUSSIONS**

Like other forms of active learning, class discussions provide variety within the flow of a class. They can be used as a starting point if you’re teaching inductively; e.g., students lay out dimensions of a social setting or problem and try to identify solutions for resolving a conflict. Once the discussion has set the stage, the presentation brings academic knowledge or understanding to bear on the setting students identified. An alternative would be to discuss after a presentation, inviting students to discover ways the material aids in resolution.

Leading discussions requires us to maintain a balance between using our voices and encouraging students to use theirs. Consider these ideas for sparking discussions:

  - Invite students to ask questions related to a reading assignment, then frame the discussion around those questions.
Have students write their answers to a sentence completion exercise, then share their ideas: What most struck me about the reading was … A question I’d like to ask the author is … The idea I disagree with most strongly is … The part of the lecture or reading that made the most sense to me was …

Ask students to respond to a contentious statement or an illustrative quote.

Have students recall an experience in their lives that somehow connects with the topic.

To increase the number of responses you get, try this from John Woodcock (in Stocking 1998): Break up your presentation, giving students two or three minutes to discuss a question with the person sitting next to him or her. Rather than reporting on their own ideas, ask students to report on their discussion partner’s good ideas. When he tried this, Woodcock found “Three times as many hands went up, and the reports had a consistently better energy.” This can work with any size group in almost any situation.

One strategy that several KU faculty members have found useful is called the fishbowl, a discussion format in which part of the class forms a discussion circle and remaining students form a listening circle around the discussion group. During the class, students rotate through the groups (see left).

In a large group discussion, once it’s moving, keep it going by asking for more evidence or clarification. Ask “How?” or “Why?” Pose questions that link or extend the discussion, address cause and effect, and ask for synthesis or summary of the material.

Other ways to encourage discussion are by affirming student comments and being silent when appropriate. McKeackie & Svinicki (2011) note many lecturers check student understanding by asking if there are any questions, waiting three to five seconds, and after receiving no response conclude everyone understands. But this is often not the case; students just haven’t had enough time to process material. Give students some “hang time” to think.

When it’s time to end a discussion, conclude with a summary so that students know what important points were covered. A summative statement also gives you the opportunity to fill in points that weren’t covered and to praise the class for their responses.

For more suggestions regarding leading discussions, see Active Learning in Using Class Time Well (p. 12).
USING GROUP WORK

Asking students to work in groups is common enough that everyone has an idea of what’s involved, but many people have strong reactions to the invitation to “get into groups.” It’s important to use this method of teaching only when there’s a specific purpose and only when you prepare a well-structured activity. Students are wary of teachers who use group work as a way of dealing with being unprepared, and without clear direction conversations often move quickly away from course content.

Ruth Federman Stein and Sandra Hurd outline several justifications for the use of student teams and group work in Using Student Teams in the Classroom (2000). Besides increasing learning and preparing students for the environment of teamwork in industry and other organizations, teamwork and peer discussions help students more easily construct knowledge that’s built upon their previous experiences (Fosnot 1996).

Group discussions also help students use and become familiar with the language of a profession or discipline. Evaluations of student understandings are usually structured to assess their ability to comprehend questions and provide convincing responses. These skills are more likely to develop if students are allowed to discuss these topics themselves, as opposed to only receiving passive exposure to this new language. At their best, group activities engage students in active use of terms and ideas in ways that complement hearing them used by a professor in a lecture.

Teamwork is also more useful than lectures when teaching practical knowledge or material that’s evaluated based on social context. Finally, Stein and Hurd argue that group work helps students absorb the behaviors and ways of thinking needed for success in the classroom.

To make groups really work in your classroom, Dan Spencer of the KU School of Business recommends following the “Keys to Effective Group Work” he has developed, shown at right. In this model, the group has an ongoing structure and purpose, and there is some effort made to generate a product from the group work. Such projects can generate extremely high levels of engagement when the topic is of importance to students and there is a lot of interaction with and feedback from the instructor. If the group is generating a high-stakes product (with a significant grade attached), there will be important issues in managing the work distribution and providing fair individual feedback. There are many books in the CTE library that address those issues, but remember that the added benefit of serious engagement will require some cost in management of the group process itself. Many faculty members feel the return on investment is very high.

KEYS TO EFFECTIVE GROUP WORK

Create groups (five to seven people each) that are diverse in terms of gender, learning style, interpersonal abilities, class grades, nationality, work experience and type of degree they are pursuing. Also, combine people in groups who don’t have previous knowledge of each other, and who have complementary schedules for meeting outside of class.

Select group work that requires team members to collaborate and that allows as much time for group interaction as possible in order to encourage valuable interactions.

Allow the groups to determine individuals’ roles and the goals of their teamwork. Have the roles of the individuals in the group rotate throughout the project.

Establish classroom behaviors that encourage group interactions, such as the sharing of information between teams and student cooperation during the learning process.

Include evaluations that measure teamwork, such as tardiness, preparation for classes and grades on group work.

Before assigning complex projects, engage the class in icebreaker and bonding exercises, as well as assigning projects that increase in complexity.
To initiate group work in the classroom that doesn’t involve an extended project, try using Listening Teams (see left).

ENGAGING DIVERSE LEARNERS

When we talk about diversity in education, often the point is to highlight the general benefits of a world with multiple points of view and many forms of culture; it’s a more interesting world when we have a richer palette of language, music, literature, and traditions. At another level, cultural context is also an asset in teaching. The best learning takes place when students experience new ideas as they are connected to their existing understanding of the world. Learning becomes most flexible, most useful to students when they can see the same ideas, information, or analysis applied across more than one context. A commonly used definition of “deep understanding” is that ideas can be used in a context that wasn’t explicitly taught. The best way to generate such an understanding is to teach the same ideas embedded within multiple specific settings.

As we talk about diverse context, then, we’re talking about both how to capture the attention and focus of students whose life experience is not typical of most KU students, and also about how to promote a general understanding of ideas in all students that isn’t bounded by particular circumstances. Embedding knowledge within realistic settings familiar to students will get understanding started, and asking students to recognize content in unfamiliar contexts will deepen that understanding.

As a first step, we need to make sure that the examples and settings we use in communicating knowledge include a wide range of the typical human experience. Students in KU classrooms are different in many ways: age, race, ethnicity, socioeconomic class, religion, sexual orientation, and physical or learning ability. Van Note Chism (2002) reports that studies have found that this type of diversity benefits individual students, institutions of higher learning, the economy, and society. She also reports that several studies have documented ways in which student difference enlarges students’ perspectives, increases their critical thinking, and fosters higher intellectual engagement.

Van Note Chism states, “The weight of past research evidence suggests that faculty members are crucial to student educational attainment: positive in- and out-of-class relationships with their teachers can enable students to overcome constraints and achieve academic success” (p. 131). In light of disappointing retention rates for underrepresented students, teachers can play an important part in the lives of diverse learners. We can make knowledge accessible to students by using examples beyond our immediate

LISTENING TEAMS

Divide the class into four teams, then give the team members different role assignments:

- **Questioners**—This group will ask at least two questions about the material.
- **Agreers**—This group will tell which points they agreed with, or found helpful, and explain why.
- **Nay-sayers**—This group will comment on what points they disagreed with, or did not find helpful, and explain why.
- **Example givers**—This group will give specific examples or applications of the material.

Present your material. After you’re done, give the teams a few minutes to complete their assignments.

One reason listening teams are successful is because each student feels as though his or her contribution is important and sees that contributions are rewarded. Structuring group work with this in mind can increase the quality of student participation and the effectiveness of the group exercise.
lives and concerns. Drawing upon a range of experience isn’t just an exercise, it’s a good way to increase learning and retention.

One easy and valuable way to achieve these goals is to recognize students’ cultural contexts and build examples into your teaching that connect with their lives. That could include references to music, entertainment, and art that are relevant with students, rather than using only references to the work you know. For example, frame hypothetical problems or situations in issues that are relevant to people in their 20’s in the early years of our century, along with the usual examples you’ve generated that connect to your interests and concerns. In doing this, you aren’t pandering to students’ tastes or family cultural backgrounds; you’re making their understanding deeper by using multiple settings for their knowledge. At the individual level, you’re also making it possible for each person to find an initial example that’s embedded within familiar places, people and topics.

Think about the classic word problem from math class that many of us know: Toonerville and Toytown are 500 miles apart, and a train leaves each town on a single track, headed for the other town. The Toonerville train is going 55 mph, and the Toytown train is going 65 mph; in how many minutes will the trains crash into each other and where will that take place? This problem is meant to be abstract, devoid of real meaning, so as not to distract us from the mathematical operations that would solve it. That’s a noble goal, but all the research we have on learning suggests that students would both embrace the problem more and remember more from doing it if the problem were framed in ways that engaged them. There are many possible ways to state an issue, and many possible frames you can use. If you engage your students by working to put your intellectual knowledge into multiple examples from their collective lives, it’s a winner all around. They’ll do the work you want more readily, they’ll remember what they learn longer, and they’re more likely to use what they learn in ways that expand on what you taught them.

Since we want students to become more aware of the rich variety of the planet’s people and human geography, it’s good to use context to engage people. We also want students from different cultural traditions who join our community to be engaged by our courses and benefit from our teaching. By building their experiences into our courses, we both communicate welcome and we make their learning more likely. When we rotate our teaching through multiple contexts for the ideas and information we want to share, we get the added benefit of greatly improving the depth of the learning that all our students get.

FOUR KEY MESSAGES FOR INCLUSIVE TEACHING

1. All students need to feel welcome.
2. They need to feel that they’re being treated as individuals.
3. They need to feel that they can participate fully.
4. They need to be treated fairly (Van Note Chism 2002).
MOTIVATING STUDENTS TO LEARN

Generating learning among students is neither magical nor mysterious; students learn best when they spend time reading, thinking, solving problems, writing, discussing, and using ideas in concrete settings or to generate products. Despite lots of research in cognitive science, there are no shortcuts to learning, so somehow teachers and students need to find a way to make those learning activities happen. All of us, students and teachers alike, have many different ways that we can spend our time; we have a shared interest in arranging the academic world so that we put enough energy and time into the courses we co-inhabit.

There’s a rich and interesting debate among academic psychologists about motivation, with ongoing dialogue about the relation between extrinsic motivators, like rewards, and activities that seem intrinsically motivated, i.e., they occur without external support or constraint. There’s one general idea about motivation that receives a lot of support, regardless of a researcher’s conceptual perspective. People are most likely to engage in activities when they believe there’s a reasonable chance of having a good experience. Some argue that the probability of choosing an activity increases when there’s a higher perceived likelihood of good things happening, so raising or lowering expectations of success would raise or lower their willingness to spend time on an activity—thus increasing or decreasing motivation.

In education, success is defined differently by different participants. For us as teachers, students’ success includes a deep understanding of ideas, rich knowledge of the content of a field, and possibly an enhanced appreciation for and interest in the topic of our course. These are primarily intrinsically valuable results of a course, though there’s certainly practical value in being well prepared for further study. For many or most of our students, success will likely be defined primarily in terms of your feedback to them on the quality of their work, typically grades. This is an extrinsic reason for learning, especially from our perspective, though some students come to appreciate and enjoy our fields as a result of their course work. Whichever version of success we refer to, students will give more time to a course in which they believe success is likely than to a course with a lower probability of a good result, either intrinsic or extrinsic.

While it would be nice to imagine that everyone who studies at KU is intrinsically motivated to know the intellectual world deeply and richly, we need to think strategically about motivation. Courses should be planned, both in-class and out-of-class, to maximize students’ beliefs that good things result from their investment of time. If we want to capture their time from among many options, that’s the model to adopt.
SUCCESSFULLY COMPLETING ASSIGNMENTS

Students will look for indications from you about their success in understanding course work, and perhaps in achieving good grades. To maintain their consistent participation in learning activities, you’ll want to give frequent feedback, especially early in a course. The best way to make that feedback positive is to begin with assignments that you believe most students can do well. A sure way to produce discouraged learners is to create an assignment that only the best students can do. Researchers in teaching talk about “optimal challenge” in assignments, and that refers to work that is not trivial or mere rote application of procedural rules, but not so difficult that students have no idea how to begin. This is a difficult matter of judgment for you, made more difficult when courses have students with a wide range of background skill, but it’s a very important part of your plan to motivate students, to capture their time and energy for your course.

Linked to optimal challenge is the notion of repeatable assignments. If each intellectual challenge you offer is only available once, then students will either pass or fail but not have a reason to revisit the work to learn it better. When assignments can be repeated (with alternate versions of context and particulars), students have reason to work again to refine their understanding. You do want students whose work wasn’t acceptable to study again, and they’ll be more likely to do that if you provide another alternative to get what they want, namely positive feedback from you on their performance. Making assignments repeatable also allows you to keep your grading standards higher, as you aren’t forced to lower your criteria to allow students to pass.

Repeating work until it reaches a high criterion is how we function as researchers, and it’s a good model for producing intellectual success. If you wish to get students to spend more time on your course, then you need to convince them that extra work will result in a successful experience for them.

ATTENDING CLASS

Many faculty members think it’s very important for students to attend class, and they worry about low attendance, especially in larger classes. Typically faculty members attribute poor attendance to low student motivation, without asking about the reasons for that apparent disinterest among students. The Center for Teaching Excellence conducted a survey of KU students in Fall 1999, asking them about their decision to attend or to skip class meetings. The study examined the relationship between course characteristics, student characteristics, and the rationale of students for either attending class or not attending class on a daily basis. The study sought to answer these questions:

I cannot teach a student who is not present.

Attendance in my courses isn’t required, unless a student wishes to earn a grade that certifies they’ve learned something. I don’t have an attendance policy in my syllabus. However, I strongly encourage attendance, using assignments as the hook. They are 50% of the course grade.

I absolutely do NOT provide a calendar of assignment due dates. If your department requires course schedules, watch attendance ebb and flow according to the calendar. It’s a way to become discouraged and a message to students that all that really matters is showing up to turn stuff in.

Students must be present to turn in work. I explain that the real learning for an assignment is during class discussion of it, not just doing it, so I can’t certify they’ve learned anything if they have someone drop off an assignment, send it via email or turn it in late.

I frequently modify assignments on the fly in class as a function of class discussion. Students must do the modified assignments.

To earn an A, students must do 80% of the homework and three of three research reports. I give every student one late assignment option; they can turn in one assignment late the last class day, no questions.

—Paul Atchley
1. How do characteristics of students relate to their attendance behavior?

2. How do characteristics of the courses in which students are enrolled relate to their attendance behavior?

3. What reasons do students give for their day-to-day attendance decisions?

4. How do these reasons relate to the number of their absences?

The results of the study suggested that students were actually more rational than unmotivated. Overall they were more likely to attend class if they believed that it mattered to the professor that they were there, or if being present at the class gave them an advantage over simply getting notes from the lecture or doing assigned readings. The professor’s interest in their attendance was inferred from two basic observations: whether class time involved any active participation by students, making the student’s presence essential to the class plan and/or to learning; and if course policy required attendance and placed concrete value to it (more detail below). Many students noted that there is complete overlap between course readings and lectures, so they believe either one or the other is an adequate preparation for exams. While faculty members may believe they’re helping students through content redundancy, in practice they’re undermining students’ motivation to either do readings or attend class.

If a teacher really wants students to attend class, then the class needs to provide a successful experience. That could be something concrete like points for attendance or from an in-class assignment, or it could be a successful learning experience that prepares students for exams in ways that aren’t available elsewhere. There certainly are classes in which the lecture expands on readings and the teacher provides opportunities for discussion or questions, and students in those classes may not appreciate the importance of those opportunities. Pointing out the advantages of attendance to students will help, as will clear and frequent comments to students on the importance of attendance to you. In the end, the best way to motivate attendance is to make sure that active, engaging and unique experiences that aid course success are regularly part of class time.

The study itself assessed variables including gender, class standing, age, grade point average, employment, residence (either on campus or off), cost of tuition and who was paying it, and the number of credit hours the student was enrolled in. A total of 333 students participated in this study, and they had an average of 3.17 absences per class, with a range from 0 to 12.25 absences. Students’ reasons for attending or not attending class are shown in the box at left. Results indicate that students who had higher...
GPAs had fewer absences than students who had lower grades. Other student characteristics, such as gender, age, class, residence, method of funding education, or number of credits enrolled in, did not correlate with number of absences.

Students were more likely to attend classes taught by a GTA as opposed to those taught by a professor. The main reason cited for attending GTA-taught classes was “absences above the minimum affect my grade.” One of the main reasons cited for not attending professor-taught classes was “attendance is not taken or does not affect my grade.” Therefore, it appears that whether or not attendance is required significantly predicts whether students attend class. Students also said they were more likely to attend class if the class size was small due to the teacher noticing if they were present, if their presence affected their course grade, and if they had the opportunity to participate in discussion.

Overall, a combination of teacher and student influences affect class attendance, with a large factor being whether or not a penalty exists for missing class. The study concludes, “If students believe they should attend class, are not sick, not tired from having fun the night before, and like the subject matter, and if teachers notice when students are there, take their attendance into account for the course grade, and provide information students must be in class to get, attendance will be optimal.”

**THE TENSION BETWEEN MOTIVATION AND GRADING**

One of the best strategies for motivating students is to allow (and even encourage) them to repeat assignments until they achieve their own learning/grade goals. This increases their willingness to do extra work, and it also increases the skill level of students who complete the course. Everyone benefits when more students have greater skill upon course completion; they’re better prepared for subsequent courses and they bring greater skill to their future work life.

The downside of repeatable assignments is that more students earn higher grades, resulting in less differentiation among students. Sometimes this is identified as grade inflation, but the general complaint is that it makes it harder to identify the very best students for many legitimate purposes.

It’s very important for each instructor to think about this question by looking at the function of her/his course in a program or curriculum. Sometimes it’s important to sort out the very best from the average students; in such a course it might not be advisable to compress achievement, even if it were at the high end. In other cases, however, especially in foundation courses in a field, the real goal is to have students learn basics so they can study advanced

**HELPING STUDENTS TAKE BETTER NOTES IN CLASS**

Successful teaching requires helping students understand the best methods to use to get the most out of being in class. One way to help students is to direct their note taking so it’s more effective. Here are possible answers to students’ questions about note taking, based on Dembo’s work:

*Should I recopy notes after class?*
No; recopying requires little thinking. A better use of time is writing questions and answers about material in your notes.

*What should I do if my teacher talks so fast I can’t write everything down?*
Don’t try to write down everything word for word. Instead, paraphrase, listen for the most important things the instructor says, and leave blank spaces to show you’ve missed material you thought was important. Check with classmates to see if they got the material down.

*Should I listen and not write when the instructor is discussing something I don’t understand?*
No, the best thing to do is to keep taking notes, but mark in your notes that you don’t really understand the material. If you don’t ask about it in class, after you review your notes see if another student, a TA or the instructor can explain it again.

*How do I deal with an instructor who often wanders off topic?*
See if your textbook provides a logical structure for the material. Working with other students can really help in situations like this, too. Form a small study group and together organize notes from class (Weimer 2003).
topics. It doesn’t help anyone, for example, if people leave college unable to do algebra. We’d be willing to differentiate among graduates in some other way if we could be certain that every KU student is highly skilled in algebra. In deciding whether to use repeatable assignments as a motivational tool, each instructor should weigh the relative importance of differentiation and preparation for further study. These decisions may be made well through discussion within a program or department.

It’s always useful to remember, however, that in our professional lives we never hear from a journal or from a granting agency that we have one try and one try only to get published or funded. The common experience we all have is one of a level of rejection, feedback, encouragement, and an invitation to work harder and do better. This seems to motivate us to extraordinary amounts of hard work to achieve our goals. Perhaps we should remember that as we ask why our students sometimes seem unmotivated.

For information on encouraging students’ thinking and understanding, see Teaching Inductively (p. 14). See information regarding helping students read under Facilitating Learning Outside of Class (p. 30).

USING TECHNOLOGY EFFECTIVELY

DURING CLASS

Using technology in the classroom can enhance student learning by increasing the exposure that students get to material, as well as diversifying the formats of this exposure. Technology provides a teacher with more ways in which to present material and aid student learning (e.g. aural, visual, demonstrations, applications). David Brown (2000) states, “The computer assists professors in their delivery of the picture that is worth a thousand words, of sound accompanying text, of attention-grabbing animation.” A PowerPoint presentation of a lecture’s outline can help students see where the class is going and how to organize their notes. Videotaped demonstrations can be used when in-class demonstrations are not feasible, or when presenting the information to a large class that would have difficulty seeing an in-person presentation. Images or videos can be presented to reinforce lectures.

Technology can also be used in class to not only vary formats of presented information, but also to encourage active learning (page 13) and initiate interactive exchanges between students and between the professor and the class. For example, an image or video clip can be used as a discussion starter. Classroom response systems (CRS; also referred to as “clickers”) can be used to initiate discussions: Present a thought-provoking question that corresponds with the day’s lecture material and several possible responses.

Everything is on the Web, including a six-slide PowerPoint presentation of Lincoln’s Gettysberg Address. Of course, Lincoln didn’t actually use PowerPoint, but what if he did? Would his speech have had the same impact? We’ve all endured PowerPoints cluttered with over-stuffed slides of text or barely intelligible graphics. Yet when it comes to covering material in our own classes, it can be tempting to pack in as much information as possible and then get lost reading slides in front of a class. Similar risks are embedded in Blackboard or other course Web site formats. Striving to keep up with tech-savvy students, we may think that students would appreciate online course tools.

However, it may be that technologies actually hinder communication with students. Technologies themselves—PowerPoint, Blackboard, classroom “clickers,” even a blackboard and chalk—can’t enhance teaching or learning unless they’re accompanied by thoughtful consideration of what we want students to understand and achieve. Maybe less is more, but less may also be … well, less. The type, level, amount or volume of technology we use isn’t as important as the thinking and reflection that we devote to students’ learning. That, by the way, is not on the Web!

—Shannon O’Lear
Ask students to use their clickers to select their response. Use this information as the platform to start discussion.

Clickers can also be used to implement in-class quizzes, take a poll of student opinions or understanding, and record attendance. Another way to use them is to take a break in the middle of class to gauge student comprehension of the material covered so far. Ask a question that would require student understanding to correctly answer and have students respond using their clickers. In this way, teachers can gain immediate feedback on the current level of student comprehension of material and can shape the direction of the rest of the class accordingly. See Maximizing Multimedia and Technology (p. 51) for more about clickers.

Instructors’ use of technology varies based on their expectations about student learning. If, for example, you give students a hand-out that allows them to fill in information from a PowerPoint lecture, you may find that students passively record the information and nothing more. The advantages of providing an outline need to be weighed against the disadvantage of inducing passivity. Many times, instructors find that the balance will favor use of the outline, but that may not always be the case. However you use technology in the classroom, ensure that students understand how they’ll be graded for their responses.

OUTSIDE OF CLASS

There are several ways to use technology outside of class to help you achieve course goals. One way to expand on information discussed in class is the use of Blackboard discussion groups. Teachers can use these groups to disseminate class information or to establish an arena in which students interact with one another about various topics or class activities. See the box at right for ways to facilitate online discussions.

Another way to deepen and assess student learning outside of class is to use online quizzes. These can be created on Blackboard, and questions could address in-class material or outside reading assignments. Making the completion of online quizzes worth points in the class will likely increase class participation, and requiring completion of online quizzes over reading assignments before class will increase the number of students who do the readings prior to class. Moreover, online quizzes can be set up in such a way that students can take them multiple times, thus gaining practice working with material and increasing understanding.

For information on how to create online discussions and quizzes, contact Information Technology Services (864-8080).

FOUR WAYS TO FACILITATE ONLINE DISCUSSIONS

1. Ask students to post their responses to a selected reading or homework problem.
2. Initiate a conversation on a topic not fully covered during class time.
3. Have students post potential discussion questions for the next class.
4. Ask students to post a quick response to the muddiest point question (see Student Feedback, p. 36).

As with in-class discussions, be sure students know how their contributions will be evaluated and graded.
There are two issues regarding reading in a course that faculty members frequently mention. One is helping students understand what they read for a course, and the other is the difficulty of getting students to even attempt the reading assigned for a given day. As noted earlier, class time is best spent when students are already familiar with material being presented or discussed, and active participation during class requires that students have undertaken the reading and gotten something from it. For various reasons, many educators see consistent course reading as one of the central issues in assuring quality higher education.

Many students believe that they already have a firm grasp on how to read when they get to college. Why then, are students often discouraged by their attempts to read college texts? Ann Cudd (2003) proposes that much of this frustration stems from the fact that they do not understand that the type of reading approach used should vary based on the type of text that’s being read. “You don’t read a novel the same way you read a philosophical essay or a mathematical proof or a poem. Students have to be helped to realize this and then to develop the new eyes they need to see the kinds of texts you assign them,” she states.

Many instructors despair at students’ reading skills, and they spend valuable energy complaining about prior education and standards for admission to college. Other faculty members recognize that achieving their instructional goals will require that they share with students what it means to read in their field, and these faculty members take some time to demonstrate close reading of work typically found in the course. To accomplish this, take a few minutes in class to read a passage aloud, one that students are looking at, as well. As you read, consider the questions at left when you talk about reading with your class.

There can also be homework assignments early in a course that have these meta-questions included in the task; students are not only answering important questions related to a topic, but they’re also asked to identify how they read. That aspect of the assignment would also be given feedback, in a manner like the content portions. In general, when working with undergraduates, it’s not safe to assume that they’re all fully prepared to read professional text with the same eyes as you do; it’s likely worth your time to make your way of reading an explicit part of what you teach.

Other ways to help students learn to read difficult texts come from Bean (2011); he suggests the strategies shown in the table on the following page.
## Table I. Strategies to address reading problems

<table>
<thead>
<tr>
<th>Students’ problem</th>
<th>Helping strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor reading process</td>
<td>• Give tests or writing assignments on readings you don’t cover in class.</td>
</tr>
<tr>
<td></td>
<td>• Have students write in response to texts (reading logs, summary notebooks).</td>
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<tr>
<td></td>
<td>• Require students to write and turn in for credit marginal notes on readings.</td>
</tr>
<tr>
<td>Failure to reconstruct arguments as they read</td>
<td>• Assign summaries of readings.</td>
</tr>
<tr>
<td></td>
<td>• Have students make outlines, flowcharts or diagrams of articles.</td>
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<tr>
<td></td>
<td>• Help students write “gist statements” on main points as reading progresses.</td>
</tr>
<tr>
<td></td>
<td>• Go through a sample text with students, writing “what it says” and “what it does” statements for each paragraph.</td>
</tr>
<tr>
<td>Failure to assimilate the unfamiliar; resistance to</td>
<td>• Explain this phenomenon to students so that they can watch out for it; draw analogies to other times when students have had to assimilate unfamiliar views.</td>
</tr>
<tr>
<td>uncomfortable or disorienting views</td>
<td>• Contrast ordinary ways of looking at a subject and the author’s surprising way.</td>
</tr>
<tr>
<td></td>
<td>• Teach students to play the “believing and doubting game,” so they can see a reader’s double role of being simultaneously open to texts and skeptical of them.</td>
</tr>
<tr>
<td>Limited understanding of rhetorical context</td>
<td>• Create reading guides that include information about the author and context.</td>
</tr>
<tr>
<td></td>
<td>• In lectures or reading guides, set the stage for readings, especially primary materials.</td>
</tr>
<tr>
<td></td>
<td>• Train students to ask: Who is this author? To whom is he or she writing? What prompted this writing? What is the author’s purpose?</td>
</tr>
<tr>
<td>Failure to interact with the text</td>
<td>• Use a response strategy—reading log, summary notebook, guided journal, marginal notes, reading guide.</td>
</tr>
<tr>
<td>Unfamiliarity with historical events, cultural codes</td>
<td>• Create reading guides explaining cultural codes, allusions, etc.</td>
</tr>
<tr>
<td></td>
<td>• Show students the function of cultural codes by discussing background knowledge needed to understand cartoons or jokes.</td>
</tr>
<tr>
<td>Unfamiliar vocabulary</td>
<td>• Create reading guides defining technical terms or words used in unusual ways.</td>
</tr>
<tr>
<td>Difficulty with complex syntax</td>
<td>• Have students “translate” complex passages into their own words.</td>
</tr>
<tr>
<td></td>
<td>• Have students rewrite very long sentences into several shorter ones.</td>
</tr>
<tr>
<td>Failure to adapt to different kinds of discourse</td>
<td>• Explain your own reading process: when you skim, when you read carefully.</td>
</tr>
<tr>
<td></td>
<td>• Explain how your reading process varies with different genres of text: how to read a textbook versus a primary source, how to read a poem or scientific paper, etc.</td>
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</tbody>
</table>
Robert Magnan (1990) is among many who believe that it’s best to help students achieve critical reading skills to aid their analysis and evaluation of texts. It’s better to help students benefit from the reading you assign than to grade them down when they don’t succeed. In the box at left, he suggests ways to support students’ critical thinking skills through reading.

**READING ACCOUNTABILITY**

Given that students are helped in knowing how to read difficult texts, there’s still the question of ensuring that they actually carry out the assignment. To be fair, students often point out that in many classes they take, it makes little apparent difference to them whether they’ve done the reading or not. The instructor doesn’t make them accountable for knowing what was in the reading, and class time is often spent listening to a lecture without interruption. Many professors, they also claim, simply repeat the content of the reading in their lectures, making it seem even less important to take time to read. Since there are few occasions that provide uses for reading, students presume that it can be done later at a time closer to an exam to obtain relevant information. The typical student is not sophisticated enough to recognize that even listening to a lecture would be a much improved experience if the general topic were already a familiar one, so they typically read before class only when the instructor makes it important. The key to having prepared students in class is to make sure that doing the reading before class is directly relevant to the student’s experience in class. One common way to make reading relevant is to ask students to use what they read in a low-stakes but accountable fashion. Many faculty members use brief quizzes on reading, sometimes for every class period, asking students mostly to report on facts or information found in a reading. This approach has a modest goal, to assure that students have located and looked at the reading. Such a quiz can be given online or in the first moments of class, and it can be graded as participation or for correct content. A slightly more productive version is related to one of the suggestions attributed earlier to Robert Magnan: Provide an open-ended prompt to students, asking them to discuss an idea, phenomenon or analysis from the reading, often in the context of something that students care about. If they can use something from the reading to relate to an issue or topic in their own lives, there’s evidence that the reading was understood at some level, and was done in the first place. People often use Blackboard’s threaded discussion feature for these assignments, leaving a record and allowing students to learn from each other.

Responding to open-ended writing in a low-stakes context can be important, as students will stop making entries in discussion boards when they discover that no one is reading them. To keep...
up a meaningful dialogue requires time, so that option raises issues related to resources; for a brief discussion of time resources, consider the material in the box at right. In addition, if your class is large enough that you have GTA help, you should be explicit about their time. A typical GTA position is .50 FTE or 20 hours per week. That means your students’ tuition has paid for 300 hours of that person’s time over the semester. You can allocate those hours across many tasks, including giving feedback on low-stakes assignments, grading, discussion or lab time, meetings, and attending class (as appropriate). If you’re finding it hard to give feedback on assignments in a large class, re-examine your priorities among the many tasks you give. Be certain that you’re taking full advantage of the GTA’s time, using it to enrich students’ learning. When all the GTA time is used, then it’s appropriate to limit additional assignments for students.

Another way to make pre-class reading important is to connect information from readings to class activities. During those portions of the class time that include active learning, make sure that the discussions required and/or the problems to be solved are connected with the reading material. It may be that students need to use something from their reading and something from the class time presentation to address a problem; only by being prepared will they be able to participate fully in the conversation that you’ve arranged. Unlike the quiz options, which can have points or other accountability attached to them, this approach presumes that students will prefer to be ready for in-class activities. Such a method will work well with students who claim they would read if it mattered to the professor, while it may be less effective with students who are indifferent to any outcome other than course points. For teachers who do not want to be constantly grading or giving out points, this is a good way to invite students to read regularly, and it does not take away time in class for giving quizzes. Evidence suggests that you want to make some portion of your class time interactive for students anyway, so making a connection with reading in those activities fits naturally with that plan.

In general, you should presume that most students are like the rest of the adult world; they have more things they want to do than there is time for. Students will make priority decisions about what activities get first attention, and you should think about how you move regular reading in your course toward the top of that list. Low-stakes requirements and/or direct use during class time are good ways to communicate that regular reading is essential in your class. Because effective use of lecture as a presentation method will remain a goal for many instructors, it would be a mistake to believe that simply listing reading assignments in your syllabus will be sufficient to generate a room of prepared learners.

**ONLINE ASSIGNMENTS**

Limit the number of online assignments you give to those that can be read with the resources available. Online discussions are best done in groups (called threaded discussions in Blackboard). Optimal group size is four to six, though larger can work. Visit each group’s discussion once per assignment and make a single entry, commenting on the total discussion, perhaps with some reference to individual points. Typically this can be done in 15 minutes or less per group. Schedule only as many of these discussions as you can visit. If time allows, increase the frequency of discussion assignments or delve more deeply into individual postings.

Analyze your time resources. In a typical KU teaching assignment, you’ll spend about 15 hours a week on the teaching portion of your job. The work isn’t constant over the semester, so you may think of it as ~225 hours for the semester, roughly 110 hours per course. You’ll spend ~45 of those hours in class, perhaps more for labs or studios. That leaves 65 hours to divide among grading, preparing new materials or class activities, and giving feedback on low-stakes assignments. These need not be distributed evenly every week, and you should literally build them into your calendar so you can be sure that time is available for each assignment. It may be better for your students if you give them frequent feedback on their practice of intellectual work than if you use all your out of class time refining or reinventing class time; you need to balance these two competing demands on your time.
MAKING MATERIAL CLEAR AND ACCESSIBLE

CONTEXTUALIZING MATERIAL

Using existing knowledge to learn something new helps make material clear and accessible. As McKeachie & Svinicki (2010) state, relevant knowledge strengthens new learning by generating meaningful connections to new information. Learners typically use prior knowledge by creating either direct relations, in which they relate what’s known to what they’re trying to learn, such as comparing and contrasting the causes of two wars; or analogical relations, in which they use analogies to help relate familiar and new concepts that share some key characteristics but are different in other ways, such as using a post office to explain aspects of computer storage.

Davis (2009) shares additional strategies for helping students contextualize new information:

- Allow for the fact that different students learn, think and process information in different ways. Students vary in how they learn and how long they take to learn, and they don’t make uniform progress.

- Let students know what they are expected to learn. Emphasize key course concepts and important points in class sessions.

- Give students a framework within which to fit new facts. Use outlines, study questions or study guides to provide a conceptual framework or structure for concepts.

- Present material in ways meaningful to students. Students are more likely to understand and remember new material if it’s already relevant, meaningful or important to them.

- Limit the amount of information you present. Students can absorb only three or four new points in a single presentation.

- Stress concepts, not facts. Too many details overwhelm students; broad concepts are more meaningful and more easily understood and remembered.

QUESTIONS

Question types

Different questions have different purposes. Understanding the different types and their uses can be a big help in structuring and leading discussions and lessons.
Discussion starters get students talking. Examples: Why do you think the AB Company filed for bankruptcy? What’s the issue this case poses?

Probing and challenging questions ask students to examine specific areas of a problem or situation: “What did the data and statistical report suggest?” “Did the president respond appropriately to the situation?”

Connecting questions ask students to make links between old and new information: “What similarities does this case share with a previous one?” “How does this outcome support the theory found in the textbook?”

Predictive and hypothetical questions help students apply what they learn to other situations: “What will happen if we boil the solution?” “Imagine that a primary value for this society was competition—how would that change things in the life of the village?”

Analytical and evaluative questions help students make informed judgments about the subject matter: “Can you rank the designs based on how aesthetically appealing they are?” “Which decision by the president was most effective?”

Summary questions help students articulate key points of a discussion or lesson: “What are the main points of this case so far?” “Can you summarize decisions the committee made their first year?” (adapted from Meyers and Jones 1993).

Questioning techniques

Bob Powers (1992) identifies ways instructors can ask and respond to questions effectively:

- Use open questions to solicit responses (see right).
- Use closed questions (see right) to end discussions.
- Provide correct, clear answers to students’ questions.
- If you are unable to answer a question, find the answer and report it back to students.
- Answer questions nondefensively.
- Occasionally refer questions back to students.
- Sometimes guide students to reach answers themselves.
- Remember: Don’t ask a question, then answer it yourself.

<table>
<thead>
<tr>
<th>CLOSED QUESTIONS</th>
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</thead>
<tbody>
<tr>
<td>1. Do you understand?</td>
</tr>
<tr>
<td>2. Do you agree?</td>
</tr>
<tr>
<td>3. Is there anything else you want to know?</td>
</tr>
<tr>
<td>4. Any questions?</td>
</tr>
<tr>
<td>5. Will you remember this?</td>
</tr>
<tr>
<td>6. Did it help you?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPEN QUESTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What’s your understanding?</td>
</tr>
<tr>
<td>2. What do you agree to?</td>
</tr>
<tr>
<td>3. What else would you like to know?</td>
</tr>
<tr>
<td>4. What questions do you have?</td>
</tr>
<tr>
<td>5. What will you remember about this?</td>
</tr>
<tr>
<td>6. What was helpful about it?</td>
</tr>
</tbody>
</table>
OBTAINING STUDENT FEEDBACK

DURING THE SEMESTER

Teachers need continuous, accurate information about student learning. Asking students for their input and responding to it can reduce gaps between teaching and learning. Here are two techniques to help you assess and get feedback from your students during the semester (see also box at left).

The one-minute paper is a brief, anonymous feedback instrument you can use up to three or four times a semester at the end of a class. Ask these two questions: “What is the most important thing you learned today in this class?” and “What important question remains unanswered?” At the beginning of the following class, discuss the results with students. Let them know that you’ve read the papers, and respond to their feedback.

In each of your classes, establish a signal for students to use if they want to call a time-out. At that point, you stop talking. Why? Because they can’t take notes fast enough. Because they have questions. Because they need a moment to consider a point. Maybe the best reason is to give them ownership in the class.

Think about it: When we read, we stop to read something a second time, to weigh a thought or to verify a detail. Time-outs encourage students and teachers to think about material, to interact, to integrate and to assimilate.

MIDTERM FEEDBACK

Many instructors find it useful to get feedback from students at mid-semester, rather than only at the end. This allows you to make mid-course corrections that can benefit both you and your students. For example, if your PowerPoint slides have too much text for students to read, finding this out by midterm gives you an opportunity to change your slide format.

If you decide to get midterm feedback, follow these principles:

1. Don’t ask if you don’t want to know. If you don’t intend to make changes to a course or an assignment that students are having difficulty with, it’s best to not ask for their input.

2. Let students know that you’ve read their comments and will respond to them as appropriate. Follow through and make changes that are feasible for that course. If students suggest changes that you can’t make, explain why not.

CTE has several feedback forms that can be used as is or adapted to your specific situation. Contact us at cte@ku.edu or 864-4199.
IMPLEMENTING UNIVERSAL DESIGN

There’s a great deal of interest within higher education in general, and KU in particular, that we offer our full range of programs to all capable students. Further, it’s not enough that we offer them, but we want very much to see that students succeed in those programs, regardless of background or identified needs.

Most faculty members are familiar with letters provided by identified students that specify accommodations for their special needs. An emerging understanding about these accommodations is that many of them are valuable enhancements in the way we teach that would benefit all learners. Instead of seeing them as disruptions or details to be worried about, some faculty members have added these ways of teaching into their courses for all students, resulting in greater success all around. This observation is the central idea in what’s known as Universal Design.

Universal design (UD) is a concept embraced by various groups: architects, special educators, AARP, and technologists, to name a few. Ron Mace, who coined the term, defined it as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (udinstitute.org/whatisud.php). The intent of UD is to simplify life for everyone. Making products, communications and the built environment usable at little or no extra cost benefits people of all ages and abilities. Some of the impetus for UD was to avoid unsightly add-on architectural fixes for inaccessible buildings, but in the long run people have come to see that enhanced access built into any activity makes life better for us all.

AN INSTRUCTIVE EXAMPLE

We all know the expression “It’s not rocket science,” which suggests that rocket science is really hard to understand. Physics teachers have been engaged in decades of research to make it possible for more people to succeed in studying their field. Some of that concern came because certain categories of students were failing physics at much higher rates than other students. The idea was to see if there were different ways to teach physics, while still holding the same rigorous standards of achievement, that would bring all students up to comparable levels of success. For example, women and students of color had historically higher rates of failure in introductory physics (as much as six times higher) than the overall average for college students. Is there a way to teach physics that eliminates those differences?

Many methods have been tried successfully, but one example is especially interesting. It’s called Studio Physics, pioneered by Robert Beichner of North Carolina State University, and it’s a

THE UD PROCESS

Select the course, goals and overall content to which you wish to apply universal design.

Define the “universe,” the group of students who may enroll in your course. Identify potential diversity within the group: gender; age; size; ethnicity/race; native language; and abilities to see, hear, move and manipulate objects, and learn.

Apply UD and standards for good practice to the overall design of instruction (e.g., choose lecture, discussion, cases, online notes and models for delivering a specific topic to maximize learning for students with the wide variety of characteristics identified above).

Apply UD to specific instructional methods and curriculum materials (e.g., assure that the course Web site meets accessibility guidelines).

Develop processes to address accommodation needs of specific students with disabilities for whom the course design does not automatically provide access (e.g., refer students who need sign language interpreters to Disability Resources).

Monitor effectiveness of instruction by gathering feedback from student participation and learning; make modifications based on this feedback. Also include UD questions in the course evaluation and make modifications based on it (Burgstahler 2007).
very hands on, inductive approach to teaching. Instead of sitting in lecture halls taking notes, students work in groups at round tables solving problems with materials right in front of them. It is VERY carefully constructed, not just random hanging out, and the professor and TAs are available for questions, consultation, and mini-lectures. They use the SAME exams as the traditional lecture courses, not a substitute criterion for knowledge, and students in studio classes do as well as or better than students in conventional courses. Most importantly, failure rates among women and students of color were lowered such that they were now indistinguishable from the overall student population.

It’s a classic example of universal design; there was an access problem for some students, the whole course was redesigned, and everyone benefitted. This method is used in many places, ranging from highly selective MIT to community colleges. Beichner examined lots of evidence to see who benefitted the most from having this “accommodation” form of teaching designed to help students who could not do rocket science. Overall the group whose understanding of physics was improved the most were the top third of physics students at MIT. Their gains were the largest.

SUMMARY

No one expects most KU teachers to undertake massive research or redesign projects like the one at NCSU. We do hope that you’ll take advantage of the diverse learners you encounter to keep your methods as accessible as possible. This will include accommodating special needs for individual students, and perhaps asking yourself whether all students might learn better if you taught them as you teach/measure accommodated students.

Your first responsibility is to make accommodations requested for individual students in your classes; that’s federal law and common courtesy. Beyond that, however, each new student gives you an opportunity to ask about your own practices. Are there ways that you could enhance the learning for your students? We often most enjoy teaching honors students or other students who are most like we were during our education years; these are people who learn easily and quickly from abstract texts, who are prepared to learn from conceptual lectures, and whose intrinsic interest in learning requires little motivation. However, students who are more challenging to teach can motivate us to extend our teaching practices so that we can have a broader impact upon the entire student population.

Take time to consider the examples found in these guidelines. The Studio Physics example highlights the importance of inductive, hands-on learning, and it revealed that students who were thought to be unteachable were actually quite capable of high lev-
els of performance. In the section on Engagement we pointed out the importance of embedding work into meaningful contexts. As academics we value the most abstract version of our understanding, but there’s evidence that ideas embedded in familiar contexts are more understandable and approachable than those offered in the most abstract symbols or without context. You can reach all your students better by putting your ideas into settings that connect with their lives and understanding. In the section on Motivation we suggested that there is a place in higher education for offering repeatable assignments; there are times when it is better to have everyone learn than to make differentiations among learners. Research indicates that more students can succeed at higher levels of learning when they are allowed or required to truly master the foundational skills and content in a field. Everyone benefits when ideas and skills are learned thoroughly and deeply, even if the method was originally intended to help those whose background or preparation left them less ready for academic performance.

Universal Design is not the product of misguided government policy or special favors for those who are disadvantaged. It’s an opportunity to see new ways to increase the success of all students and to build them into the fabric of our profession. We’ll design successful new courses rather than put obvious add-on procedures to alleviate barriers in our old ways of teaching.