

IDEAS FOR TEACHING

a compilation of pedagogical techniques

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Introductory Note

This handbook is meant to provide instructors with concrete, directly applicable methods for innovating and improving your teaching practices. While the primary audience is instructors of online courses, these ideas can (and should!) be used by traditional face-to-face courses as well.

The majority of this work is formatted as a series of standalone one pagers containing critical tidbits to help you apply the concepts in practice and on-the-fly. It is a work in progress and may be updated periodically!

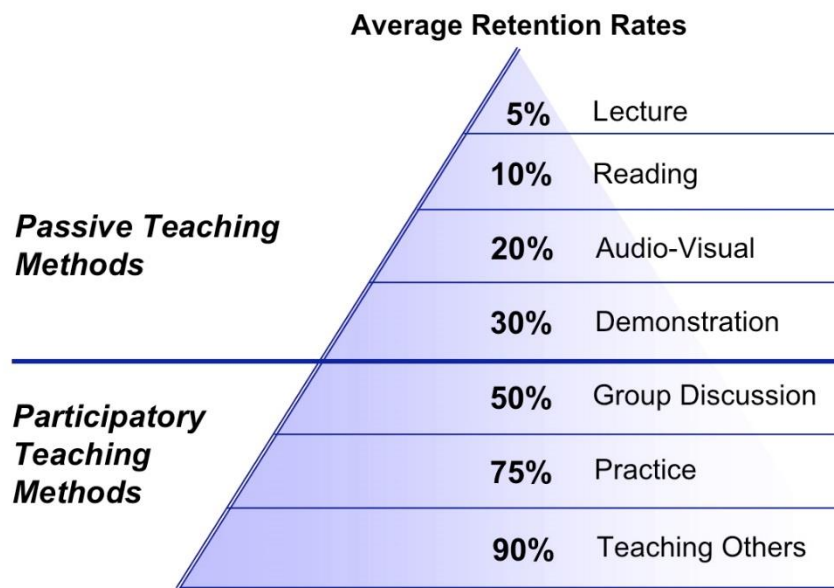
The *Course Frameworks* section is composed of sketch-like “recipes” you can follow to design your course around the specified pedagogical style. Always adapt the suggestions to your own content – remix and reinvent these ideas to suit your needs.

ACTIVE LEARNING

What and why?

Though lecture is important for dissemination of information, research shows that students need to be **INVOLVED** in order to remember information, concepts and skills—the most sophisticated level of really knowing being the ability to teach someone else that same skill. Above all, they need to learn that they can and should **TAKE OWNERSHIP OF THEIR LEARNING**.

The Learning Pyramid*



*Adapted from National Training Laboratories. Bethel, Maine

As you enter a classroom ask yourself this question:

"If there were no students in the room, could I do what I am planning to do?"

If your answer is yes, don't do it.

Gen. Ruben Cubero, Dean of the Faculty, United States Air Force Academy

Longitudinal studies show that cohorts of students instructed using active learning techniques outperformed a comparison group on multiple measures: retention, graduation and pursuit of graduate study. ([Felder, Felder, & Dietz, 1998](#))

Active learning allows students to:

- observe and “discover” something,
- construct concepts from their own observations,
- analyze data as though their interpretations and conclusions lead to real world consequences.

How can you get students to take ownership of their learning? Give them a variety of activities, encourage self-assessment and reflective study, include group work, discussion, student presentations, and case studies. Anytime you ask the student to apply what they know, they are learning actively. Engagement (through two-way communication) is key to active learning.

DESIGN LEARNING EXPERIENCES... NOT LECTURES.

STUDENT ENGAGEMENT BEST PRACTICES

Make your expectations of student performance clear and consistent. Be organized.

- Students stay on task and engage more effectively when they know what you expect of them.
- Provide consistent deadlines and delivery of content.
- Use weekly or modular objectives to define learning expectations.

Provide them with methods and means to engage – and support their learning of them.

- Use Discussion forums, chats, Q&A threads, VoiceThreads, comments, polls, etc.
 - Include “how to” information for any new technologies.
- Be a good example—demonstrate how they can join in.

Assess them frequently to keep their attention.

- Incentivize participation through low-stakes (or extra credit) tasks on a consistent basis.
- Include participation—with explicit expectations—as part of the course grade.

Give them real problems to solve.

- Case studies are fantastic teaching tools and allow students to apply critical thinking, new knowledge, and make real-world connections to concepts.
- Include inquiry-based discovery (e.g., research projects or field data collection).

Provide opportunity for them to engage with each other.

- Study groups, team projects, or simply require them to respond to other students’ discussion comments.

Ask them to teach their peers.

- Group or individual projects designed to have them learn and lead discussions or give presentations to the class.
- Use their input to design further assessments (student-led questions on exams, etc).

Most Importantly: Demonstrate your own engagement.

- Communicate on the forums (respond to your students in a public setting). Share relevant outside materials.
- Let them know why you are interested in the topics you teach. Get personal.
- Provide them with feedback on their progress.
- Be an active participant in your course!

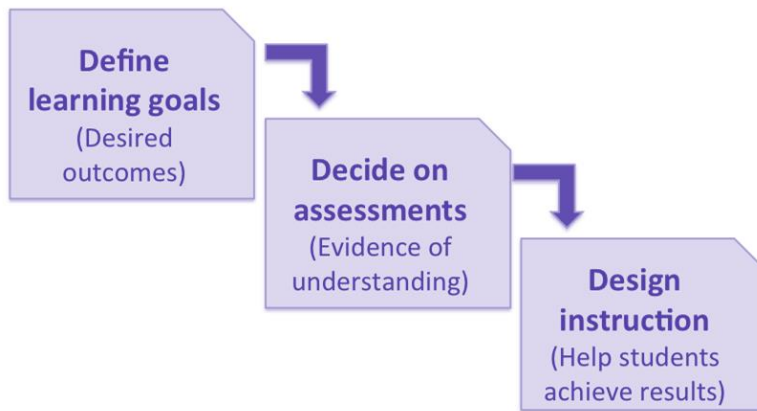
COURSE DESIGN BASICS

Instructional design theories abound! Here are a few tried-and-true standards that will help you orient yourself to the process of creating a course.

BACKWARDS DESIGN

Backwards design refers to the process of determining what you want your students to be able to do at the end of the course *before* you design your content and plan your delivery.

In other words:



What are they supposed to learn?

How will you know they learned it?

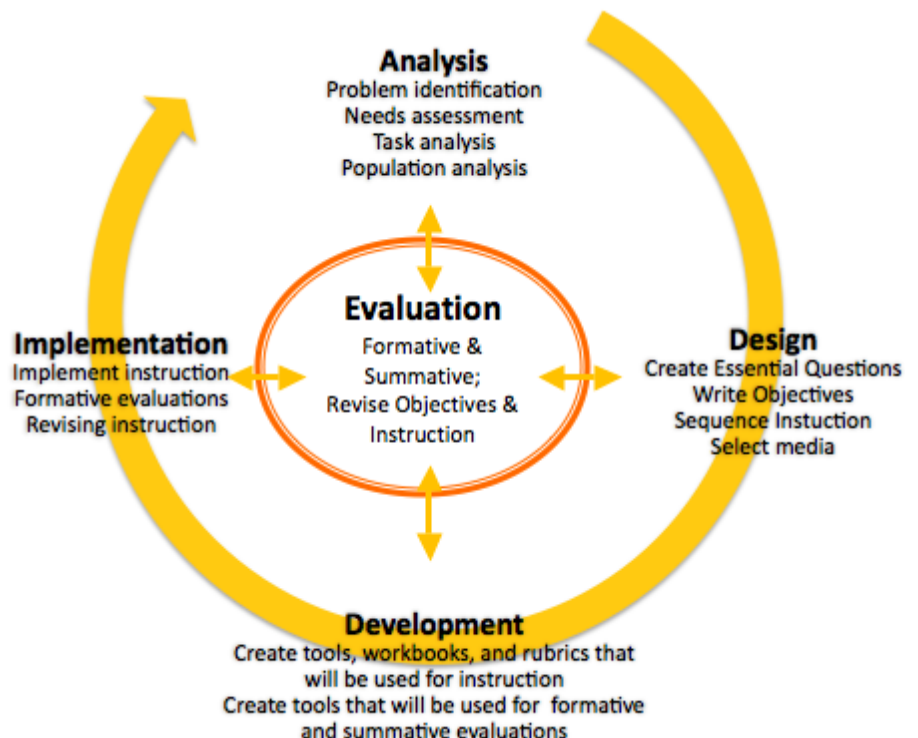
How will you help them learn it?

The question of “what will you teach?” is not the point of the process, because the focus of the course is on what and how the *students are learning to do* – not what you are teaching.

Backwards design makes designing your courses easier, in fact, because the outcomes will already be there to inform your decisions on both content and delivery methods.

ADDIE (ANALYZE, DESIGN, DEVELOP, IMPLEMENT, EVALUATE)

“ADDIE” is one of the most commonly used instructional design theories which is in-depth and in which each step provides an outcome that informs the next step. ADDIE provides an ongoing opportunity to assess and revise your teaching across course offerings.



Always start with your course’s student learning objectives. Then, drill down and develop objectives for each module or topic.

When it’s time to decide how you will you help your students learn the material, you can refer to the

[Learning Activities](#) or [Resources](#) documents.

UF STANDARDS & MARKERS OF EXCELLENCE

The UF Standards and Markers of Excellence provides a framework of best practices for online courses. Faculty can use this matrix to self-evaluate their online courses. These standards are recommended for all online courses, but **UF Online** courses are required to meet them.

You can use the standards as a guideline for developing and designing your online courses, and strive to meet the markers of excellence whenever possible.

While the UF Standards and Markers of Excellence provide you with a “what,” they do not offer a “how” – you may encounter standards that you want to meet but are not sure how to achieve.

Consult with your local instructional designer or review subsequent sections of this handbook for suggestions!

[UF Standards and Markers of Excellence with annotations](#) (pdf)

This document provides in-depth examples and additional details on the UFSME. It is meant to provide background as to the rationale around which the standards and markers were established.

[UF Standards and Markers of Excellence](#) (Excel)

This spreadsheet is a streamlined version of the UFSME and can be used for actual evaluation or planning of your courses.

WRITING GOOD OBJECTIVES

A learning objective is much more specific than a goal. According to Mager (1962), the ideal learning objective has 3 parts:

1. A **measurable verb** (behavior)
2. The **important condition** (if any) under which the performance is to occur and
3. The **criterion of acceptable performance**.

If the conditions are obvious, they may or may not be stated. However, sometimes the adding the condition(s) and/or the criterion add much clarity to a learning objective.

WHAT NOT TO DO...

"Students will **understand** the hydrologic cycle."

- ➔ This fails to address how students will demonstrate learning. It is neither specific nor measurable in terms of the outcome.

Objectives should be in the form of describing, from the student's perspective, what they will be able to DO after exposure to the material.

BETTER...

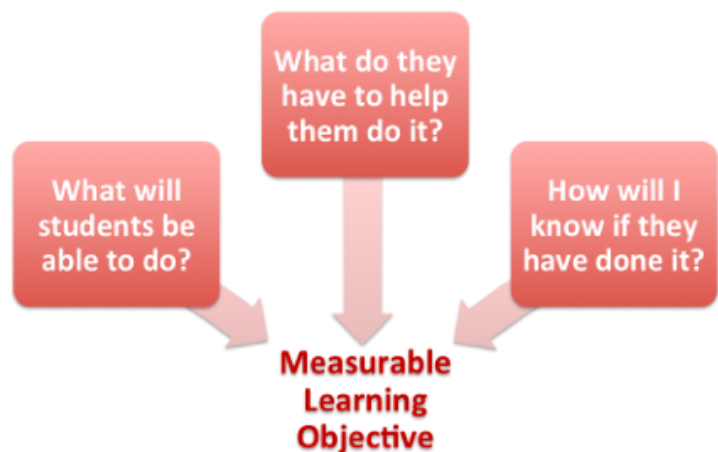
"**After completing this lesson**, the student will be able to **evaluate a natural resource policy in terms of its impact on water quality**."

"**Given a set of statistical data**, the student will be able to **predict the effects of variables x, y, z relative to fish populations in the Gulf of Mexico**."

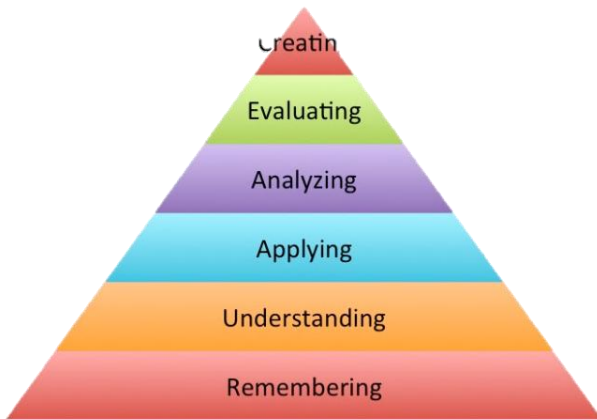
- ➔ Students know what they will be able to do, and you have a clear next step for creating your assessment of this objective.

Always keep in mind that the objectives, and what the students are able to do, will need to be directly assessed – so if you say a student "learned" something, how are you going to assess that?

If the objective is, for example, that the student can analyze a water quality sample, you can assess that by having them describe the steps required to do so.



USING BLOOM'S TAXONOMY TO WRITE BETTER OBJECTIVES



Benjamin Bloom (1956) described a way to classify instructional activities as they progress in difficulty.

At the undergraduate 4000-level, we want to be at least “applying” and “analyzing” some of the time; if all objectives are simply “explain” or “describe” verbs, we should be questioning the rigor of the instruction.

Graduate courses should focus on analysis, synthesis, and evaluation as much as possible.

HELPFUL VERBS FOR OBJECTIVES AND WHERE THEY FIT INTO BLOOM'S TAXONOMY

			Critical Thinking		Creation
					Design
			Evaluation		Plan
			Judge		Compose
			Analysis	Appraise	Propose
			Compare	Estimate	Formulate
		Application	Distinguish	Evaluate	Arrange
		Use	Differentiate	Revise	Assemble
		Employ	Diagram	Score	Collect
	Comprehension	Interpret	Analyze	Select	Construct
	Express	Dramatize	Categorize	Rate	Create
Knowledge	Restate	Sketch	Appraise	Choose	Setup
Define	Identify	Practice	Experiment	Measure	Organize
Repeat	Explain	Illustrate	Test	Compare	Prepare
Name	Recognize	Operate	Contrast	Value	Manage
Recall	Discuss	Demonstrate	Inspect	Assess	Predict
List	Describe	Apply	Debate		
Relate	Tell	Schedule	Inventory		
Record	Locate	Show	Question		
Underline	Report	Translate	Examine		
Outline	Review	Interpret	Criticize		
Delineate	Summarize	Solve	Relate		
Specify		Sketch	Solve		
State			Calculate		
Label			Critique		
Match			Classify		
Avoid the word "understand!"					

GUIDELINES FOR GOOD LECTURES

A good lecturer presents the audience with opportunities for meaningful engagement with the subject material and with the lecturer. Frame your lecture plans using these questions:

What do you want the audience to learn?

What are the key concepts that need to be addressed?

What essential skills and competencies should participants have on leaving the lecture?

How will all this be clearly communicated to the audience?

BE CLEAR

- State your objectives and why the students need to know the information you are about to present.
- Keep the flow of the material logical.
- Pace the delivery so that students have a chance to take notes.
- Speak clearly and use a high-quality microphone (headset).

BE INTERESTING

- NEVER READ YOUR TEXT FROM THE SCREEN. Visuals should illustrate and expand on your narration, not provide you with karaoke prompts!
 - *There are documented negative effects to reading and hearing the same information simultaneously, aka cognitive load theory.*
- Provide real-world examples of the points you are making.
- Use analogies to explain new concepts in terms of familiar ones.
- Present the information stated in your objectives.
- Recap your main points and provide questions for further thinking.
- Incorporate video, audio, and images when appropriate and relevant. Save extraneous resources for post-lecture activities.
- Believe it or not, students prefer to SEE you (not just hear you)! Record yourself whenever possible, even if you have to use your phone to do it.

QUALITY OVER QUANTITY

It's not how much is delivered but how much is understood and retained that is most important.

A 1984 study by Russell et al found that students learned and retained the lecture information better the lower the level of new content.

After briefly presenting new ideas, the remaining time was filled by restating, reinforcing and relating the material to the students' prior learning.

REMEMBER THE CONTEXT

- While some lectures can be used as standalone modules, for the most part your lectures will be framed within a course which has learning objectives and activities. Be sure every lecture has a clear relationship to the larger course objectives– if it doesn't, why are you presenting it? Follow up with your objectives by providing an activity that displays their understanding of the content.

Resource: CONFESSIONS OF A CONVERTED LECTURER – [watch now](#)

1-hour presentation by Dr. Eric Mazur (Physics, Harvard) discussing his experiences learning to teach effectively.

DESIGNING POWERPOINT PRESENTATIONS

The look and feel of your presentation speaks volumes, and an unpolished or boring Powerpoint can damage students' perceptions of even the best and most well-articulated content. Use these tips to improve your presentations.

#1 Design your own template--or ask for help!

Built-in design layouts in PPT are a dime-a-dozen and your students (and colleagues) have seen them all before. Even if your design is simply solid colors with no frills, that's OK! In fact, solid colors can impart a very professional, modern impression. Try to use the same layout for all presentations in a single course.

#2 Readability matters.

Be sure that your images and text do not blend together and that text colors and backgrounds contrast sufficiently. This is not just good design but part of ADA standards compliance as well. Dark backgrounds are best for visibility and focusing attention.

#3 Use quality images.

A bad picture is worse than no picture at all when it comes to presentations. Go for high-impact, high-quality images which you can find for free through Flickr, Google Images, and Creative Commons searches. Remember to attribute your images when necessary.

#4 Simpler is better.

One to three ideas per slide is ideal. Visuals do have much greater impact than text, so use them, but avoid unnecessary animations. Go for **bold** or *italics* when needed but skip drop-shadows, underlines, and other text decorations. Use contrast to your advantage and emphasize and stylize sparsely for greater impact.

#5 Don't overuse text (or bullets).

Always remember that the slide should not be the ultimate source of content and information. Your speech should be! If you are saying everything you need to say through text on the slides, what's the point of presenting it?

For more help with Powerpoint, [check out the Lynda.com trainings](#).

FONT MATTERS, TOO

Classic, Formal

Clean, Modern

Stylish, Thoughtful

Ugly, Unprofessional

Tip: Avoid Times New Roman and never, ever use Comic Sans...

MAKE YOUR POINT

1. Keep The Text To A Minimum
2. Highlight The Important Aspects
3. Leave The Rest To Your Speech

next section:

COURSE FRAMEWORKS

The following pages are examples of archetypes of courses you might use as a framework on which to build your actual course. Depending on the specific subject you are teaching, one or more frameworks might be more applicable to your content.

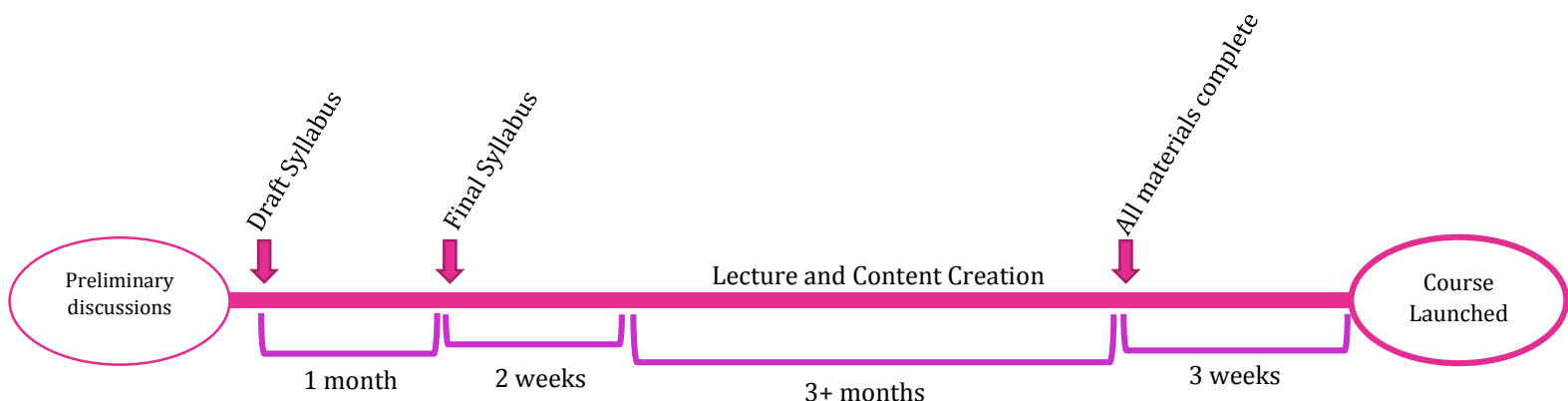
These frameworks are guidelines based on current learning theory, educational research, and teaching best practices – feel free to customize for your purposes and don't be afraid to mix and match pieces to form your perfect course.

Remember you will still want to start with Backwards Design, ADDIE, or another baseline methodology to establish your objectives before you jump right in.

For help with the process of designing your course, you can contact the SFRC online programs office at sfrc-online@ifas.ufl.edu. Remember: when possible, it's best to give yourself no less than 6 months to design and prepare a new course.

5-6 Month Development Timeline

Meetings and discussions take place throughout



course framework:

LECTURE BASED

What does a lecture based course look like?

Even in a “lecture-based” course, students should be responsible for taking an active role in their learning through inquiry and discovery. This can be achieved by including a variety of different lecture styles and activities.

The students should ideally engage equally with you, with each other, and with the content.

Example weekly content and tasks:

- Introductory video (5-10 minutes max).
- Objectives/guiding questions – give them a framework for critical thinking on the topic for the week to help orient their learning.
- Textbook readings, journal articles, and/or additional web/video resources as desired.
- Lectures presented by PPT or video (10-20 minutes each), 2 or 3 per week, *see also: Guidelines for Good Lectures*.
- Assignment, self-assessment quiz, discussion posts, live chat, or other deliverable. Low-stakes or ungraded assessments are encouraged.

Always have a discussion board available to students for their own collaboration and as a means of connecting with you!

ASSESSMENT OPTIONS

quizzes - essays – discussions – journaling - presentations
problem-based learning - group work/peer-review - concept mapping

Suggested tools for
teaching with lecture...

Textbook or journal
articles

Objectives and/or
guiding questions per
module

Short (5 min) video
overviews

15-min PPT or video
“lectures”

Module follow-up
activities centered on
guiding questions

CONSIDER FLIPPING

Lecture-based courses are easy to flip and provide you with more time to engage with your students for deepening concepts and clarifying ideas, and allows them to learn actively (especially in groups).

See *How to Flip a Course* for help!

course framework:

SCAFFOLDED PROJECTS

What does a scaffolded project course look like?

Many types of courses utilize term papers or projects which are split into multiple submissions. This framework further elaborates on that model and incorporates both peer- and self-assessment into the process.

The course can be run as usual with or without lectures (either self-or instructor-directed), and incorporate discussions, journaling, chats, or other assessments - preferably reflective or collaborative in nature.

Option 1:

- Students propose a topic and receive peer commentary from the class.
- Students are assigned to small groups (3-4 per) for peer feedback.
- Paper/project is submitted in steps, with each step undergoing peer review from the assigned group members as well as instructor review and commentary.
- Students incorporate feedback into subsequent submissions and the process repeats until the final submission.
- Final submission is accompanied by a self-assessment using a rubric as well as a self-reflective narrative on the research, writing, and peer review processes.

Typically the scaffolded submissions are not scored, only graded for completion along with participation in the peer review process. The final submission is scored using the same rubric as the self-assessment. See also: *Rubrics*

Option 2:

- Students are broken into groups and the class is assigned a project (e.g., design an experiment to test X, write a proposal, etc).
- Groups submit collaborative work throughout the semester, building on the topics learned and applying them towards a final, complete project. Rubrics for each submission are recommended.
- Each submission can be scored along with the final.
- Peer- and self-assessment should be used at the end.

Suggested tools for
teaching with
scaffolded projects...

Textbook or journal
articles

Objectives and short
overviews per module

With or without
“lectures”

2 to 3 week intervals
between submissions

Small group peer
feedback per
submission

USING SELF- ASSESSMENT

Motivate students by framing the assignment as an opportunity to reflect objectively on their work, determine how this work aligns with the assignment criteria, and determine ways for improvement.

course framework:

CASE STUDY

What does a Case Study course look like?

Use example cases--real-world scenarios—to illustrate and deepen the concepts you are teaching. You can base an entire course around case studies (AKA “problem-based learning”)!

In the most straightforward application, the presentation of case studies establishes a framework for analysis. It is helpful if the statement of the case provides enough information for the students to figure out solutions and then to identify how to apply those solutions in other similar situations.

- Case studies can be especially effective if they are paired with a reading assignment that introduces or explains a concept or analytical method that applies to the case.
- You may want to use multiple cases per topic so that students can distinguish the similarities and differences among the cases.
- You could have students role-play the part of the stakeholders involved in the case.
- Outputs can range from a short answers to fully developed group action plans, proposals, or recommendations.

Assess and engage students by posing questions to a discussion board, having teams present their case to the class, use outlines/questionnaires, or even writing position papers based on case study analysis.

Try using groups for discussion & analysis

Assign conceptual readings before cases

Provide prompts for analysis & critical thinking

Discuss! Synchronous or asynchronously

Ask them to make a decision or recommendation based on the case, and justify it using concepts from readings or lectures

ADVANTAGES OF CASE STUDIES

Student must actively develop skills in :

- Problem solving
- Analytical tools, quantitative and/or qualitative, depending on the case
- Decision making in complex situations
- Coping with ambiguities

course framework:

DISCUSSION COURSE

What does a discussion-based course look like?

Discussion forums can be used effectively in teaching by allowing students to engage with each other and the material simultaneously.

Discussions facilitate student interactions around course readings and assignments, allowing different types of student learners to contribute and increasing individual student learning and collaboration skills. Students can build a learning community around discussion topics and participate at their own pace.

An example discussion course might consist of:

- Introductory video (5-10 minutes max).
- Objectives/guiding questions – provide a framework for critical thinking on the topic for the week to help orient their learning.
- Textbook readings, journal articles, and/or additional web/video resources as desired.
- Discussion prompts (or use guiding questions). Have them post reactions to readings or materials, propose solutions to problems, discuss methodologies, defend a position, etc.

TIPS!

You may want to have *students* pose the prompts on a rotating basis.

Encourage peer commentary by requiring 3-4 responses plus an original post.

Grade student contributions using a participation rubric.

Be visible but avoid controlling the direction--only intervene in discussions when necessary or requested.

Consider posting wrap-up summaries after each week's discussions are closed.

Textbook or journal articles

Objectives and/or guiding questions per module

Short video (5 min) or written overviews

Clear expectations of participation and netiquette

Discussion prompts can be student- or instructor- led!

Additional assignments can be included to further assess learning

GOOD DISCUSSIONS

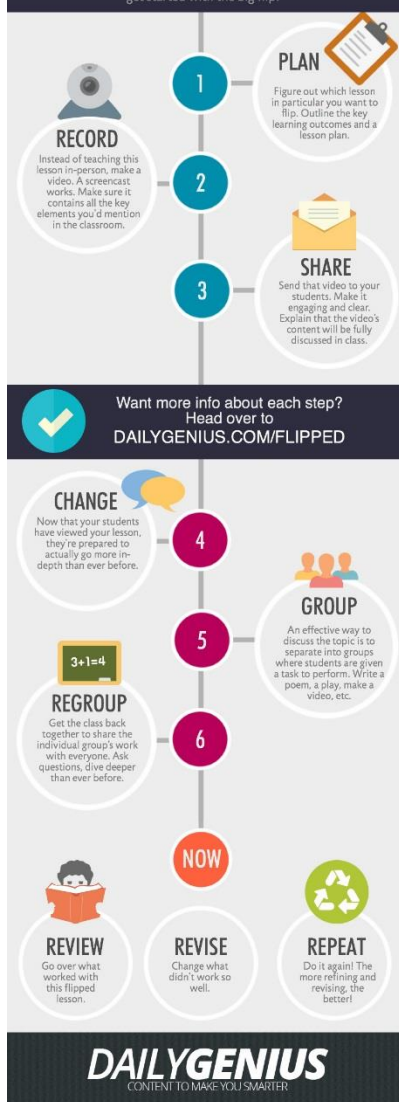
Not only do students have time to research and reflect before responding to prompts in the online setting, but they are necessarily practicing public writing skills!

course framework:

FLIPPED COURSE

The 6-Step Guide To FLIPPING YOUR CLASSROOM

It's one of the biggest trends in education. Here are some simple steps you can take to get started with the big flip!



The basic premise of a “flipped” course is one in which the focus during class time is on active, often group, discussion and performance of tasks. It is critical that students prepare for the activities before class.



Click to enlarge this infographic guide.

Be sure to read *How to Flip Your Course* also!

In short:

- Establish clear objectives for the topic at hand,
- Pre-record lecture(s) and provide background on the topic,
- Plan for in-class activities with deliverables. These often include Readiness Assessment Tests and/or remediation prior to group work or activities.

You may find the one-pager on *Team-based Learning* helpful.

Objectives and short
overviews per module

Textbook or journal
articles

Pre-recorded lectures
for at-home viewing

Relevant activities such
as discussions or group
work conducted in
class

Opportunities to really
facilitate learning
instead of transmitting
knowledge

BEST FLIPS

Courses with a large amount of content, and even high enrollment, are ideal candidates for flipping with team-based learning. Groups of students work together to learn from peers and engage with each other, so that even difficult concepts can be mastered collaboratively through practice, rather than in isolation.

ABOUT RUBRICS

Rubrics speed up grading, add consistency to grading, improve quality of student work, and increase trust and student buy-in for assignments and grading structures because *they know what you want them to do*. The University of Texas uses the following description of rubrics:

“A rubric is a scoring guide composed of criteria used to evaluate performance, a product, or a project. For instructors and students alike, a rubric defines what will be assessed. They enable students to identify what the instructor expects from their assignment submission. It allows evaluation according to specified criteria, making grading and ranking simpler, fairer, and more transparent.”

Tip: Always give your students the rubric in advance! [Learn more about rubrics.](#)

Rubric Template

(Describe here the task or performance that this rubric is designed to evaluate.)

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Stated Objective or Performance	Description of identifiable performance characteristics reflecting a beginning level of performance.	Description of identifiable performance characteristics reflecting development and movement toward mastery of performance.	Description of identifiable performance characteristics reflecting mastery of performance.	Description of identifiable performance characteristics reflecting the highest level of performance.	
Stated Objective or Performance	Description of identifiable performance characteristics reflecting a beginning level of performance.	Description of identifiable performance characteristics reflecting development and movement toward mastery of performance.	Description of identifiable performance characteristics reflecting mastery of performance.	Description of identifiable performance characteristics reflecting the highest level of performance.	
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Stated Objective or Performance	Description of identifiable performance characteristics reflecting a beginning level of performance.	Description of identifiable performance characteristics reflecting development and movement toward mastery of performance.	Description of identifiable performance characteristics reflecting mastery of performance.	Description of identifiable performance characteristics reflecting the highest level of performance.	

Using rubrics can help students see that learning is about gaining specific skills, and they give students the opportunity to do self-assessment to reflect on the learning process.

Rubrics also help ensure that grading is both easier and more consistent for Teaching Assistants.

In Canvas, you can set up a rubric that will allow the students to see (and perform based on) the criteria you will use to grade them, *and* you can quickly and efficiently grade assignments by selecting the scores from within the rubric in Speedgrader. Experiment with rubrics within assignments—and lots of other tools--by requesting a “sandbox” in Canvas.

LEARNING ACTIVITIES & ASSESSMENT STRATEGIES

A not-at-all comprehensive or complete list of options for learning activities and assessments. Read through them and make notes about which you might be able to apply to your courses. For more information, follow provided links and/or contact the SFRC online programs office to help brainstorm.

Concept sketches

Concept sketches (different from concept *maps*) are sketches or diagrams that are concisely annotated with short statements that describe the processes, concepts, and interrelationships shown in the sketch. Having students generate their own concept sketches is a powerful way for students to process concepts and convey them to others. Concept sketches can be used as preparation for class, as an in-class activity, in the field or lab, or as an assessment tool. [Download more information on concept sketches, with examples](#) | [Download an example of a final project involving concept sketches, with samples of student work](#)

Case studies/Problem-based learning

The primary hallmark of a case study is the presentation of a problem to solve that revolves around a story (the "case"). Good case studies give the students considerable latitude in deciding how to solve the problem and provide excellent opportunities to engage students in the classroom, especially in groups or teams. [The National Center for Case Study Teaching in Science](#) has a collection of case studies in a number of different science disciplines. [More information and examples at the Starting Point site](#)

Debates

Debates can be a very useful strategy for engaging students in their own learning. Debates force students to deal with complexity and "gray areas," and they are rich in embedded content. Debates can also help illustrate the relevance of course material to everyday issues, which can improve student learning. Debates also improve student's oral communication skills. [Download more information on debates, including a rubric for grading debates](#)

Just-in-Time Teaching

Just-in-Time Teaching (JiT) was developed as a way of engaging students in course material before class and preparing them to come to class and participate actively during class. JiT is extensively used in flipped classrooms. [More information and examples](#)

Background Knowledge Probe

Short, simple questionnaires prepared by instructors for use at the beginning of a course, at the start of a new unit or lesson, or prior to introducing an important new topic. This may require students to write short answers, to choose the correct responses to multiple-choice questions, or both. Can be graded or ungraded.

Minute Paper

The instructor asks students to submit comments related to the following two questions: "What was the most important thing you learned from this lesson?" and "What important question remains unanswered?" Students can submit responses via discussion boards, polls, surveys, or other methods.

Jigsaw Technique

Have you struggled with group work in class? The jigsaw technique can be a useful, well-structured template for carrying out effective in-class group work. The class is divided into several teams, with each

team preparing separate but related assignments. When all team members are prepared, the class is re-divided into mixed groups, with one member from each team in each group. Each person in the group teaches the rest of the group what he/she knows, and the group then tackles an assignment together that pulls all of the pieces together to form the full picture (hence the name "jigsaw"). [Jigsaw module from Pedagogy in Action](#)

Muddiest Point

The instructor asks students to submit responses to the question: "What was the muddiest point in ____?" The focus of the Muddiest Point assessment might be a lecture, tutorial, discussion, homework assignment, etc.

Analytic Memos

This technique is basically a simulation exercise. It requires students to write a one- or two-page analysis of a specific problem or issue. The person for whom the memo is being written is usually identified as an employer, a client, or a stakeholder who needs the student's analysis to inform decision making.

Invented Dialogues

By inventing dialogues, students synthesize their knowledge of issues, personalities, and historical periods into the form of a carefully structured, illustrative conversation. There are two levels of "invention" possible with this technique. On the first level, students can create Invented Dialogues by carefully selecting and weaving together actual quotes from primary sources. On a second, more challenging level, they may invent reasonable quotes that fit the character of the speakers and the content.

Documented Problem Solutions

This technique prompts students to keep track of the steps they take in solving a problem--to "show and tell" how they worked it out. By analyzing these detailed protocols--in which each solution step is briefly explained in writing--instructors can gain valuable information on their students' problem-solving skills. These can also be used as self-assessments for the students and graded simply on completion.

Student-Generated Test Questions

Students are asked to submit test questions and model answers. This technique helps students to find out how well they understand the course material for which they are writing the test questions.

Journaling

Reflective writing can serve as an invitation for students to participate in the process of learning, as it helps them to reflect critically on the content and can aid in the synthesis of new information. Learners become actively engaged in the learning process when required to write journal entries on a regular basis. Journals allow instructors to provide prompt feedback by replying to postings.

Effective Discussion

Discussion is an excellent way to engage students in thinking and analyzing or in defending one side of an issue, rather than listening to lecture. Students must also respond to one another, rather than interacting intellectually only with the instructor. Review some tips for having a good discussion in class and a sample template for class discussion: [Download more information on effective discussions, with a template example](#)

"For as long as assessment is viewed as something we do 'after' teaching and learning are over, we will fail to greatly improve student performance, regardless of how well or how poorly students are currently taught or motivated."

- Grant Wiggins, EdD.,
President and Director of
Programs, Relearning By
Design

Course-Related Self-Confidence Survey

A Course-Related Self-Confidence Survey consists of a few simple questions aimed at getting a rough measure of the students' self-confidence in relation to a specific skill or ability. Fostering self-reflection is helpful to student learning. These can be done after every unit or once or twice per course.

Punctuated Lectures

This technique requires students to go through five steps: listen, stop, reflect, write, and give feedback. Students begin by listening/viewing a lecture or demonstration. Then, after a portion of the presentation has been completed (stopped), the students are asked to reflect on the presentation. They then write down any insights they have gained. Finally, they submit feedback to the instructor in the form of short notes.

Scavenger Hunts/Field Journals

You can send your students out into the field to collect samples, document their findings, and reflect in the context of your course content. This is especially useful for life sciences. The final product of the course can be the submission of the digital field journal or collection (photos, text, etc) or even a presentation of the findings.

Semester Papers

Traditional "final papers" can be used online just as in face-to-face courses. Experiment with scaffolded writing where the process begins on day one and continues throughout the course. Try peer review/feedback as part of the process, assigning students to groups to provide each other with ongoing feedback. This fosters teamwork as well as allowing students to learn by teaching and collaborating with their peers.

Cooperative Exams

Also called "two-stage" or "pyramid exams", are exams that are taken by groups of students working together after they have completed the original exam individually. When done in one class period, students take the exam individually for the first part of the class. Then, when all students have turned in the exam, they retake the exam working in groups and, in some cases, in an open-book, open-notes format. Commonly these exams are multiple-choice exams with or without some short answer questions; the cooperative part may also have one or two longer questions. Suggestion: calculate the total exam score for each student on 70-75% of the individual exam and 25-30% of the group exam.

Weekly Assignments

Students prepare one or two short written assignments each week in which they summarize the critical aspects of a reading assignment, relate data to readings, make comparisons with what they have learned previously, take positions on issues, and analyze or synthesize information and ideas. These assignments can serve as the basis for group or class discussion and oral presentations or require students to pull together information from a series of classes either to solve a problem or to present a summary analysis of a particular topic. Thus, activities that students are engaged in to learn the material are also used to evaluate their accomplishments.

Experiment with authentic assessment in your courses by providing feedback on students' learning processes rather than scores on right or wrong answers.

DISCUSSION STRATEGIES

Student participation in an online course doesn't happen on its own. Done well, active participation can create a sense of community and enrich the classroom experience by offering diverse perspectives.

Assign graded, asynchronous discussions with a due date.

Make it count. Set the tone that online discussions are important by making them graded and ensure prompt participation with a due date.

Conserve instructor effort by providing a synthesis after the due date.

Instructor voice within a course is very important, but can be time consuming. If discussions are given a due date, you can hold your input until after the due date has passed. Read all responses at once, noticing any trends, strengths, weaknesses, etc. Respond to the class as a whole, clarifying anything or giving encouragement and praise as necessary. **You can easily make this a video or audio post within Canvas to save typing time.** This adds time-sensitive instructor input in courses where the lectures may be prerecorded.

UF STANDARDS & MARKERS: DISCUSSIONS

"The course provides opportunities for students to engage with other students and the instructor in a variety of communication and interaction experiences."

Rethink your discussion prompts.

Are the discussion prompts actually promoting discussion-- or are they essay questions masquerading as discussion prompts? Are students regurgitating your lectures or readings without much original thought? Are students ignoring the lectures and readings and holding forth with extraneous anecdotes that seem out of place? **Try asking students to react to a very short case study. Post a controversial statement and ask them to back up their opinions. Ask students to transfer a concept they learned in the lecture to an entirely different situation.** You can check the box "Users must post before seeing replies" to promote original responses.

Assign graduate students as moderators/leaders.

One of the best ways to promote learning is by having students teach others. Try assigning one or two per week to be discussion leaders who can either develop the discussion question on their own, or moderate one that is already existing. Giving a little direction up front can help these discussions get off on the right track. Ask discussion leaders to focus on unifying threads, opposing views, or just keep the dialog going with questions and encouragement.

Use discussions as a forum for peer review.

Have the students propose a project, or share a draft of an assignment, and require their peers to review and offer commentary for participation credit. Then have them to incorporate their peer's suggestions before final submission of the assignment or project.

Consider alternating between asynchronous discussion board posts and live online chats.

Do what works for you and your students, and don't be afraid to be flexible – online chats can be recorded. Even having just two of these per semester in place of asynchronous discussion posts can improve student perceptions of your course and gives them the opportunity to interact with you and their classmates.

Use discussions as a Q&A collection for the course.

Discussions can provide a resource for future offerings of your course if you collect the questions that students are asking (and their answers). Share past questions to help deepen and clarify for current students.

Check out this in-depth PDF from Edutopia on [Mastering Online Discussion Board Facilitation](#)

TEAM-BASED LEARNING

Team-based learning (TBL) is a structured form of small-group learning that emphasizes student preparation out of class and application of knowledge in class.

Group work used in TBL encourages deep engagement with content through active and social learning, and fosters personal accountability and student ownership of their learning. Group assignments and activities allow students to develop and refine their collaboration skills while applying acquired knowledge to a given problem or situation.

How to do it (the short version):

1. Students are strategically assigned to teams of 5-7 individuals.
2. Preparation for the in-class activity is done outside of class (readings, videos, etc).
3. In class, a “Readiness Assurance Process” is completed in which students individually perform a task such as a quiz or a short assignment. The same task is then given to the teams so that students have to collaborate and negotiate to formulate group answers. Both individual and group scores contribute to the students’ grades.
4. After the students complete the group test, the instructor allows teams to appeal questions that they got incorrect. The appeals process encourages students to review the material, evaluate their understanding, and defend the choice they made.
5. To conclude the Readiness Assurance Process, the instructor gives a mini-lecture that focuses on concepts with which students struggled the most.
6. Team project/activity begins. This should require the teams to make a specific choice about a significant problem. Address an issue, determine the best possible outcome, propose a solution, formulate a plan, etc – with a focus on applying the knowledge that was gained in the preparatory activities.
7. Importantly, all teams work on the same problem and report their decisions simultaneously. This structure requires teams to articulate their thinking, and gives teams an opportunity to evaluate their own reasoning when confronted with different decisions that other teams may make.

Students exhibited higher mean scores on questions that assessed knowledge of content learned via TBL than on questions assessing content learned using other methods.

Importantly, students within the lowest quartile showed the greatest gains: average improvement of 7.9% for students in the lowest quartile as compared to average improvement of 5.5% for all students.

Koles et al, 2010

Resource: [Detailed TBL handout from the University of British Columbia](#)

Peer evaluation is an important part of team-based learning; it is essential for keeping students accountable to their teammates. Incorporate peer evaluation by having students distribute a set number of points among their teammates, by using an evaluation rubric, or some combination. You may wish to grade students on how substantive their peer feedback comments are, rather than allowing them to assign each other points.

Team-based learning is alternately known as “Peer Instruction” and is related to “Collaborative Learning” as well. There are [many resources on this topic](#).

HOW TO FLIP A COURSE

You've probably heard the terms "flipped course" by now – but what does it mean?

A flipped course reverses the lecture/homework paradigm.

Traditional course: students attend lecture as a group and then work out problems or complete assignments individually outside of class.

Flipped course: students get the bulk of the course content outside of class such as through readings and/or recorded lectures. Then, in-class time is devoted to working through that content: discussing, problem-solving, processing, problematizing issues, working in groups, case studies, debating - generally going deeper into the content and developing higher order thinking skills, including analysis, evaluation, and creation.

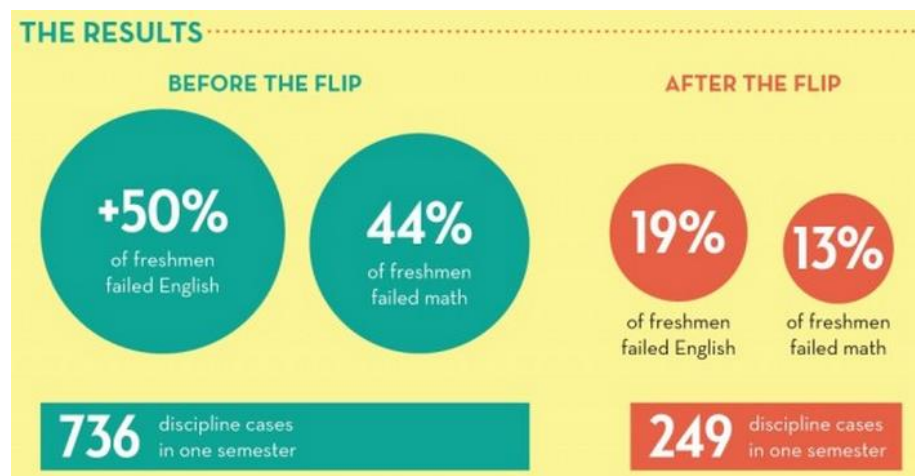
Years' worth of evidence shows students in flipped courses score better on both learning outcomes and satisfaction.

A quick Google Scholar search will provide you with as much literature as you like on this! There's more than can be summed up here, and the data doesn't lie.

Dr. Eric Mazur is a good place to start; he flipped Physics for non-majors in the early 1990s and has been influential in the field of educational research ever since. See also:

[The Daily Riff](#) (snippets below)

[Infographic by Knewton.org](#)



Courses with large amounts of content to cover are ideal for flipping.

In these classes, instructors often end up lecturing for the majority of the class in order to make sure they cover all the information. This means students must go home to work in isolation as they make an attempt to synthesize the new concepts and apply them in some meaningful way. The irony here is that it's virtually impossible to apply theory in a meaningful way when working alone. Instead, use time together in class to negotiate meaning and apply new knowledge through peer and student-teacher interactions and activities.

The Flipped Classroom IS:

- A means to **increase interaction** and personalized contact time between students and teachers.
- An environment where **students take responsibility for their own learning**.
- A classroom where the teacher is not the "sage on the stage", but the "guide on the side."
- A blending of direct instruction with constructivist learning.
- A classroom where students who are absent don't get left behind.
- A class where content is permanently archived for review or remediation.
- A class where all students are engaged in their learning.
- A place where all students can get a personalized education.

What about "blended learning?"

This muddy term indicates a course that is typically 30-80% delivered online. So flipped courses are often, but not always, blended – but blended courses need not be flipped.

Make sense?

“OWNING” YOUR COURSES

Teaching online is vastly different than lecturing in front of a classroom. The students don't know you are there just because you are – you have to have an active, tangible presence in the shared online space of your course if you want them to feel engaged with you.

How to assert yourself as the guiding presence in an online course:

Rule #1: Don't be shy.

You are the instructor and students want to see your face. They want to chat with you. They want to receive emails, announcements, and most of all feedback from you (especially at the graduate level). Use a photo avatar! Record 30-60 second “check in” videos ad hoc, to clarify a point or suggest a project option or even just to praise their efforts. Establish yourself as the cornerstone of the course, even if the content and activities are largely learner self-directed.

Rule #2: Don't be afraid to break the course.

Canvas has a lot of neat options, tools, and tricks that you *should* experiment with, learn, and use! Want to edit the text on Week 3's page? Need to update an assignment due date? Go ahead! There's an especially great thing called “undelete” just in case you mistakenly dispose of your 100-question final exam on a Saturday night... but if you are just too timid to try using the system on your own in an active course, [request a sandbox](#) as a place to try new things and experiment with abandon.

Rule #3: Alter the plan if you need to.

Your syllabus is a “contract” but it's a tentative one that can change as circumstances arise (feel free to include a disclaimer if you like). If you make it halfway through your course and realize that more or less time should be spent on upcoming topics or activities, make the call! Better yet, poll your students for their buy-in and make a democratic choice about potential alterations to the schedule.

Rule #4: Be the expert you are.

Again, students want to hear from you. Post corrections, clarifications, questions, and encourage them to think deeply about the concepts in your course. Challenge them. Talk about your research, go off on a tangent, or provide them with threads to follow-up with on related topics that aren't necessarily part of the course. Tie in current events with your materials on-the-fly. Allow them to ask you questions and answer them publicly in the course discussions.

Rule #5: Don't fear the feedback.

Student feedback is one of the most important measures of whether or not we are effective as instructors, administrators, and facilitators. The process of asking for feedback itself breeds trust between you and your students, because they recognize that you care what they think. You will receive feedback, and you should strive to appreciate it for what it is: opportunity to improve (or, perhaps, to brag). Reinvest in your course and revise the content and/or strategies based on your students' feedback... and watch for the payoffs next time.

ITERATIVE DESIGN, aka USING STUDENT FEEDBACK

Iterative design is an approach of incrementally developing and refining a design based on feedback and evaluation. Iterative design can apply to a learning experience, the creation of media, or the development of learning systems. (instructionaldesign.org)

Your students are your evaluators and can provide valuable feedback on how well your course worked or what might be problematic.

This feedback can—and perhaps should—be collected separately from your Faculty Evaluation. The kinds of questions which provide insight into your course delivery are often not asked by the University for tenure and promotion purposes.

How to get good feedback

In a nutshell: ask the right questions! And be prepared to listen and act. Consider the suggestions on the next page as a starting point; mix and match as you see fit.

Let the students know you will use their feedback and that it means something. You might solicit feedback partially through the semester as an opportunity to revise the course as it is happening, to correct problems or enhance student learning. This fosters trust, as the students will be able to see their feedback in action and benefit from it directly.

End-of-term surveys are also common and can help you improve for future offerings, just be careful not to overlap with Faculty Evaluation periods or risk suffering a lowered response rate.

Respond to your students and let them know how you plan to use their feedback. Clarify aspects of the course that they expressed confusion or misunderstandings about. Let them know what they can do to improve their own experiences based on how they responded.

Applying student suggestions (and dealing with complaints)

First, look over the positive things your students have said about the course.

Then read their suggestions for improvement and group them into three categories:

- Things you can change this semester (for example, the turnaround time on homework assignments)
- Things that must wait until the next time the course is offered (for example, the textbook)
- Things that you either cannot or, for pedagogical reasons, will not change (for example, the number of quizzes or tests)
- You may also want a category of things you are unsure about or do not know how to change, i.e., “Things to research”

Discuss the feedback you receive with a consultant (such as your teaching support staff, a senior faculty member, or someone similar) who can help you process it and pull out actionable items. They may have ideas for the items you are unsure about how to change. See [Responding to Course Feedback](#) for a helpful worksheet.

Most of all, try to move away from emotional reaction to a reflective, intellectual frame of mind when considering student feedback.

EVOLUTION AS ITERATIVE DESIGN

There is a parallel between iterative and the theory of Natural Selection. Both involve a trial and error process in which the most suitable design advances to the next generation, while less suitable designs perish by the wayside. Subsequent versions of a product should also get progressively better as its producers learn what works and what doesn't in a process of refinement and continuous improvement.

Student Feedback Question Suggestions

1. The instructor expresses clear expectations for my learning and performance in this class.
2. The instructor clearly explains concepts.
3. The instructor clarifies areas of confusion.
4. The instructor uses effective teaching methods that enhance my learning.
5. The instructor encourages me to raise questions or make comments.
6. The instructor challenges me to think.
7. The instructor is available on an individual basis outside of class when I request it.
8. The instructor uses technology effectively to advance my learning.
9. The instructor contributes to improving my learning.
10. I have learned a lot in this class.
11. This class has increased my interest in this field of study.
12. The instructor shows respect and concern for students.
13. I believe that what I am being asked to learn in this course is important.
14. The course is well organized and easy to navigate.
15. The course learning tools/technologies used were appropriate to the material.
16. The assignments in this course have enhanced my learning.
17. The tests accurately assess what I have learned in this course.
18. The instructor provides clear evaluation criteria.
19. The instructor grades consistently with the evaluation criteria.
20. The assignments are returned quickly enough to benefit my learning.
21. The exam results are returned quickly enough to benefit my learning.
22. The feedback I have received on my work has enhanced my learning.
23. The course created a sense of community among students.
24. The aspects of this course that contributed most to my learning were:
25. My favorite aspect of this course was:
26. My least favorite aspect of this course was:
27. Additional comments:

RESOURCES & REFERENCES

Credit for many of the ideas and content in this handbook goes to the University of Florida CITT, among the other organizations and universities linked throughout and below.

Comprehensive Resources

<http://ctl.utexas.edu/teaching>
<http://online.ucf.edu/teach-online/>
<http://www.celt.iastate.edu/teaching-resources/>
<https://blended.online.ucf.edu/blendkit-course/>
<http://www.bu.edu/ceit/teaching-resources/>
<https://teachingcommons.stanford.edu/resources-0>
<http://www.cte.cornell.edu/teaching-ideas/index.html>

Activities & Assessments

General ideas: <http://citt.ufl.edu/online-teaching-resources/>
 Journaling: <http://www.educause.edu/ero/article/e-journaling-achieving-interactive-education-online>
 Case Studies: <http://sciencecases.lib.buffalo.edu/cs/>
 Discussions: <https://www.edutopia.org/pdfs/stw/edutopia-onlinelearning-mastering-online-discussion-board-facilitation.pdf>
 Field Journals: <http://www.scilogs.com/expiscor/science-art-and-personal-reflection-field-journals-as-an-assessment-tool-in-higher-education/>
 Self-Assessment: <http://www.cte.cornell.edu/teaching-ideas/assessing-student-learning/self-assessment.html>

Flipping a Course

<https://prezi.com/5hys911ph8fz/flipping-your-course/>
<http://www.thedailyriff.com/articles/the-flipped-class-conversation-689.php>
<http://lodgemccammon.com/flip/research/>
<http://dailygenius.com/wp-content/uploads/2014/07/How-to-flip-classroom.jpg>

Peer Instruction

<http://blog.peerinstruction.net/>

Crouch, C. H., & Mazur, E. (2001). Peer instruction: Ten years of experience and results. *American Journal of Physics*, 69(9), 970-977.

Presentations

<http://www.facultyfocus.com/articles/online-education/adapting-powerpoint-lectures-for-online-delivery-best-practices>

<https://www.youtube.com/watch?v=Iwpi1Lm6dFo>

Carter, Matt. 2013. Designing Science Presentations A Visual Guide to Figures, Papers, Slides, Posters, and More. Softbound: 359 pages. Academic Press, Elsevier. ISBN: 978-0-12-385969-3.

Rubrics

<http://ctl.utexas.edu/teaching/assess-learning/rubrics>

Student Feedback

https://www.heacademy.ac.uk/sites/default/files/id352_collecting_and_using_student_feedback_a_guide_to_good_practice.pdf (in-depth PDF manual)

<http://tep.uoregon.edu/resources/assessment/usingfeedback.html>

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1392&context=podimproveacad>

http://tep.uoregon.edu/pdf/assessment/Responding_CourseFeedback.pdf