



teaching learning committee
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HOW TO PLAN CURRICULUM

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I am writing this guide to curriculum planning with the new professor especially in mind. It is a familiar bit of folklore in higher education that bright young researchers finish their doctoral work and then land their first job in a tenure line position. They are excited about their subject area and the opportunity to do research, yet they also have instructional responsibilities, and no one has really prepared them for the job. They face their first class, uncertain how to teach or how to create the lessons that will guide their teaching. And so they lecture to a sea of bored and resentful faces, get blasted in their course evaluations, and spend the first break trying desperately to redesign their courses, only to have the same thing repeat the next semester, and perhaps the next. In a worst case scenario, they end up desperate and isolated with a worsening case of stage fright and feelings of failure descending upon them, spinning their wheels, unable to engage effectively in either teaching or their research. They thought it would be enough if they knew the material well, but that is only part of what goes into teaching. You also have to know how to package it so learners with varying degrees of interest and ability will be able to learn it.

Some teachers are born. Perhaps the best teachers simply have a talent and know instinctively what to do. For the rest of us, teaching is a complex activity that has to be explored, studied, understood, practiced, and perhaps eventually mastered. There are a few principles to bear in mind as you proceed. Perhaps the main one is that you do not have to reinvent the wheel. The course you are preparing to teach has already been taught by numerous people before you, so it should be possible to obtain sample syllabi and lesson ideas from colleagues, commercial textbook publishers, or off of the internet as a place to begin.

The Syllabus: A well designed syllabus provides certain standard information. It gives information on who you are, similar to the top portions of your vita, including information on how to address you (“Dr. Carson, but please call me Robert”), how to contact you, and when you are available for office hours. It lists course objectives. These should be based, if possible, on national standards for your field. Every professional organization has established standards and many have established performance benchmarks. The syllabus lists course materials, textbooks, web sites,

and other resources. The body of the syllabus contains day to day descriptions of the assignments. A concise syllabus will merely list chapters with no further explanation; a detailed syllabus will direct students to “read chapter 7” and “write an essay in which you...” Thus, students will be guided to a particular course of study. The syllabus will list course and classroom expectations about behavior, attendance, academic integrity. You should specifically state any grounds for dismissal, such as plagiarism or cheating on exams. And, finally, you should detail how grades will be assigned, indicating how many points are available for each assignment, exam, etc. Think about what you are “paying them for.” Small weekly or daily assignments support student learning by putting some payola behind the ongoing work of keeping up with the assignments.

Planning Units and Lessons: A unit is a collection of related lessons. A lesson is what you do in a particular day. A unit on Acid/Base reactions might take three weeks, meeting three times per week, and thus consists of nine lessons. Each lesson should begin with an Advance Organizer and should end with a Summary. Advance Organizers are conceptual maps of the territory, telling or showing students what the whole thing is going to be about before you actually go into it. The human mind manages detail best when it can be related to larger structures. Before the period ends, you should review what the day’s lesson was supposed to be about, and you should show how you covered those objectives. One of the most difficult tasks is to get practical demonstrations to link to theoretical discussions, so this requires special attention. Fitting all the detail into those larger conceptual structures is the key to meaningful learning. Visual representations, outlines, concept maps, diagrams, demonstrations, etc. all contribute to that goal.

Methods of Teaching – Locus of Control: Some teachers stand before the class and lecture (didactic instruction). Some teachers turn students loose on an episode of discovery, and then stand back to let the students work through something on their own. Effective teaching is more complex than these two extremes. It involves a dynamic sharing of control between teacher and students. When you lecture, the control resides in you and the student’s activity is narrowed to the concentration needed for active listening and paying attention. When you engage students in dialog – the famous Socratic method – control of the social dynamic moves fluidly back and forth between you and the students. But it takes time and skill to cultivate an effective “community of learners” if they are to do their part to keep those conversations productive and focused. Finally, there are various modes of discovery learning, hands-on learning, and project learning in which individuals or groups of students work together on a task. Those tasks must be well designed, and they must have clearly stated purposes, if they are to be productive. Avoid the seduction of merely interesting or fun activities unless you can state clearly what the goal is. There should be

a product that can be clearly identified, and objectively evaluated. Every lesson should have well defined purposes, shared by the class. It does not work to just go into class expecting to 'see what happens today.' Effective lessons originate from clearly defined objectives. *As a result of this lesson, what will my students be able to know and to do?* Ask yourself that question, and then state what you come up with as performance indicators. Be specific and behavioral in doing this. "My students will be able to [a verb]....." Then, ask yourself, what would be the evidence of this learning taking place? How would I assess them? If, at this point, you can figure out an effective assessment (test questions, demonstrations, projects the students would have to do) then you may have some assurance that you have understood your own instructional objectives for this lesson. In fact, this is a lesson planning strategy known as "backward design." You identify your objectives, then you design the assessment. Only then do you go on to design the lesson itself.

Alignment: One main goal in formal lesson planning is to begin with the national standards, and then design everything that follows so that there is clear alignment between those standards, your course goals, lesson objectives, instructional strategies, and your assessments (exams, portfolio projects, etc). Students complain bitterly (and rightfully so) when the professor lectures on one topic but tests on something entirely different. They also will complain if your lectures merely repeat what they were able to read in the textbook. If the textbook is well written, then classroom time can be spent working through sample problems, encouraging students to express their questions, demonstrating in real life what the theories or ideas are about, showing them various ways to think about what they have read, and so forth. The integrity of this whole process is strengthened considerably when you have clear purposes and objectives in mind, and when those objectives are clearly aligned with the standards and with your assessments.

Establishing the Lexicon: In lower division undergraduate coursework especially, one of the main tasks is to establish a body of terms and ideas that have reliable correspondence between classroom members and with the professional community that uses those terms. Those terms need to be identified, defined, and worked with in a very deliberate manner with the professor modeling the use of those terms and students expected to use them appropriately. Words and symbols are the currency of thought, and their role should be made explicit to students.

"Let me do it": In the end, students do not merely want to hear about something, they want to engage in it. They do not merely want to hear a lecture about Impressionist Painting, they want to feel what it is like to paint in that manner, and to see the world through those eyes. They do not want to read about Faraday's experiments, they want to repeat those experiments and have the same spark of understanding. They do not want to merely read Shelley in silence, they want to read aloud with such proficiency that their own muse awakens and charges their spirit with the

romantic vision. Reading the textbook is something they do at home in preparation for what happens in class, but what happens in class should be something that takes full advantage of the community of learners present, and that makes the material part of a powerful, shared group consciousness.

Foundational Perspectives: Know the history of your discipline: It may seem pointless at first to do so, but if you can understand how the key ideas, discoveries, innovations, conventions, and processes were developed you can help shape students' ways of thinking about those things in a more sensitive and forgiving manner. Students can only stomach so many dismissals of the order, "That's just the way it is." You are better off taking the time to sort out what facets of your subject matter are given by nature empirically, which derive from formal reason, which are a result of human convention, which were generated by the creative engine of human imagination, etc. There were, for example, many different patterns the periodic table of the elements could have taken, including spirals and drums; but the community of chemists settled on the familiar table for reasons that remain somewhat arbitrary. Helping students sort through what could have been done differently from what is not arbitrary (the value of pi, for example) is not frivolous, it is the student's way of gaining entry into the topics of epistemology – theories of knowledge. Historical understanding naturally leads you to reflections on the philosophical dimensions of your craft, and that means becoming more reflective, acquiring more deeply nuanced understanding rather than simply taking all authorized knowledge as gospel.

Making it Human: It helps us figure out how to teach something if we can figure out why students should care about it in the first place. We should not let ourselves off the hook too quickly "My students are morons; they lack talent for my discipline." Every domain of learning is a potential source of passion. Uncovering for students the ways in which people who love your subject understand it, and why they find it so fascinating, is part of the task of motivating students. Merely relying on the threat of flunking the class does not really motivate them. We should remember that the one thing all students have mastered is the familiar framework of what it is like to be human. Because they are skilled in this domain, it is relatively easy for them to transpose themselves into someone else, to assume the identity of a character in a story. This is why historical accounts can sometimes be so very powerful. Give me just enough detail and I can imagine myself in the company of Sir Isaac Newton, or John Galton, or on the stage of Shakespeare's Globe Theater. And once you get me in the company of those people, I will be more willing to try to understand what it is they saw, thought about, discovered, and convinced the world of.

Engaging Questions and Projects: Questions and projects “engage the mind.” As long as you lecture, students can listen with varying degrees of attentiveness, and therefore may acquire greater or lesser degrees of understanding. But as soon as you call upon them by name, and ask them to wrestle with some portion of the topic, their minds necessarily engage, and they go to work on the problem. The goal, then, is to figure out how to get that level of engagement to happen more often. Even in a large lecture hall, you can use a simple strategy. Give them a question to deal with, ask them to turn to their neighbor for ninety seconds to discuss it, and then start calling on individuals to ‘share what you came up with.’ The best questions to ask are not ones that have a single answer (“what is the atomic weight of mercury”) but that admit of a range of responses (“Benedict Arnold was regarded as a traitor, but if England had won would people still see him that way?”) This kind of question involves processing, rather than simple recall, and it creates a safe topic because the validity of a student’s answer is based on the quality of the reasoning process rather than on the answer itself.

Assessment: The best case scenario occurs when most members of the class actually learn what you have taught them, find the summative exams (such as midterm and final) very predictable, and have acquired enough comprehension of the material that it resides in well defined conceptual structures within their minds. The worst case scenario occurs when there was no alignment between the textbook, the lectures, and the exams, and material was poorly presented and even more poorly understood, so instead of the powerful structural learning that seems so easy, students had to resort to the desperate strategy of rote memory. The key to effective lesson and unit planning is to ensure that we start with clearly defined goals and objectives, and that we keep those in mind at every step of the way. Our assessments should reflect those goals faithfully, and no matter how difficult the material students should see those exams as familiar territory.