Creating curriculum/lesson plans

“Effective teaching depends on effective planning and design” (1). One popular framework that has been used to guide curriculum, assessment, and instruction is based on the book *Understanding by Design*, written by Grant Wiggins and Jay McTighe. The *Understanding by Design* framework (UbD framework) is based on seven principles (2): learning is improved when teachers think purposefully about curricular planning; curriculum and teaching that is focused on the development and deepening of student understanding and transfer of learning; understanding is revealed when students can make sense of and transfer their learning through performance; effective curriculum is planned through a three-stage design process (described below); teachers should not focus on conveying content knowledge, but on making sure that learning happens; regularly reviewing curriculum against standards improves quality and effectiveness; and student performance informs any adjustments that are needed in curriculum and instruction so that learning is maximized.

The UbD framework is often thought of as a backward design process because it starts with the desired results of teaching and leaves teaching activities until the end. As stated by the authors, “you can’t start planning how you’re going to teach until you know exactly what you want your students to learn”. The backward design process for curriculum planning advances through three phases (1,2):

1. Identify Desired Results
   - Establish your learning goals for the course. What should students know, understand, and be able to do? Learning goals can consist of content goals (knowledge you want students to attain) and skill goals (abilities you want students to attain).
   - To determine the best content for your course and create specific goals for your students ask: What should the students hear, read, view, or explore? What knowledge and skills should students come away with? What are big ideas and important understandings students should remember even after they have forgotten the details?

2. Determine Assessment Evidence
   - Think about how you will decide if students are starting to grasp the knowledge and skills you want them to gain. It is important to get a baseline understanding of the student’s knowledge and skills at the beginning of the course so you can know if they are making progress.
   - Two broad types of assessment include performance tasks and other evidence. In performance tasks, ask students to apply what they learned to a new situation so you can assess their understanding and ability to transfer their learning. Other evidence includes things such as quizzes, tests, homework, papers, lab projects, and problems to solve. Your assessment method should reflect your learning goals.
3. Plan Learning Experiences and Instruction
   - Start planning how you are going to teach. Plan lessons and activities that address your learning goals from Stage 1. Essentially, link the big picture to individual class meetings.

   A lesson plan is the instructor’s road map of what students need to learn and how it will be accomplished during each class time (3). Lesson plans vary in degree of detail and there is no ‘set’ method. In general, a lesson plan will include lesson objectives, procedures for delivering instruction, methods of assessing the students, and materials needed to carry out the lesson plan (4). One resource from the University of Michigan Center for Research on Learning and Teaching lays out six steps, as detailed below, to direct you when creating a lesson plan; each step has a set of questions to help in designing teaching and learning activities (3).

   1. Outline learning objectives: determine what you want students to learn and be able to do at the end of class.
      - What is the topic of the lesson?
      - What do I want students to learn?
      - What do I want them to understand and be able to do at the end of class?
      - What do I want them to take away from this particular lesson?

   Rank the learning objectives in order of importance to help manage class time. Think about the following questions:
      - What are the most important concepts, ideas, or skills I want students to be able to grasp and apply?
      - Why are they important?
      - If I ran out of time, which ones could not be omitted?
      - Which ones could I skip if pressed for time?

   2. Develop the introduction: start with a question or activity to estimate students’ knowledge of the subject or their preconceived notions about it. This helps you have a sense of what to focus on.
      - How will I check whether students know anything about the topic or have any preconceived notions about it?
      - What are some commonly held ideas (or misconceptions) about this topic that students might be familiar with?
      - What will I do to introduce the topic?

   3. Plan the specific learning activities (the main body of the lesson): prepare several different ways of explaining the material not only to catch the attention of more students but also so that the material will be beneficial to different learning styles.
      - What will I do to explain the topic?
      - What will I do to illustrate the topic in a different way?
      - How can I engage students in the topic?
      - What are some relevant real-life examples, analogies, or situations that can help students understand the topic?
• What will students need to do to help them understand the topic better?

4. Plan to check for understanding: one resource to help generate ideas is ‘Strategies to Extend Student Thinking’ at www.crlt.umich.edu/gsis/p4_4.
   • What questions will I ask students to check for understanding?
   • What will I have students do to demonstrate that they are following?
   • Going back to my list of objectives, what activity can I have students do to check whether each of those has been accomplished?

5. Develop a conclusion and a preview:
   • Go over the material covered in class by summarizing the main points of the lesson. Examples of how this can be done: summarize the main points yourself, ask a student to summarize them, or ask students to write down what they thought were the main points of the lesson. This helps you gauge their understanding and you can explain anything unclear at the next class.
   • Preview the next lesson. How does the topic relate to the one that is coming? This helps connect the different ideas within a larger context.

6. Create a realistic timeline:
   • Estimate how much time each of the activities will take, then plan a little extra time for each.
   • Plan a few minutes at the end of class to answer any remaining questions and to sum up key points.
   • Plan an extra activity or discussion question in case you have time left.
   • Be flexible-instead of sticking to your original plan, you may have to adjust your lesson plan to students’ needs and focus on what seems to be more productive.

In general, it is helpful to let your students know what they will be learning and doing in class by writing an agenda on the board/PowerPoint. This can help students follow your presentation, understand the rationale behind in-class activities, and help everyone stay on track. It may be helpful to you after each class to not only reflect on what worked well and why, but also what could have been done differently. This will help evaluate how you are doing and what might need to change. Another suggestion to evaluate your curriculum/lesson plan is to talk with your colleagues. Other teachers/professors may have helpful suggestions. If teaching a full course, student evaluations mid-way through the course and at the end of the course can help gauge how you are doing. Creating a curriculum and lesson plan is useful when teaching at all levels (K-12, undergraduate, and graduate); some of the questions detailed above could also be very useful to think about when preparing a presentation to classmates or colleagues.

When teaching, one of the most important things to keep in mind is to teach for understanding (2). Teaching should not just focus on presenting information without helping the students come to an understanding of important ideas/processes (2). Students must be given the opportunity to apply what they learn to new situations and receive feedback to help them improve (2).
References:

1. Vanderbilt University Center for Teaching
   (http://cft.vanderbilt.edu/teaching-guides/preparing-to-teach/course-design/)


3. University of Michigan Center for Research on Learning and Teaching
   (http://www.crlt.umich.edu/gsis/p2_5)

   Scholastic, 2002.

Additional resources that may be helpful:

1. Faculty Development Teaching Tip Index:
   http://www2.honolulu.hawaii.edu/facdev/guidebk/teachtip/teachtip.htm

2. Vanderbilt Student Volunteers for Science:
   http://studentorgs.vanderbilt.edu/vsvs/index.php