


### **Case Study 1: Biology 210 – Introduction to Vascular Plants: Shona Ellis**

I teach the first half of BIOL 210, plant anatomy, which I personally think is fascinating, but for most students it is kind of dry. We cover cell types, tissues, and organ systems as well as primary (herbaceous) to secondary (woody) growth in plants. They essentially learn how plants are put together into tissues and tissue systems, and how they grow to give rise to their final form. Students must understand basic components (cells types and tissues), which requires lots of memorization and is terminology heavy. They use these building blocks to explain how secondary structure of a plant is achieved. Not only do they need to understand basic anatomy, but they must incorporate principles of differentiation (morphogenesis) and visualize this process in three dimensions.

The approach has been to present the organization of the primary structure and then initiation and establishment of secondary growth in the root system through reading, online animation, and lecture. While the fundamental processes are similar in roots and stems, there are differences in anatomy so having them revisit the concepts when we discussed stems should have helped reinforce and deepen their understanding. This was done through student discussion and participation. However, when asked related questions on the midterm it has been apparent that many students did not actually get it.



What may be going on for the students? Select one or two of the key challenges and post to your flipchart.

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What learning principle[s] are at play? Add this to your flipchart.

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What strategies might you suggest and why? Post one or two to your flipchart.

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What questions surface? What would you want to investigate?