

Teaching Statement

My academic identity is inextricably linked to my ability to teach. My research supports my teaching, and my teaching, in turn, supports my research. My teaching position is as a Graduate Teaching Assistant for CM 200: Intermediate Preconstruction Management. This is an intermediate level construction management course for undergraduate students. It covers the planning, estimating, and scheduling of construction projects. It also includes modules that address material strength (soil), construction safety, construction paperwork, and accounting as well as other construction-related concepts. It is, in my opinion, one of the most critical courses in a construction management student's curriculum. It introduces students to construction principles and practices used by professionals. In summary, it is the first step in becoming a professional construction engineer. However, due to the sudden shift from previous introductory level courses to a much more professionally focused course, this course is difficult to teach. The difficulty in transitioning students from an amateur to a professional context fascinates me. I have casted a lot of thoughts about this problem. My approach to helping students to be successful is to be aware of the limited background of the students, whereas modeling the approach that a professional would take in addressing the content of the course.

Form a Community of Learning

I believe the major responsibility of an instructor in a classroom is to facilitate an environment where learning can naturally occur. Learning should be a joint venture where all participants (both the students and instructors) cooperate and co-evolve with each other to discover new knowledge. The success of individuals contributes to the success of the whole class. The success of whole class, in turn, supports the success of the individuals. When there is a sense of community it ties all participants of the class together and forms a coalition of learning.

I was in charge of leading parts of the CM 200 labs. Students attend a lecture the day before the lab. They must finish practicing questions from the lecture in the next day in the lab. Many students, I believe, feel a bit nervous about going to labs. Some of them may never have encountered the concepts (i.e., work breakdown structure and CSI master format) that are introduced in the lecture before the lab. Some students do not fully digest the lecture because of their unfamiliarity with the concepts. Some of them have questions related to the lecture and I do my best to explain what was presented to them. Because students' learning styles varied so greatly, I discovered that the most successful learning in the CM 200 lab occurs when individual communication and small group collaboration occurs. I let students choose their seats in the lab so that students who know each other can sit together and feel free to discuss the concepts. To encourage discussion, I also allowed students to shift their chairs to different tables if they wish to do so. Students can benefit immensely from engaging in discussion and it builds a sense of learning community, even if the lab format may appear to be less rigorous from the

surface.

An ideal learning environment is not a classroom where the instructor and instructor alone do everything. The best environment for learning occurs when all participants of the class are striving for a shared goal of learning. The sense of community cannot be created unless every student is engaged. My belief is that no student should be left outside from the community. Some students choose to not participate in group conversations. I paid extra attention to them by actively asking whether they have any questions to compensate for their lower level of classroom involvement. I assigned them to a different group if they want to participate in a group discussion. I foster a sense of community in the classroom by encouraging small group collaboration. I believe that a higher level of student success is achieved through a collaborative effort in which all lab participants are actively involved. An individual's achievement fuels the success of a group and a group's success helps individual students succeed.

Open and Frank with Students

I hold a belief that instructors should be honest and open regarding their limitations of knowledge. It is harmful for instructors to pretend to know everything. A healthy learning environment is an environment where any participant can have something new to learn. When I led a lab, I maintained an environment that fosters openness and honesty by being transparent about my true level of mastery of the content of the particular lab to students. For example, I found calculating the cost of construction equipment was at times challenging for me because the cost contains several separate expenses, each of which has its own method of calculation. I let the students in the lab know that even the TA felt this concept is challenging.

For example, to solve a problem, the labor productivity must be modified by a factor. A student approached me and asked if the unadjusted productivity should be multiplied or divided by the factor. I acknowledged to the student that I need to look at it before answering him. I invited the students to look through the lecture slides with me, and we all came up with the same answer. The fact that I didn't immediately know the answer to a question didn't bother me. Instead, I turned it into a learning opportunity for the student.

One student came to me in another lab and inquired why I finished questions faster than he did. I said that it was because I had previously worked on similar problems. I told to him that he will also finish questions more quickly if he practices more. I aimed to persuade students that engineers and construction managers must constantly develop their skills and should never be ashamed to say when something is tough, or they don't know the solution right away. Students need to be able to continue learning independently as they progress to the next stage of their career. Encouraging students to strive for a mindset that they need to be in a state of continuous improvement and independent learning is more important than instilling them with facts, just as the traditional Chinese proverb goes, "teaching fishing is better than giving fishes."

Actively Approaching Students

Every student is different. I always adjust my teaching style to fit the needs of students. There is a well-known old Chinese motto, “Teach students in accordance with their aptitude.” After running the lab for a few weeks, I noticed that certain students' personal demeanor may prevent them from actively seeking the TA's assistance. When they have a question, some students raise their hands and ask for assistance immediately. Some students are hesitant to seek assistance. Students who do not actively seek assistance may feel isolated. I pay close attention to students who are hesitant to seek for assistance. If they've been working on the same problem for a while and haven't made any progress, I approach them and ask if they need any assistance. When I initiated this approach, I was afraid they would grumble that I had disturbed them. However, I found that in almost all cases, they could not wait to ask questions. The lab should not only aid students with academic knowledge, but also develop their self-awareness and confidence in solving problems.

Development of New Courses

I am qualified to offer construction management courses based on my expertise and knowledge. The course will cover project delivery methodologies, work breakdown structures, activity-on-node (AON) network diagrams, interpreting construction drawings, quantity take-off, cost estimation, and construction ethics (ASCE Code of Ethics). Additionally, I intend to create a new course on construction automation for graduate students and senior undergraduate students. Students will study cutting-edge innovations in construction research, including robotic construction, prefabrication, game simulation, unmanned aerial vehicles (UAVs), advanced sensors, Natural Language Processing (NLP), Computer Vision (CV), and Virtual Reality (VR). The students will be exposed to cutting-edge innovations in the building industry. The purpose of this course is to assist students with drafting a conference processing paper on one of these themes, which will enhance their academic careers and employment search significantly. Students will work in six-to-eight-person groups. I'll supply a list of possible subjects. Additionally, they may use their own topics. Students will get lectures on these topics during the first 12 weeks of the courses. In general, each topic will be covered in one or two three-hour lectures. Students are required to read peer-reviewed journal publications that I have carefully chosen to expose them to the current developments in academia. Students will collaborate create an abstract and a draft of the conference proceedings in this time. Students will spend the remainder of the semester preparing the manuscript for submission. Students may encounter difficulties in completing the experiment on time. As a result, one possibility is to allow students to use the outcome they anticipated in their research. They may submit their manuscript if they believe they will have the opportunity to complete the experiment in the future.