

A Secret to Large Classes - Showing You Care

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INTRODUCTION

The other speakers in this session are addressing some of the logistical issues involved in teaching large classes, as well as some ways of engaging large classes to obtain increased participation. In this paper I wish to address some of the belongingness issues that are particularly magnified in large classes. My experience with large classes comes from teaching the material and energy balances class at the University of Michigan, which has had enrollments of 150-190 students in the past four years. While some of these issues are of particular importance to women and minority students, addressing them makes for a more comfortable environment for all students.

FIRST DAY OF CLASS

Since material and energy balances is the first class in the chemical engineering curriculum, the first day of class can serve as an introduction to the department as a whole. In the past I've invited a number of people to make short presentations to the class. These include the department chairman, who extended his personal welcome to the students, and spoke briefly about the career options for chemical engineers. In addition, the undergraduate advisor and his assistant introduced themselves and provided initial guidance information. The presidents of the primary undergraduate student organizations, including AIChE, Omega Chi Epsilon (Chemical Engineering Honor Society), and NOBCCChE (National Organization of Black Chemists and Chemical Engineers) briefly described their societies, providing information on their weekly meetings and major activities.

During the first class period you can also introduce yourself, with information about why you chose chemical engineering, the schools you attended, some of your fears and concerns as an undergraduate. The rest of the class period can be used to take care of the typical syllabus review and such.

One feature that I've included in the first day of class to let the students know that I expect them to participate actively in class and to interact with other students, is to ask them to get themselves in alphabetical order by last name. Some students were somewhat incredulous at first that I would actually expect them to perform this exercise, but once they realized I was serious they did it surprisingly quickly. They got to meet a few other students in the class, and it made it somewhat more interesting when I called roll, as sometimes a student would be slightly off. In

calling roll, I asked the students to share with me how they preferred to be addressed, and made a note of it in my class list. This is the first step in learning their names. Note that I do not require students to sit in assigned seats during the semester, this exercise was only an icebreaker for the first day of class.

LEARNING STUDENT NAMES

By far the most often repeated comment on my end-of-semester evaluation forms is the fact that I take the time to learn (most) students' names. In a university as big as Michigan, students often feel like just a number, and the fact that someone would actually take the time to learn and use their names makes a big impression on them, and increases their sense of belonging.

The undergraduate secretary has for the past few years attended all recitation sections of this class during the second week of classes and pulled students to the back of the room row by row to take Polaroid photographs of them. This is done very unobtrusively. Color photographs of these pictures are compiled into a photo book for the class. A similar book is compiled for every subsequent chemical engineering course. This book can serve as a good start to learn their names. Pictures alone are not enough, though. Every time a student participates in class, stops by office hours or calls you on the phone, you can ask them to state their name, and try to use it in conversation to help register it. Handing materials back to the students is also a great way to connect names with faces. In my class, students get their homework sets back in recitation. I've sometimes saved one of the recitation section's homework sets and stopped by before it meets to hand back homework in person. This is also a good opportunity for informal interaction.

STUDENT JOURNALS

I've found that one of the most effective ways of getting to know students better is through the use of student journals [1]. Sample instructions for the writing of journals are:

“Every class day briefly write in your journal the most important thing(s) that you learned in class that day. In addition, write anything else you wish, particularly things that you can relate to chemical engineering. The journal does not have to be restricted to classroom issues. Please write freely. The pages will not be graded for grammar, spelling, punctuation, or technical or political correctness.”

The journals are due on Friday, which gives me the chance to read them over the week-end, and answer all their questions and make any additional relevant comments. I then respond to questions, comments and issues on Monday. I have found these journals to be invaluable. Not only do I learn what concepts the students have difficulties with, but it opens up a line of confidential communication that really helps me get to know the students as individuals.

INSIDE THE CLASSROOM

A large classroom doesn't have to be an impersonal one. There are a number of activities that can make your classroom an inviting and welcoming one [2]. For example, arrive to the classroom ten minutes prior to the start of class and ask students how things are going, and

generally make yourself available. Allow time at the beginning of class for student society representatives to make announcements. When calling on students, try to use their names, and never embarrass a student. It's important to stress, however, that you expect professional behavior in class. This includes no newspaper reading, no eating, no leaving newspapers behind when they exit the classroom

Encourage students to ask questions. Thank students who do ask questions, as it allows you the opportunity to clarify a concept. Ask for a show of hands of students who have the same question. This reinforces the point that if a student has a question, chances are good that others have the same question, and they would be doing everybody a service by asking the question during class. Along the same vein, rather than asking the class "does everybody understand that?" after explaining a concept, ask for a show of hands of the students who don't understand the concept. You will get a more honest assessment that way.

OUTSIDE THE CLASSROOM

Students appreciate your understanding that there is more to their lives than courses. For example, after the technical content that the students came to discuss in office hours has been addressed, take a minute to ask the student how things are going. A couple of minutes of your time can allow the student to share some good news or unburden themselves of some preoccupation. You can also make yourself available by attending the weekly luncheons of the student chapter of your discipline's professional organization. You can always bring those pesky journal articles that you have yet to review to read during the speaker's portion of the meeting. If you have any suggestions for activities that you think the student chapter should undertake, share them with the officers, they usually appreciate any input from a faculty member. Another way to find out what is going on in students' lives is to read the student newspaper periodically, particularly sections involving student activities such as student government or sports activities. A short e-mail message congratulating a student for an outstanding performance goes a long way to making them feel that someone cares. Post any relevant articles on a bulletin board.

Don't hesitate to solicit student input about how the class is progressing, or asking students from previous years how they would change the class now that they've had other courses. This is invaluable advice that is not only useful to you, but makes the student feel that their opinion is valued. At the same time, be informed on college policies as well as academic and counseling services available to students, should you be asked for such information.

Attend Honors Banquets, graduation ceremonies, as many of these important moments in your students' lives as your schedule will allow. I will never forget attending my graduation reception and being so grateful that Prof. Dale Briggs had taken the time to attend too, so there was someone whom I could introduce my family to and who could say some nice things about me to them.

Electronic mail is a great way to keep in touch with the students. You can inquire after a student who has been absent or has missed a quiz, congratulate the top students after an exam, congratulate award and scholarship recipients, send students a short note regarding an event they may have participated in that you've become aware of, or notify students of scholarship and

summer internship opportunities. If a student missed an exam because of a family emergency, a message a week later checking on the student can let them know you are thinking of them.

Say hi to students in the hallways, using their name if possible. If you're not sure if the person coming down the hall is one of your students, simply make eye contact. If they say hi, respond pleasantly. Install a bulletin board near your office, and post scholarship and internship information, technical articles and brochures of interest, cartoons, counseling fliers, and any other information you think the students might be interested in. Post multiple copies of material the students might want to take with them. E-mail them with any job or scholarship leads.

SUMMARY

One of the better feelings one can have as a faculty member is the sense that one has made a difference in someone's life. Unfortunately in large classes faculty often distance themselves from students, missing out on a wonderful opportunity to get to know some very interesting people. In this paper I have outlined some suggestions for increasing the sense of belonging of students in large classes. Some of them take more time than others to implement, so just pick the ones you feel most comfortable with and start with those. I guarantee your students will appreciate it.

REFERENCES

1. Hirt, D.E., "Student Journals - Are They Beneficial in Lecture Courses?" Chem. Eng. Educ. Winter 1995, pp. 62-64.
2. Montgomery, S., and M.C. Barrett (1996). "Women in Science and Engineering: Providing Academic Support." CRLT Occasional Paper No. 8. Ann Arbor: U. of Michigan, Center for Research on Learning and Teaching. crlt@umich.edu

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