

# TEACHING IN THE FIRST FEW YEARS

## *From the Perspective of a New Faculty Member*

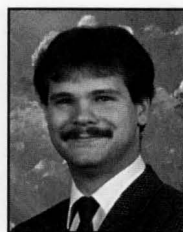
CHRISTOPHER N. BOWMAN  
*University of Colorado  
Boulder, CO 80309*

In January of 1992, when I walked into a classroom for the first time, I had a sinking feeling that I had just taken on one of the biggest jobs in my life. Unfortunately, I had almost no training in how to be an educator, and in many other universities the situation is similar. Faculty members are hired mainly because of their outstanding research abilities, and they are expected to be excellent educators as well, often with little or no training. Since arriving at the University of Colorado, I have had an opportunity to learn a great deal about teaching—most of it the hard way. Hopefully, the following top-ten list of hints for new faculty will ease the transition from graduate student to educator for some who are taking that step.

### TOP-TEN HINTS FOR NEW FACULTY

**1**  
*Get instruction and assistance from as many sources as possible.*

As pointed out at the beginning of this article, new faculty members have usually not received a great deal of training prior to initiating their teaching careers. This fact makes it imperative for new faculty to seek out input from knowledgeable sources on such things as methods of instruction, how to involve students actively, and how to budget time. One of the greatest resources available to new faculty is the older faculty. If the department has a formal mentoring program, take full advantage of it. Ask your mentor to visit your classroom and prepare a critique of your lecture. The mentor should also examine your homework assignments, the course syllabus, exams, course structure and grading, as



*Christopher Bowman is an assistant professor of chemical engineering at the University of Colorado. He received both his BS and PhD from Purdue University. His current research interests include characterization of multifunctional monomer polymerization reactions and development of facilitated transport membranes.*

well as student evaluations. The mentor's perspective, based on experience, will prove invaluable in interpreting what is going well and determining what requires improvement. If your department does not have a formal mentoring program, seek out a mentor on your own—someone who cares about both you and the students you are teaching. Some of the benefits of mentoring, especially team-teaching with older faculty, were discussed in a recent paper by Scriven.<sup>[1]</sup>

In addition to senior faculty input, seek out assistance from other sources. Excellent reference materials have been written on teaching engineering<sup>[2,3]</sup> and on learning styles.<sup>[4,5]</sup> Having had the experience of sitting in on a course which followed closely the book by Wankat and Oreovitz,<sup>[2]</sup> I can say that it was very helpful. Other possible sources include teaching resource centers at your university. Many of these programs will videotape your class period or group-interview your students to provide input on your teaching. Having participated in the group interview process, I can attest to the value of the input that the students are willing to provide to an impartial observer. In short, to combat our lack of experience and education when starting out, we need to seek out information that will help us become the educators we want to be.

2

***Spend time with students.***

Nothing says more about how you value your students and their education than how much of your time you are willing to spend with them. In my experience, I have often had students who are unable to follow lectures as fast as they come to them. These students are often bright, but they simply do not assimilate material during a lecture. I have noticed that when these students are given the chance to ask questions and receive instruction outside of class, they will often perform much better than students who were able to follow the material presented in lectures.

Time is a precious commodity to a new faculty member, and it is often difficult to find the necessary time to assist students. Fortunately, there are ways around this problem. First, find time to work on research projects when you know students will not be present. For myself, these times come very early in the morning (students in general tend to be late risers). For others it may be late in the evening, or it may mean a trip to the library, or a day at home working on a laptop computer. Whatever it is, find this time without turning students away. If you insist on only being available during office hours, make sure that you are courteous and helpful with students who attempt to see you outside of office hours (*e.g.*, set up a specific appointment time with the student). Truly caring about your students and spending extra time with them will go further than almost anything else in helping you to achieve your goal in the classroom—educating students.

3

***Set high, but reasonable, goals for yourself and your students.***

In organizing classes, developing homework assignments, and preparing tests, we should always consider what it is that we want to accomplish. For example, is the purpose of a homework assignment simply to have the student practice what they should already know, or is it designed to stretch the students and teach them something not yet seen? Should an exam simply be a method for evaluating student competence, or can it also be a way of teaching the students? When preparing a syllabus, how much material can realistically be covered?

All of these questions, and many others, are important in developing our goals for students and for ourselves. In most cases it is a good idea to communicate your goals to students. For example, in the case of a homework assignment, if it partially involves areas that aren't covered in the class or in reading, provide that information to the students. Telling

students about your goals and your ideas clarifies what is expected of them. I have found that if students know what to expect, they are often excited by the opportunity to learn something on their own, something that they must work at and accomplish, something they might otherwise complain about! This sense of accomplishment is probably the most important aspect of setting goals—students who feel that they have accomplished something develop self-confidence and a positive attitude about the class and the subject.

4

***Seek input regarding class progress and respond to that input.***

Halfway through my first semester of teaching I was shocked to find out that more than 85% of the students thought that I had been going too quickly in lectures. This fact came as a surprise to me because I had failed to ask for input from the students and was thus unaware of their progress, or lack of it. By the time my end-of-the-semester teaching evaluation came around, it would have been much too late to help the students in that class. It is important, especially for new faculty, to receive as much input as possible regarding class progress. The input should come from the students themselves, from faculty mentors, or from professional evaluators. More importantly, this input should always be responded to. If students provide input and give suggestions, their suggestions should be considered seriously. Addressing their concerns does not necessarily mean giving in to them, but it does mean discussing those concerns and why you will, or will not (or maybe cannot), do something about the situation.

Obtaining input from students can be a delicate issue—many students feel uncomfortable criticizing the person who will be giving them a grade. This problem can be circumvented by taking anonymous written surveys or by appointing class representatives (one representative for each eight to ten students works well) who will meet with you on a monthly or biweekly basis. By appointing class representatives, students can anonymously convey their feelings, good and bad, to the representatives who can then convey them to you.

5

***Actively involve students in each class period.***

It has been well documented that students who participate actively in class learn more. It is thus especially important for us to encourage students to participate. Posing questions that students are required to attempt, forming small groups for two-to-three-minute discussions, having brief student presentations, and giving short simple quizzes are all excel-

lent methods for helping students to learn actively. These types of activities are especially necessary in courses that are longer than fifty minutes and are recommended even for fifty-minute courses. For example, in the first course I taught, which met for an hour and fifteen minutes, I presented solely in a lecture format and found that I often had to repeat information from the last half of the previous class. Since incorporating example problems or discussions in the middle of each lecture, I have found that students not only learn more effectively, but I am also actually able to cover material at a more rapid pace.

In finding what activities work best, one should consider the other suggestions in this list. A great deal of assistance can also be obtained from books on the subject, from articles in educational journals, and from teachers in your own and other departments. Each individual must apply and adapt the methods that work best for him or her.

### 6

#### ***Respect, though necessary, is an earned commodity.***

Few things conflict with student interaction more than an egotistical professor. Do not expect that when you walk into class on the first day, students will automatically have a great deal of admiration or respect for you. Your image will be formed rapidly by what you do and how you treat the students, both inside and outside of the classroom.

For a new instructor, there are few things more important than having the respect of your students and your peers. In the long run, respect is earned through time and interaction, through honesty and dependability, through courteousness and consideration, and through evaluation of the quality of your work.

### 7

#### ***Remember that counseling is part of the job.***

Within the first month of my first class, I encountered two students with emotional problems. I was shocked when both of these students brought their problems to me with the expectation that I could help in some way. Right or wrong, students often look to their teacher for assistance in everything from coursework to finding a job to assistance with emotional or physical problems. In the case of personal problems, I have learned that it is best to refer students to professional counselors. These services are usually available on campus at little or no cost to the student.

In offering advice to students, I have observed that often I subconsciously expect my students to have the same priorities that I do. They don't. When offering advice, it is essen-

tial to find out what the student's priorities are and what they want. For example, I have noted that when selecting a graduate school a student's priorities can range from the quality of the education they will receive to the weather in some particular area. As advisors and counselors, it is not our job to judge whether their priorities are correct or to tell them what they should do. Rather, our job is to provide them with information and to ask them enough questions so that they themselves arrive at the best decision.

### 8

#### ***Be clear in what you expect.***

One problem that I have had at the beginning of almost every semester is creating assignments in which the problem description is clear. In preparing both homework assignments and tests for students, it is imperative that we are testing the students' abilities and knowledge, as opposed to their ability to determine what the question is asking. If possible, have your teaching assistant or mentor read assignments, especially quizzes and exams.

A second area where clarity is important is grading. From the very beginning of the class, make it clear exactly what the grading policies will be and how grading will be done—and do not sway from what you have set forth as your policy. Although changing the grading system or the type and number of exams may make some students happy, others will feel betrayed. If you are worried that something may need to be changed as the class progresses, remember that it is better not to have a policy than to change it in midstream.

### 9

#### ***Be helpful and available for students.***

Although there are times when it will not be possible, interactions with students should typically have a positive tone associated with them. When students ask questions in class, be helpful and don't act as if you are frustrated by their questions. Outside of class, greet your students by name. Always remember that their education and the opportunity to instruct them is the reason you are there. I have found that by being helpful and respecting students, I have not only taught them but in many cases I have also become their friend. In my role as a professor, there is nothing I treasure more than my interactions with the students.

### 10

#### ***Be actively involved in selecting which courses you teach.***

Teaching the courses you feel comfortable with and are excited about is important, especially at the start of a teaching career. In the first or second semester of teaching there is

enough to worry about with respect to *how* to teach—if you also must gain excitement and knowledge about the area, it makes the burden and the time commitment all that much greater.

Because I was not involved in selecting what I taught in my first semester, I ended up teaching a class with which I felt uncomfortable. If it is possible, I would suggest that you have a discussion with the person responsible for teaching assignments *before* your first semester on the job. Discuss the courses you would enjoy and feel qualified to teach, as well as the ones that you would not feel comfortable teaching (at least, not right away). It is also helpful to teach the same course from year to year (up to three times) to lower the time commitment. Teaching the same course several times will allow you to develop a style that is most comfortable and effective for you.

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As I stated earlier, there is nothing I value more from my

first years as a teacher than the interactions I had with students. The joy and satisfaction of watching someone learn and develop is infinitely more than satisfying. Unfortunately, there are also a number of obstacles and failures that occur along the way—but it is always challenging to focus on the accomplishments and to learn from the failures.

## REFERENCES

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3. McKeachie, W.J., *Teaching Tips: A Guidebook for the Beginning College Teacher*, 8th ed., D.C. Heath and Company, Lexington, MA (1986)
4. Kolb, D.A., *Experiential Learning: Experience as the Source of Learning and Development*, Prentice-Hall, Englewood Cliffs, NJ (1984)
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## REVIEW: *Handbook of Hazard Control*

*Continued from page 269*

mation not readily available to academics. For instance, Chapter 13 provides substantial information on floating-roof tanks, including detailed drawings (overall tank design, seal design, etc.) and also gives the basis for estimating emission rates from these units. Similarly, substantial chapters and sections are provided on seals, flanges, valves, rotating equipment, sampling ports, transfer equipment, manual operations, etc. The copious drawings are also very helpful.

The book contains a total of 16 chapters. Chapter 1 provides the standard introduction to industrial hygiene, including dose response, health effects, etc. Chapter 2 is on sources of exposure and describes (in a general sense) the various ways people are exposed to chemicals. Chapter 3 describes quantitative methods for evaluating exposures, including workplace sampling methods and analytical techniques, while Chapter 4 is a substantial chapter on emission regulations, including EPA and OSHA regulations.

Chapter 5 is on emissions measurement and estimation; it discusses continuous leaks from process equipment rather than episodic emissions which occur during an accident. Chapter 6 is an introduction to hazard control and discusses the various alternatives which are available once an exposure has been identified.

Chapters 7 through 10 are on valves, control valves, flanges and connections, and rotating equipment (pumps, compressors), respectively. The 300 pages allotted to these four chapters provide a huge resource of practical detail on emissions from these units, seal and bearing

construction, regulations, etc.

Chapter 11 is on sampling, showing the various methods available to withdraw samples from process equipment and the resulting worker exposure hazards. Chapter 12 discusses drains, sewers, and wastewater emissions control; it presents information on these emission sources which are frequently overlooked since they are often considered utility areas. Certainly, toxic fugitive emissions from these areas can represent a significant source of exposure.

Chapter 13 is on liquid storage and transfer; significant design details on various types of storage tanks and transfer systems, along with emission information, is presented. Chapter 14 is on dust control and describes the various methods used to handle dusts and to reduce exposures.

Chapter 15 is on major process hazards and discusses episodic releases, emergency response and planning, and applicable regulations. Chapter 16 presents a discussion of exposure assessment, providing a number of simple calculational methods to estimate workplace exposures.

This book would certainly be appropriate as a reference for an upper-level chemical engineering class on process safety, for a course on chemical engineering design, or for an environmental course discussing fugitive emissions. No homework problems are provided and only a few calculational procedures are presented using equations with fixed units. The book would also serve as an excellent reference on emissions from process equipment for practicing engineers. □