

Culture Shock: Acclimating as a New Faculty Member

Adrienne R. Minerick¹, Jason M. Keith²

**¹Dave C. Swalm School of Chemical Engineering
Mississippi State University
Mississippi State, MS 39672**

**²Department of Chemical Engineering
Michigan Technological University
Houghton, MI 49931**

Abstract

Nobody said that the first year of teaching engineering and mentoring graduate students at a college or university was going to be easy. With the increasing emphasis placed upon faculty scholarship, today's junior faculty are expected to be excellent teachers and outstanding researchers. However, in most instances, new faculty are working at an unfamiliar institution which has its own "culture" of how things are typically done.

These newcomers do not have firsthand knowledge of the undergraduate and graduate students they will teach in their classes and mentor towards graduate degrees. Entering faculty are usually oblivious to ingrained class conduct practices, coursework dogmas, and grading policies. In some instances, their courses can be outside of their direct area of expertise, which further compromises their ability to establish credibility among the students and faculty. In the research realm, collaborative camaraderie as well as equipment and laboratory conduct policies may be foreign. Just locating simple resources can be challenging. Overall, the new faculty member must acclimate quickly in order to effectively communicate with fellow faculty and administrators on a daily basis.

In this paper, the authors will discuss some of the unexpected experiences encountered at their institutions with regard to teaching and research, then provide suggested courses of action on how to prevail.

Introduction

The common challenge facing almost every new faculty member is to get tenure. A new faculty member is expected to teach at or above their institution's average, do research above their institution's average, and perform some level of service. Although colleges and universities are expected to mentor the new faculty member along the way, there can be many trials and tribulations for the new hire that were not anticipated.

Numerous books and articles have been written to help new faculty adjust to the overwhelming responsibilities of academia¹⁻⁸. A couple teaching resources that the authors suggest reading are "Teaching Engineering" by Wankat and Oreovicz⁹, and "Teaching Tips: A Guidebook for the Beginning College Teacher" by McKeachie¹⁰. Both of these sources offer excellent advice on how to develop a course including syllabi, textbooks, lectures, exams, and grading. Tools for helping students learn are also widely discussed. "The New Professor's Handbook"¹¹ and "The Effective, Efficient Professor"¹² are particularly useful sources for managing time, teaching as well as conducting research, obtaining grants, publishing, reviewing, and presenting results. Additional resources on mentoring and managing a research lab include "Making the Right Moves" and supervising PhD students^{13,14}.

Boice's book, "Advice for New Faculty Members" with its 'everything in moderation' theme is extremely valuable¹⁵. In the introduction, Boice notes that novice professors tend to falter from difficulties managing student incivilities or from managing time improperly to produce sufficient publications. A full chapter is dedicated to discussing classroom incivilities, describing specific strategies to turn behaviors and classroom tension around¹⁵. This book also contains extensive strategies to improve writing and to increase publications¹⁵.

Specific resources for women are also available including the Women in Engineering division of ASEE. Articles and books on everything from peer-mentoring to navigating the gender divide are widely available¹⁶⁻¹⁹. Additionally, NSF has been actively funding workshops such as COACH where women faculty practice skills for negotiating and resolving conflicts²⁰.

However, despite the multitude of resources available, the authors seek to augment this information with frank, practical advice that they overlooked as they started as new professors. In this paper, the authors describe several instances of unexpected challenges, which arose at their institutions, Mississippi State University (MSU, enrollment of 16,500) and Michigan Technological University (MTU, enrollment of 6,500). Although this paper is intended to offer frank advice for young faculty, it may be of interest to department chairs and senior faculty whose familiarity with their institutions may help new faculty adjust to the cultural environment and demands of their new job.

In the Classroom

Unless the new faculty member is teaching freshmen, students often come to class with preconceived notions on class structure, teaching style, and course administration. For a returning instructor, the departmental grapevine will give students a sense of what to expect. Students may also be in fraternities and sororities with access to files of old assignments and exam problems. In addition, within smaller departments, where faculty teaching loads are often higher, there is an increased likelihood of encountering the same students on multiple occasions (for example, as both juniors and seniors).

The authors encountered several challenges during their first year as new faculty. These challenges are highlighted within the context of practical tips for the new professor.

New Professor's Teaching Tip #1: Understand your student's knowledge

Although some students may be smarter than the professor teaching the course, the professor always has more knowledge in the subject matter. Although humbling, it is suggested that the new professor confer with the previous instructor. Frequently, established faculty will be glad to offer advice and even share course materials. Materials to examine closely are lecture notes, homework sets, and exams. The authors also suggest asking the former instructor about the book they used and why. In order for the new professor to smoothly integrate their course into the culture of the department, the authors also suggest gaining familiarity with the entire departmental curriculum. One way to do this is review prerequisite classes with faculty or to read through the last ABET packet submitted.

During this information gathering phase, it may be beneficial to ask what worked and what did not work. For example, after teaching his course for one year, JMK realized that his students had difficulty applying mathematical concepts to course material, particularly on exams. This may have been avoided by finding out more information from other faculty prior to the start of the semester.

To try to alleviate the problem, a handout was prepared for distribution at the beginning of the first class during the second year teaching the course, which summarized how to solve simple but important differential equations that appeared in the class. In addition, an introductory lecture (with a complementary homework set) was prepared to review concepts from previous courses that were of particular importance. Finally, a Concept Quiz was given on the third week. The performance on this quiz was lower than expected. During the following year, additional review material and computer demonstrations were included in a second lecture. When the Concept Quiz was given, the average increased dramatically, giving students confidence in their ability to master the material. As an added bonus, this story was recently told in response to, "How do you assess your own course?" during an interview with an ABET evaluator.

Choosing the best textbook can also be challenging. At MSU, ARM used the same book as the previous instructor for a senior level process control course. However, the students had extensive files that included copies of the textbook homework solutions. This year, ARM ordered a new textbook, which offered an excellent set of problems after each chapter. Homework assignments now include suggested homework problems (which are pulled from the previous book) and a problem to be turned in and graded (which is assigned out of the new textbook). The students have responded positively to this strategy and recognize working the problems is in their best interest. Their motivation has shifted from working the problems to get a good homework grade to working the problems to learn the material. ARM also feels this is far more fair for all students in the class, because everyone has access to the solutions to all problems after the assigned problem is turned in.

New Professor's Teaching Tip #2: Understand your students' routines

In general, people, and students, tend to like routines because they have become comfortable with them. Any professor new to a department brings change, and as a result is likely to experience student resistance to changes in their routine. If the new professor is also young or female, some students may also question credibility - sometimes in such a way that the new professor perceives outright hostility from the students²¹. The authors relate some such experiences and offer advice based on how they handled it at their respective institutions.

During the spring semester of his first year, JMK had the great idea of finishing a chapter in the textbook, and then saying, "This is the end of the material that you are responsible for on the first exam. When are your other exams? If possible, I want to pick a time that does not conflict with other exams." Students did say when their other exams were, but they also said, "Is this exam going to be at night?" Instead of appearing interested in the student's well being, the instructor appeared unprepared, especially when answering with, "What is a night exam? This is an 8 a.m. class!"

The culture at MTU is that students like to have their exams in the evening, scheduled in two hour blocks, because it gives them more time to take the test. The main advantages are that they do not have to worry (as much) about running out of time or being late for their next class. Thus, the students were comfortable with evening exams and wanted the same in the new professor's course.

Unless a particular faculty member experienced this culture before, it would be a foreign concept. An established faculty member could advise the new professor of the preferred culture and give advice such as, "Our students like their exams at night. Carefully plan the days when you would like to have exams, write the dates into the syllabus, and call the University Records office to reserve a room big enough to hold your class."

Since the exam date had not been published in the syllabus, difficulties arose resolving conflicts and locating a room large enough. Thus, in the second year, the instructor thought he could solve the evening exam problem by scheduling in-class examinations instead. This did eliminate most conflicts, but student comments were mostly negative, particularly with respect to having time to take the exam. Finally, the instructor asked for help and discovered the culture at MTU was to make a phone call at the beginning of the semester and reserve exam rooms for the whole semester. In addition, writing the date in bold font on the syllabus allowed students to schedule other events around the exam.

After attending a teaching seminar that discussed the merits of shorter, more frequent exams, ARM decided to incorporate this strategy into the senior level process controls course that she was teaching for the first time. It sounded like an excellent idea because it would avoid the evening exam problems JMK encountered, would give students multiple opportunities to demonstrate mastery of course material, and give them frequent feedback. However, the students were accustomed to the more traditional model of 2 to 3 exams per semester and approached every short exam as a major event. For some students, it was a roller coaster ride of anxiety leading up to the exam and anxiety waiting

for them to be graded. The authors do not recommend this strategy due also to the large time investment in grading.

New Professor's Teaching Tip #3: Understand your student's behavior

The authors' rural institutions (eastern Mississippi and Michigan's upper peninsula) tend to attract first generation college students and nontraditional students as well. Due to poor preparatory school backgrounds, students can be challenged for the first time in college. It is suspected that a combination of both of these factors may contribute to poor behavior and disrespect. Such behaviors have been found to be more prevalent when male students take courses from young, female faculty²¹. Whatever the source, both authors experienced students who actively pushed the boundaries on everything from classroom conduct to cheating.

At MSU, students talked with their peers and developed preconceived notions on what the instructor was like and how the course would be taught. Suppositions turned into rumors, that once repeated, turned into facts in the students' minds. ARM encountered fairly confrontational behavior even on the first day while discussing the syllabus. The students were particularly angry about her policy that analytical calculators would not be allowed on exams. Their resistance arose because many had become so dependent on their mini computers that they could no longer even work a derivative by hand! ARM felt that these skills were essential and would not change the policy. While it was quite rough that first semester, students in subsequent years accepted this and have stepped up to meet the challenge.

Another challenge arose because the senior level students expected the exams to exactly mirror the homework problems. This was a format they were comfortable with in their lower level classes. Over the first semester, ARM learned that students studied for exams by simply looking over their homework problems. As a result of this habit and the widely distributed homework solutions, they were not actively practicing problem-solving strategies. This last semester, she explained the school of thought behind Bloom's Taxonomy²² and repeatedly stressed the need for the students to close all books and practice working problems from scratch. Student feedback has been positive with many commenting on how fair the exams are (despite rumors that the professor's exams were typically unfair). Aside from focusing on communicating the importance of studying to learn and apply skills, the exam content has changed very little.

JMK was faced with a possible cheating episode. When grading exams, he would draw a red line diagonally across the page if a problem was left blank. He was then shown an exam with this red line and a correct solution! Instead of facing a long disciplinary process, JMK decided to not count the problem towards the student's grade. He now photocopies exam solutions where the grade is less than half of the possible points. Cheating happens far more frequently than professors would like to believe²³; it is best to know how to deal with it before it happens.

New Professor's Teaching Tip #4: Attend faculty development seminars

The best advice a new faculty member can receive is to consult other newer faculty and find out their experiences with classroom misconduct. Both MSU and MTU have new faculty development seminars where topics of interest to untenured faculty are discussed. A department chair or established faculty mentor may know of similar programs inside and outside of the institution. These seminars can cover a variety of topics from the classroom to navigating school / departmental policies.

New female (and / or young looking) faculty may wish to consult other female (and / or young) faculty in their college to find out what challenges they faced in the classroom and what strategies successfully dealt with them. ARM strongly suggests becoming familiar with institutional disciplinary options (with respect to disruptions, aggressive or rude behavior, cheating, etc.) before stepping into the classroom. Then, when a situation arises, the new professor will be prepared and can respond in a calm, effective manner. Being caught off guard and handling a situation poorly (or not at all) can undermine credibility in the eyes of the students and possibly colleagues. Based upon the authors' experience, the new professor should **nip everything in the bud** and document any negative experience or odd behavior. Students who behave poorly have done so before and will continue to be allowed to do so if no one documents and addresses their unprofessional behavior!

In the Research Lab

The timetable for tenure and promotion, interim and final reviews are rather short. This is especially true when considering the time it takes to do the following:

- write a research proposal
 - wait for the proposal to be reviewed
 - receive comments on the proposal (if it is from NSF)
 - make corrections and resubmit the proposal the next year (likely)
 - receive the award (sometimes there are significant delays)
- purchase and install equipment
- recruit graduate or undergraduate students for on the project
- perform the actual work that you proposed to do
- write papers
 - wait for review
 - make corrections
 - wait for the paper to be published

From start to finish this process can take over three years! Thus it is vital for a new professor to hit the ground running^{3,15}. It is a good idea to develop a five-year plan and write up a mission statement describing it¹². Prominently post this mission statement and look at it frequently to stay on track and focused. The author's experiences and hurdles associated with starting a research program are discussed below followed by practical advice on overcoming difficulties.

New Professor's Research Tip #1: Understand your institution's laboratories

A good, well-promoted lab helps establish the new professor's professional identity and credentials on campus. Setting up a well functioning lab is not easy. A wonderful resource is available on this topic¹³. In addition, a few tips are outlined below to help the new faculty member get started.

The authors suggest visiting as many laboratories as possible upon arrival on campus. Startup packages may be lean; a new professor cannot afford to purchase every piece of equipment imaginable, so it is useful to learn about additional resources. Inquire about established faculty's policies on sharing equipment; the new professor should be generous about sharing their equipment in return. The authors suggest adding the caveat, "when the equipment is not already in use."

One needs equipment to collect data so the authors suggest placing equipment orders as soon as possible. If possible, order office computers before ever arriving on campus. Vendors are very willing to compete for business and will do demonstrations on site at their own expense. Office staff are likely the best source of information on purchasing policies and procedures such as how many bids are needed to purchase a piece of equipment. The authors suggest seeking demonstrations and obtaining the bids directly. The purchasing department will be simultaneously fielding a large number of requests and may not have first hand knowledge on important features if they are left to seek bids themselves.

If the new professor is conducting research related to chemistry and / or biology, the institution usually requires that the professor meet with a representative from the institution's safety and hazardous waste office. ARM set up a biosafety level 2 laboratory, which took a great deal of time, cooperation, and inspections coordinated through the safety office. It may also be necessary to educate the department about special procedures. This is especially true if collaborators need access to equipment. Finally, it is recommended that the new faculty establish a lab safety contract that students and other faculty must review and sign before gaining access to the laboratory²⁴.

New Professor's Research Tip #2: Understand your institution's research office

Although academic practices at institutions are very similar, they all do business differently with respect to research and sponsored programs. Many institutions sponsor orientation seminars where new faculty can meet the people who help with proposal submissions and administration. It is worthwhile to attend these. Alternatively a department head or established faculty mentor can introduce the new professor to these key individuals. **Foster a friendly relationship with these people!** Many faculty submit their proposals at the last minute. It is advisable to send proposal to them early and thank them after the proposal is successfully submitted.

The department chair, established faculty member, or senior administrative assistant / budget manager in the department should know which forms to fill out to support graduate students with tuition and stipends, approve class schedules, schedule qualifying exams or defenses, obtain cost sharing on research projects, and prepare proposal budgets

for approval. This daunting list of tasks goes on, but developing a good working relationship with key administrative assistants can make this manageable.

For the last several years, MTU has been trying to grow their doctoral program. Because of limited resources, the institution provides a partial tuition waiver for doctoral students but not for master's students. JMK received a grant with a significant amount of cost-sharing. The budget included in the proposal requested funding for a doctoral student but no doctoral students were interested in the project. The work still had to be done so a master's student was recruited. The investigator then had to find a different source of cost sharing, which took a great deal of time, effort, and worry.

Along the same lines, startup packages may have a student support component or accounts may be swept if the funds are not used by a certain date. The new professor should be sure to negotiate flexibility into their startup package so that they are best able to allocate limited resources.

An effective faculty member will need to work closely with department office staff. In many ways, these are the most valuable people in the department! For women (young) faculty especially, it is important to be respectful and friendly, but not vague or passive²³. For instance, the authors suggest saying, "I need this purchase order sent out by Friday. Thank you." instead of "When you get time can you send this purchase order out?" It is important to always thank them for their help.

New Professor's Research Tip #3: Consider interdisciplinary / collaborative research

Funding agencies like NSF are beginning to place added emphasis on multiple investigator proposals. However, junior faculty should be cautious because institutions sometimes unequally assign credit to multiple PI research expenditures and publications. Although it is important to be a team player by working in groups, young faculty need establish an independent identity to prove their value to the institution.

It is important to understand the risks and benefits of collaborative projects. A relationship can appear healthy while the proposal is being written, but once the money arrives difficulties may arise between faculty members. In some cases, faculty that used to collaborate together, now avoid each other. While it is extremely important for the new faculty member to form her or his own opinions, it may be beneficial to weigh the prospective of others before entering into a binding relationship.

ARM developed a close collaboration with another new faculty in a related department. Their research areas were fairly similar and they found that by pooling startup funds, they could obtain more and better equipment. The challenge in this situation was establishing communication, mutual respect, responsibility, lead credit, and budget allocations early with collaborative projects. Once again, it is important to maintain independent projects.

JMK has had multi-department collaborations that have been good and bad. Partway through the project, the collaborating faculty member left the university for another position. Although JMK took over as PI on the project earning credit for research

expenditures and graduating students, it took considerably more effort than was originally planned.

New Professor's Research Tip #4: Manage your students carefully

A successful faculty member needs to put considerable effort into carefully managing undergraduate and graduate researchers¹⁴. While there is no single formula for achieving this, the authors provide some beginning tips to help achieve success. A good reference is available at the Howard Hughes Medical Institute Website¹³.

First and foremost, it is important to clearly communicate expectations and standard operating procedures for graduate and undergraduate researchers. This is a written document that is given to the students, which outlines such things as what the student should expect of the faculty mentor, what the faculty mentor expects of the student including research progress, collegiality, expected working hours, frequency of meetings with the faculty mentor, keeping a laboratory notebook, operating the equipment in the lab, ordering supplies, etc. ARM has a standard operating procedures document available on her website²⁴.

Most importantly, visit the laboratory frequently. Depending on the maturity of the student, they look to the new faculty for motivation and guidance. A busy faculty member can inadvertently convey to their students that their project / progress is unimportant.

One key antagonist to a productive graduate student is anxiety about money. Pay students fair stipends and keep them unconcerned about research finances. If a department head or established mentor publicly commends faculty on research awards, ask them to not reveal the award amount.

New Professor's Research Tip #5: Keep publishing forefront in your goals

At many research institutions, publishing is the key to obtaining tenure. A new faculty member must balance ongoing research with keeping abreast of the literature. ARM uses a weekly Journal Club format where student (graduate and undergraduate) take turns presenting on a new article related to their research project. They are asked to prepare a handout and lead a group discussion on the article. The article and the student's summary of it are logged into a research journal software called Dossier²⁶. Examples and more information is available on ARMs website²⁴.

The authors suggest maintaining a separate notebook with article ideas and an outline of the potential article. Young graduate students can be assigned the task of writing pieces of the article; this strategy is useful with students who are intimidated by writing a full article.

ARM uses this strategy. Beginning students receive a description of their research project then a few months later are asked to write an abstract outlining, 1) What the student will do / has been done? 2) Why is it important? 3) How has / will the student do it? 4) What results were obtained and how will they be presented? 5) What is the

meaning / impact of the result? She then iterates with the student teaching them writing format, progression of ideas, etc. The next small writing assignment is to write up their experimental procedure followed by a literature review.

JMK spent a month during his first summer on the job writing two shorter papers based upon his PhD. By his third year, they were finally published. This small effort helped keep his name “in the journals.”

Performing Service to your Institution and to your Profession

Service is the smallest component of an untenured faculty member’s job description. Typically there are committee assignments within the department, college, and university level. For completeness, the following are tips on how to boost the service component on your resume. Be careful not to let any one of these consume too much time.

New Professor’s Service Tip #1: Carefully select committee assignments

There should be fewer surprises in the service arena although many committees can be quite political (such as search committees and the university senate) or time consuming (such as being ABET coordinator) and should be avoided. If a new faculty member is inadvertently assigned to one of these, the authors suggest approaching the department chair expressing discomfort with the assignment and volunteer for something else.

Female faculty are frequently invited to serve on more committees as a result of efforts to be diverse. One of the best skills a new professor can develop is the ability to politely say no. The department chair will frequently protect new faculty from extraneous service responsibilities until after tenure. Another possible solution is to call back at 8 pm and leave a message saying thank you but that you will not be able to dedicate the time that the committee deserves. The person requesting assistance will likely agree and may even be impressed with the long hours the new professor is working in the office.

JMK found that by asking for a particular committee assignment, the chair was more than willing to give it to him. Coordinating a departmental seminar series is particularly beneficial. JMK used the seminar to invite famous people from his research field. These key researchers became familiar with his work and he was able to ask them to write letters of support for his tenure application. ARM took JMKs advice and also coordinated a department seminar series. The contacts and collaborations gained were invaluable!

New Professor’s Service Tip #2: Get involved in your professional society or ASEE

External service is a good way to distinguish oneself and help establish a network of contacts around the country. The field of engineering can often feel amazingly small and it usually pays to know as many people as possible. The authors have served the American Institute of Chemical Engineers (AIChE, their professional society) and the American Society for Engineering Education as session moderators and reviewers. They have also recently been involved in programming within the New Engineering Educators division.

New Professor's Service Tip #3: Give advice to the new person

All of a new professor's experiences in their first year or two at an institution can be reexamined to offer valuable advice to a new colleague. Reach out to the new addition by inviting them to lunch, answering their questions, and providing professional advice. However, use your discretion in divulging personal politics or issues going on within the department. This good deed may begin a friendship or collaboration and lead to better new faculty development practices. JMK and ARM are friends and were colleagues in graduate school. As such they have shared their experiences as new faculty, and served together within the New Engineering Educators division of ASEE.

Conclusions

This paper has frankly discussed difficulties encountered on the tenure track and touched on strategies the authors used to overcome them. A variety of external resources in teaching, research, and service were also provided. Although a new faculty member is expected to do above average in research, teaching, and service, being a professor is a truly noble career. Remember your mission statement and why you chose this career path; focus your memories on the students you impacted and your enjoyable experiences along the way. Also make sure to schedule time for family, friends, yourself, and to exercise. The key is to remember to find people willing to help you and ask for their advice. Strong mentors can be your most valuable tool.

Bibliography

1. "Survival Kit for New Engineering Educators." *ASEE Prism Magazine*. 30 - 34, October 1994.
2. Kelly, V.M., "Time out for some timely advice." *ASEE Prism Magazine*, 30 - 33, September 1995.
3. Brent, R., and R.M. Felder, "The New Faculty Member." *Chemical Engineering Education*, 32(3), 206-207, 1998.
4. Felder, R.M., and R. Brent, "Faculty Guide to Time Management," Personal Handout, 2001.
5. Felder, R.M. and R. Brent, "Random Thoughts - Getting Started." *Chemical Engineering Education*, 29(3), 166-167, 1995.
6. Felder, R.M., "Random Thoughts - Things I Wish They Had Told Me." *Chemical Engineering Education*, 28(2), 108-109, 1994.
7. Altiera, N.J., "The Tenure-Track Years." *ASEE Prism Magazine*, 42, September 2000.
8. Schwartz, A.T., R.D. Archer, A.K. El-Ashmawy, D.K. Lavalley, and R. Eikley. "And Gladly Teach: A Resource Book for Chemists Considering Academic Careers." American Chemical Society, 2004.
9. Wankat, P.C., and F.S. Oreovicz, "Teaching Engineering." McGraw Hill, Inc. New York, 1993.
10. McKeachie, W.J., "Teaching Tips: A Guidebook for the Beginning College Teacher." Eighth Edition, D.C. Heath and Company, Lexington, MA, (ISBN: 0-669-06752-0), 1986.
11. Davidson, C.I., and S.A. Ambrose, "The New Professor's Handbook: A Guide to Teaching and Research in Engineering and Science." Ankora Publishing Company, Inc., Bolton, MA, (ISBN: 1-882982-01-0), 1994.
12. Wankat, P.C., "The Effective, Efficient Professor: Teaching, Scholarship, and Service." Allyn & Bacon, (ISBN: 0205337112), 2002.
13. Making The Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty, Burroughs Wellcome Fund and Howard Hughes Medical Institute, <http://www.hhmi.org/grants/pdf/labmgmt/book.pdf>, accessed January 2005.

14. Linden, J., "The Contribution of Narrative to the Process of Supervising PhD Students." *Studies in Higher Education*, 24(3), 351-369, 1999.
15. Boice, R., "Advice for New Faculty Members: Nihil Nimus." Allyn and Bacon, Boston, (ISBN: 0-205-28159-1), 2000.
16. Chesler, N.C., P.B. Single, and B. Mikic, "On Belay: Peer-Mentoring and Adventure Education for Women Faculty in Engineering." *Journal of Engineering Education*, 92(3), 257-262, 2003.
17. Glazer-Raymo, J., "Shattering the Myths: Women in Academe." The Johns Hopkins University Press, Baltimore, (ISBN: 0-8018-6641-3), 1999.
18. Babcock, L., and S. Laschever, "Women Don't Ask: Negotiation and the Gender Divide." Princeton University Press, Princeton, (ISBN: 0-691-08940-X), 2003.
19. McIlwee, J.S., and J.G. Robinson, "Women in Engineering: Gender, Power, and Workplace Culture." State University of New York Press, (ISBN: 0-7914-0870-1), 1992.
20. Committee on the Advancement of Women Chemists, available at <http://coach.uoregon.edu/>, accessed 27 Feb. 2005.
21. Rose, S. and Larwood, L., "Women's Careers: Pathways and Pitfalls." Praeger, New York, (ISBN: 0275927245), 1988.
22. Anderson, L.W., Krathwohl, D.R., and Bloom, B.S., "A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives, Complete." Longman Pub Group, (ISBN: 0321084055), 2000.
23. Chapman, K.J., R. Davic, D.Toy, and L.Wright, "Academic Integrity in the business school environment; I'll get by with a little help from my friends." *Journal of Marketing Education*, 26(3), 236-249.
24. Minerick, A.R., Director of the Medical micro-Device Engineering Research Laboratory at Mississippi State University, available at <http://www.che.msstate.edu/research/MDERL/>, accessed 28 Feb 2005.
25. Fountain, A.B., "Genderlect: Are we speaking two different languages?", Women In Science and Engineering (WISE) at Mississippi State University Faculty Session, Oct. 2004.
26. Vortimac Software, Informational Management Software Program called Dossier, available at <http://www.vortimac.com/>, accessed 28 Feb. 2005.

ADRIENNE R. MINERICK

Adrienne Minerick is an Assistant Professor of Chemical Engineering at Mississippi State University. She received her PhD from the University of Notre Dame in August 2003. Adrienne teaches the required graduate ChE math, process controls, and helps with the Introduction to Chemical Engineering class. Adrienne's research is in medical microdevice diagnostics and dielectrophoresis. She is active in ASEE.

JASON M. KEITH

Jason Keith is an Assistant Professor of Chemical Engineering at Michigan Technological University. He received his PhD from the University of Notre Dame in August 2000. Jason teaches a new elective design project in alternative fuels and fuel cells and the required graduate reaction engineering course. Jason's research is in the thermal stability of chemical reactors and engineering education. He is active in ASEE.