

**PREPARING NEW FACULTY MEMBERS
TO BE SUCCESSFUL: A NO-BRAINER
AND YET A RADICAL CONCEPT***

Rebecca Brent
Education Designs, Inc., Cary, NC

Richard M. Felder
North Carolina State University

Sarah A. Rajala
North Carolina State University

Abstract

A multifaceted program at North Carolina State University involving workshops and mentorships helps prepare new faculty members and graduate students for successful academic careers. This paper describes the elements of the program, reviews assessment data for each element, and offers recommendations to engineering schools wishing to establish their own programs for new and future faculty members.

I. Introduction

The default preparation for a faculty career is none at all. Graduate students may get some training on tutoring, grading papers, the importance of laboratory safety, and the undesirability of sexual harassment, and new faculty members may hear about their benefit options, the importance of laboratory safety, and the undesirability of sexual harassment, but that's about it for academic career preparation at most universities.

This is an unhealthy state of affairs. Being a college professor requires doing a number of things that graduate school does not teach you to do, including designing and starting up a research program and getting it funded, attracting and managing graduate students, finding and working with appropriate faculty or industrial collaborators, planning courses and delivering them effectively, writing assignments and tests that are both rigorous and fair, dealing with classroom management problems and cheating and students with a bewildering assortment of academic and personal problems, doing what it takes to learn about and integrate into the campus culture, and finding the time to do all that and still have a life.

Figuring out how to do all these things is not trivial. Robert Boice studied the career development of new faculty members and found that most of them take between four and five years to bring their research productivity and teaching effectiveness to a level that meets or exceeds the standards of their institutions.¹ Boice also observed, however, that roughly 5% of his subjects managed to meet or exceed expectations for both research and teaching within their first two years. These *quick starters* did several things differently from their colleagues, including scheduling regular time for working on scholarly writing and sticking with the schedule, integrating their research into their lectures, trying to cover less content in their courses and leaving more time for student questions and interactions, and limiting course preparation time after

* *Proceedings, 2006 ASEE Conference, Washington, DC: ASEE, 2006.*

the first offering to less than two hours of prep for each hour of lecture. The quick starters also networked with colleagues at least four hours a week, forming connections that helped them with both teaching and research and eased their transition into the local faculty culture.

Universities invest hundreds of thousands of dollars in each new faculty member they hire. A 4–5 year learning curve is long and costly, and the costs continue to mount for those faculty members who never manage to master the different parts of the job. Moreover, faculty members whose careers get off to a slow start are more likely than quick starters to be disillusioned and less productive at mid-career.¹ Most universities have campus-wide orientation workshops that focus on employee benefits and campus facilities, which are good things for new faculty members to know about but the knowledge won't help them in their quest for tenure and promotion. Many universities also have instructional development programs, but they are usually designed and facilitated by individuals with backgrounds outside of engineering and science who have very little credibility with engineering faculty members. Typically, few engineering faculty members participate in those programs, and those who do participate tend to be dismissive of the ideas being presented. The bottom line is that most engineering faculty members receive little or no guidance in the strategies that Boice's quick starters use, and a 4–5 year learning curve and mid-career disillusionment are the consequences for many of them.

As early as 1986, the College of Engineering at North Carolina State University recognized the desirability of providing some engineering-specific guidance to its faculty members and presented the first of a series of workshops that has continued almost without interruption for 20 years. The initial offering was a three-day effective teaching workshop offered to all faculty members. Over the years, the range of offerings expanded to include shorter teaching workshops on specific topics, including active and cooperative learning, designing and teaching courses to address the ABET Engineering Criteria, peer review of teaching, mentoring and supporting new faculty members, and a new faculty orientation workshop that addresses teaching, research, and integrating into the faculty culture. In addition, programs were initiated to train graduate teaching assistants and to provide guidance to graduate students contemplating academic careers. This paper outlines the features of the programs currently offered, summarizes assessment results, and offers recommendations.

II. New Faculty Orientation Workshop

Since 2000, the North Carolina State University College of Engineering has presented a four-day orientation workshop for new faculty members during the two weeks before the start of the fall semester. (An early version of the workshop was described by Brent *et al.*²) The workshop goal is to help the participants become quick starters,¹ meeting or exceeding the College's expectations for research productivity and teaching effectiveness in their first 1–2 years instead of the usual 4–5. The initial presentation was to new faculty in the College of Engineering, and subsequent presentations have been to the combined new faculties in the Colleges of Engineering and of Physical and Mathematical Sciences. One of the authors (RB) has coordinated the workshop since its inception, and presenters have included some of the leading teachers and researchers in both colleges. The workshop content is summarized in Table 1.

The participants complete evaluation forms at the conclusion of the workshop. In the six times the workshop has been given, engineering participants have given it 99 ratings of

“excellent,” 12 ratings of “good,” and no ratings of “average,” “fair” or “poor.” While they have offered a variety of suggestions for improvement over the years (many of which have been adopted), they have not consistently complained about any individual aspect of the workshop.

The participants’ open responses comment favorably on the following workshop features:

- **Mini-clinics.** Many workshop topics are introduced by calling on participants to react to scenarios of common occurrences in the life of a faculty member. They critique a flawed research proposal; contrast two research project descriptions written by faculty members to recruit new graduate students; discuss a role-played interaction between a faculty member and an NSF program director; and brainstorm responses to crisis scenarios involving classroom management problems (e.g., cheating and disruptive behavior in class), other student-related crises (e.g., a student in serious emotional distress during office hours), and problems involving research project management (e.g., a graduate student who has not produced results for months or the unexpected disappearance of funding in the middle of a project).
- **Bidisciplinary proposal exercise.** Participants are randomly paired across disciplines, and the pairs are given roughly an hour and a half (including a working lunch) to generate the skeleton of a joint proposal that involves the expertise of each member. It generally takes about 30 minutes for the pairs to formulate their ideas, and then most take off. Their reporting out of what they came up with is arguably the most exciting part of the workshop. Many of their ideas are clearly fundable (at least one was actually carried through to get a grant after the workshop), and when the participants see how easy it is to formulate viable topics for cross-disciplinary collaboration in fields that appear to have little in common, they become more receptive to the idea of undertaking collaborations in more conventional circumstances. This exercise has been described in detail by Ollis.³
- **Practicality.** Practicality is the most commonly cited feature of the workshop in participants’ responses to the open-ended question “What did you like about the workshop?” Research supporting workshop recommendations is cited extensively in the notebook and summarized in the presentation, but a minimal amount of time is spent on educational theories. Instead, the focus is maintained on things the participants can start doing immediately.
- **Relevance to engineering.** Research projects and proposals, illustrative examples of teaching methods, and video clips of active learning presented in the workshop all pertain to engineering and science. The participants are much more likely to seriously consider suggestions made in this context than they tend to be in workshops given by educators or psychologists to general faculty audiences.
- **Relevance to the local culture.** The participants learn about what they need to do to earn promotion and tenure at N.C. State, with the message coming from the most credible experts on the topic—N.C. State engineering and science administrators, support staff, and successful faculty members. Most participants leave the workshop with a strong sense that their administrators and colleagues are firmly committed to their success. They know where to go when they need help, and they feel comfortable asking for it.
- **Active learning.** While some of the workshop material is delivered in conventional lecture style, most is presented in an active format. The participants, working sometimes individually and sometimes in small groups, engage in frequent problem solving, critiquing, and brainstorming activities and periodically work on their own courses and proposals. Active

learning is strongly recommended in the teaching section of the workshop, and many participants often remark that they appreciate the presenters practicing what they preach.

- **Follow-up Sessions.** Several times a year, one-hour follow-up sessions are held on specific topics to try to reinforce lessons taught during the workshop, and equally importantly, to help maintain the sense of collegueship and community that develops among the workshop participants during their four days together. The sessions are open to participants in the orientation workshops held in the preceding three years. Topics that have been addressed include troubleshooting teaching, working with student project teams, dealing with funding agencies, and the most popular one, writing effective NSF CAREER grant proposals. The average attendance is between ten and twenty.

One of the principal reasons for initiating the workshop was new faculty dissatisfaction with the orientation they received following their arrival at N.C. State. To assess the impact of the workshop in this regard, surveys of attendees and non-attendees were conducted for three consecutive years in the spring following their arrival on campus. When asked to rate their overall orientation to the college, 32 workshop attendees gave it an average rating of 4.6/5 and nine non-attendees rated it 3.4/5, indicating that the workshop was having the desired effect.

A critical element of the success of the orientation workshop is getting most new faculty to attend it. The workshop is prominently mentioned as an inducement when prospective new faculty members are being interviewed. Several years ago one of them who was offered and accepted a position indicated that the workshop was a principal factor in helping him decide which offer to take. Providing attendees with two weeks of summer salary from their starting packages has also undoubtedly contributed to the excellent attendance the workshop has enjoyed since its inception.

III. Mentoring Workshop

While the orientation workshop can play a major role in helping new faculty members to get their careers off to a good start, the support they subsequently get from their department head and departmental colleagues can be crucial to their eventual success. Both research^{1,4} and common sense suggest that appropriate mentoring and support can cut years off the professorial learning curve.

Department heads and senior faculty members usually believe that they provide appropriate levels of mentoring and support to their new faculty members, but the new faculty members often do not share this perception, and many of them feel isolated and unsupported in their critical first years. Even when informal mentoring occurs spontaneously, it may not be particularly effective: mentoring is a complex activity that requires a variety of skills to do well, and when poorly done it may do more harm than good. Moreover, spontaneous mentorships often leave out the new faculty members who are most in need of mentoring—those who belong to underrepresented minorities or are extremely introverted.⁴

Beginning in 1999, two of the authors (RB and RF) have offered a workshop at N.C. State and other campuses on mentoring and supporting new faculty. The workshop is designed for department heads and senior faculty, and has as its goals equipping both groups to provide effective support to their new faculty colleagues and inducing the heads to establish formal

mentorships in their departments for all new faculty that want them. It addresses the following questions:

1. What are the attributes that distinguish most new faculty members from Boice's quick starters,¹ who develop strong teaching and research records relatively early in their careers?
2. What can department heads do to help their new faculty members become quick starters?
3. What constitutes good mentoring? What pitfalls should be avoided? What mentoring program structures and interventions have been found effective at helping new faculty members become better teachers and researchers?
4. How should senior faculty mentors be prepared and supported?

An outline of the workshop content is shown in Table 2.

The workshop has enjoyed a strong positive response from those who have participated in it. In their responses to 14 offerings of the workshop at 11 different institutions, participants have given the workshop 176 ratings of "excellent," 74 ratings of "good," 5 ratings of "average," one rating of "fair" and no ratings of "poor." At N.C. State, the first offering of the workshop led to the institution of formal mentoring programs in several of the departments and various other new faculty support measures in all departments, as well as the establishment of the four-day orientation workshop described in Section II. The idea for that workshop was proposed by one of the department heads at the conclusion of the mentoring workshop, supported by the other heads, and accepted by the Dean, who agreed to allow new faculty participants to take two weeks salary from their startup packages.

The mentoring workshop has had a clear effect on the perceptions of new faculty at N.C. State regarding the mentoring they have received from senior colleagues. In a survey of 13 new engineering faculty members conducted in 1999, before the first mentoring workshop was offered, only one reported having received any formal mentoring, another three reported some informal mentoring, and all of the remaining nine stated that they would have appreciated being mentored. In contrast, 91% of new faculty respondents to surveys conducted after 2000 reported that they had been mentored in their first year.

Many of the same attributes that make the orientation workshop effective do the same for the mentoring workshop. Most notably, the workshop is clearly engineering-relevant: when we present data on conflicting senior faculty and new faculty perceptions regarding the incidence of mentoring, the data pertain to engineering faculty. Most senior faculty participants recognize that they would have made the same positive statements about mentoring that the senior faculty in our study made, and they are prepared to believe that their junior faculty colleagues could very well contradict them the way the junior faculty in the study contradicted their senior colleagues. The workshop is also highly interactive. Before we gave it for the first time, we were nervous about how department heads and senior faculty would feel about being asked to answer questions and generate ideas in small groups. We need not have worried, however: in their post-workshop listings of things they liked, the participants mentioned the interactivity more than any other feature of the workshop. We have had the same response in all of our subsequent offerings.

Establishing a successful mentoring and support program in a department requires the active involvement of the department head. Department heads are very busy people, however, who are likely to believe that their new faculty members are receiving adequate support and so there is no need to spend a half day in a workshop on how to support them. The biggest challenge associated with the mentoring workshop is consequently getting the heads to attend.

At N.C. State and other institutions that have hosted the mentoring workshop, we have found two steps essential to getting the desired administrative attendance. The most important step is to get the Dean to commit to (1) support the workshop, (2) participate in it him/herself, (3) personally invite the department heads, strongly encourage their attendance, and request that they in turn invite one or two potential mentors in their departments to attend as well, and (4) express an expectation that the department heads will establish support provisions for their new faculty and document those provisions in their annual reports. When we are invited to present this workshop on other campuses, we caution our hosts that unless they can get this commitment from the Dean, there is a good chance that they will be wasting our time and their money. The Dean generally makes the commitment, the department heads attend at his invitation, and new faculty mentoring and support programs are subsequently initiated. Sometimes, however, the Dean provides the financial support but does not get personally involved, perhaps delegating the responsibility to an associate dean or a faculty development coordinator. On those occasions the senior faculty members and the one or two department heads who attend may have an instructional and enjoyable experience, but not much happens afterwards.

The other important step in promoting the workshop is to make it clear that the goal is not just to help the new faculty members to become good teachers (a function with limited appeal to some engineering administrators), but also to help them become productive in research and to learn to strike a good balance between the competing time demands of the two functions. An effective selling point with administrators is to mention Boice's observation that many new faculty members seriously overprepare for classes and consequently don't have enough time for writing proposals and papers.¹ Once the administrators are assured that the objective is not to get the new faculty to spend more time on teaching and less on research but in fact to encourage the opposite, they tend to be much more supportive.

IV. Graduate Teaching Assistant Training

All academic programs of the 16-campus University of North Carolina system that use graduate teaching assistants are required to provide them with some preliminary training. For many years, new TAs in the N.C. State College of Engineering participated in a day-long campus-wide workshop. Many of them complained that the workshop was too general to be of much value—their perception (which was partially but not entirely correct) was that the things they needed to know to be TAs in engineering were different from what TAs in humanities and social science and business and management courses needed. The college administration found merit in this viewpoint and in 2001 initiated a series of workshops for all of its new teaching assistants on different aspects of their responsibilities. All new TAs are now required to attend an introductory 3-hour workshop called “Survival Skills for Engineering Teaching Assistants,” a 1-hour session on sexual harassment, and at least one of three 1.5-hour workshops on (a) grading homework and tests, (b) assisting in laboratory courses, and (c) learning and teaching styles (intended primarily for TAs who will be covering lecture classes and recitation sections). Students are required to

attend the one that best matches their TA responsibilities, and they are invited to attend any of the others they wish to take. The workshop contents are outlined in Table 3.

In 2005, two assessments were carried out. The first one was done at the end of each workshop, and the second at the end of the semester when the students could assess how useful the workshops were in preparing them for their TA duties. Both sets of data—put on a common basis of 5 points for the top rating, 3 points for a neutral rating, and 1 point for the lowest rating—are shown in Table 4. All of the workshops received average post-workshop ratings between 4 and 5 except the mandatory session on unlawful harassment, and the rating of 3.9 for that one—which many of the graduate students resented having to attend—is a tribute to the skill of the presenter. The post-semester ratings are gratifyingly consistent with those collected immediately after the workshops, and indicate that most students not only appreciated the workshops when they took them but found them to have been good preparation for what they ended up doing as teaching assistants.

V. Introduction to Faculty Careers for Graduate Students

The College of Engineering administration believes that besides training graduate students to be teaching assistants, it should provide some guidance to those contemplating academic careers, both to improve their chances of getting a faculty position and to shorten the learning curve for them once they get one. To this end, in 2005 the College began offering a half-day session called “Introduction to Faculty Careers,” which includes material on applying for faculty positions, getting a research program started, and effective teaching. The workshop content is outlined in Table 5. The participants gave the workshop 27 ratings of “excellent,” 9 ratings of “good,” one rating of “average” and no ratings of “fair” or “poor.”

VI. Integration with Campus -Wide Programs

We believe strongly that the most effective faculty development is done at the college and not the university level, whether the college is humanities and social sciences, business and management, physical and mathematical sciences, or engineering. Different disciplines have different theoretical frameworks, pedagogical traditions, problem-solving approaches, and assessment methods (among many other differences). Faculty development designed to meet the needs of all disciplines simultaneously is unlikely to meet the needs of any of them, both because of failure to address discipline-specific problems and because faculty members are likely to dismiss and possibly resent someone from an unrelated discipline trying to tell them how to teach or do research. We believe that the science/technology emphasis in the programs we have described is a significant factor in their success.

At the same time, there are some things that *can* be done efficiently and effectively at the university level, such as discussions of institutional policies, employee benefits, campus resources (including the teaching and learning center if there is one), and anything the university administrators wish to do to make their newest faculty members feel welcome. At N.C. State, campus-level programs that the College of Engineering endorses and promotes include the following:

- *A 1-day new faculty orientation workshop.* The university program actually goes for three days, but engineering faculty only participate in the day devoted to campus-wide issues and not on the days devoted to teaching and research. They also participate in the Chancellor's reception at the end of that day.
- *The NCSU Faculty Center for Teaching and Learning.* The Center Director addresses the New Faculty Orientation Workshop every year to make the participants aware of the Center's programs and resources, and the workshop director strongly encourages them to take advantage of what the Center has to offer.
- *The "Preparing the Professoriate" program.* Graduate students pair with faculty mentors for a year, usually co-teaching with them and occasionally engaging in joint educational research projects. The mentees also attend a series of seminars on education-related topics.

VII. Summary and Recommendations

A multifaceted program designed to promote the success of new and future engineering faculty members has been implemented by the North Carolina State University College of Engineering. Its components are a 4-day orientation workshop for new faculty covering research, teaching, and integrating into the academic culture; several follow-up seminars during the academic year; a workshop for administrators and senior faculty on mentoring and supporting new faculty which, among other things, promotes the establishment of formal research and teaching mentorships; a series of training workshops for graduate teaching assistants; and an introduction to faculty careers for graduate students contemplating them. The programs have all been extremely well received by the participants, both immediately following them and some time afterwards when the participants have had a chance to evaluate the impact of the programs on their work as faculty members or teaching assistants. The faculty members who have come to N.C. State in the past five years almost unanimously indicate that they have felt welcomed and supported by the university and college and their departments, in sharp contrast to the sentiments of their predecessors before the new program was established.

Based on our experience with the N.C. State program, we offer the following suggestions to engineering schools contemplating programs designed to support new and future faculty members:

- *Keep most of the program within engineering.* Designate someone in engineering to coordinate the program and have engineering faculty members take primary responsibility for designing and facilitating the program components. Use engineering examples whenever possible to illustrate methods recommended in workshops and seminars.
- *Get administrative buy-in.* If the Dean is enthusiastic about the program, commits enough funds to support the program staff and workshop presenters, and enlists the support of the department heads, the program is likely to last beyond its first year. If the department heads encourage new faculty to participate in the orientation workshop and encourage senior faculty to mentor the new faculty and reward them for doing it well, the new faculty members will have an excellent chance of becoming quick starters, earning promotion and tenure, and being satisfied in mid-career. If the department heads and graduate administrators strongly encourage their graduate students to attend programs designed for them, the students will have an

excellent chance of becoming effective teaching assistants and a good start toward finding and succeeding in faculty positions if they choose that career path.

- *Do whatever it takes to get potential workshop participants to attend.* Announce workshops well in advance of their presentation dates. Design announcements that make the workshops sound useful and exciting. Get the Dean and Department Heads to send their own invitations strongly encouraging attendance. Consider providing financial incentives to participate—even token incentives can have a dramatic effect on attendance, and they help convey the message that the school is committed to helping its new faculty and graduate students succeed. Send reminders shortly before each offering.
- *Select good teachers as workshop facilitators, and make sure principles of effective teaching are used in workshop delivery.* Try to model and provide practice in as many as possible of the techniques and strategies recommended in the teaching workshops. Incorporate numerous activities—hour-long PowerPoint shows are no more effective in workshops than they are in classes.
- *Keep presentations practical.* Engineering faculty and teaching assistants are not nearly as interested in hearing about educational theories as they are in getting ideas about what they should do next Monday. Provide enough theory and educational research data to establish solid backing for the ideas being presented, and cite references for those who wish to know more.
- *Involve different faculty members as workshop presenters and panelists to increase awareness about the program.* Many senior faculty have become vigorous supporters of the new faculty orientation workshop after participating in it on a research or faculty success panel.
- *Establish and coordinate formal mentoring arrangements for all new faculty members who want them.* Choose mentors carefully: different individuals may be appropriate for research and teaching mentoring, and some senior faculty members should be forbidden by law from ever mentoring anyone on anything. Provide mentors with some training. Recognize that good mentoring can be quite time-consuming, and either release mentors from other service responsibilities or find some other way to reward them. Keep track of how the mentoring is going and make sure that it *is* going—most mentorships that fail do so because the mentor and mentee simply stop meeting.
- *Coordinate activities with campus-wide programs for new faculty and graduate students.* Campus-wide teaching centers are frequently sources of pedagogical expertise that complements the disciplinary expertise of engineering faculty members. Teaching center personnel may participate as co-presenters or co-facilitators in engineering faculty development programs and they can provide individual consulting to faculty members when appropriate. Keep the faculty informed about opportunities available to them through the teaching center and other campus-wide programs.
- *Make sure that all untenured faculty members are getting regular feedback on their progress toward reappointment, tenure, and promotion.* The feedback may be provided by a mentor and/or the department head or a designated representative.
- *Collect data on the program elements.* Collect participant ratings at the end of each offering, and periodically survey past participants on the effects of the offerings on their performance, confidence, and career satisfaction. Include the results in program summaries and ABET self-study reports. When financial times are lean or administrators change, programs that are

directly tied to accreditation are likely to survive, and few things testify to an engineering school's commitment to continuous teaching improvement as much as a strong faculty development program does.

- *Cultivate continued administrative support by reporting to the dean and department heads annually.* Get on the agenda of an Executive Committee meeting every year and report on the status of the faculty development program elements. Doing so introduces new administrators to the program, helps keep the program fresh in the minds of all administrators, and gives them an opportunity to ask questions and offer suggestions for program additions or modifications.

References

1. R. Boice, *Advice for New Faculty Members*, Needham Heights, MA: Allyn & Bacon, 2000.
2. R. Brent, R.M. Felder, S.A. Rajala, J.G. Gilligan, and G. Lee, "New Faculty 101: An Orientation to the Profession," *2001 Frontiers in Education Conference Proceedings*, Reno, NV, October 2001.
3. D.F. Ollis, R.M. Felder, and R. Brent, "Introducing New Faculty to Multidisciplinary Research Collaboration," *2002 ASEE Annual Conference Proceedings*, ASEE, June 2002.
4. R.E. Rice, M.D. Sorcinelli, and A. Austin, *Heeding New Voices: Academic Careers for a New Generation*, Washington, DC: American Association for Higher Education, 2000.

Table 1. New Faculty Orientation Workshop

Day 1. Introduction. Effective Teaching-I	
• Welcome, introductions, and workshop overview.	0.5 hr
• Problems of new faculty members, “quick starters,” preview of success strategies.	0.5 hr
• Learning & teaching styles. Finding balance in teaching.	2.5 hr
• How to plan a course, write learning objectives, motivate students to learn, and get things off to a good start. Introduction to outcomes-based education and ABET.	1.0 hr
• Assessing learning.	1.5 hr
• Classroom management.	0.5 hr
Day 2. Effective Teaching-II	
• How to make lecturing effective	0.5 hr
• How to get students actively involved, even if there are 150 of them in the class (active learning). Introduction to cooperative (team-based) learning.	1.0 hr
• Technology-assisted course delivery: Tips and campus resources.	0.5 hr
• The NCSU Faculty Center for Teaching and Learning—programs, resources, and services.	0.5 hr
• Effective undergraduate advising: Scenarios (students with academic problems, disabilities, and emotional problems; cheating), responses, and campus resources.	2.0 hr
• Course planning exercise.	1.5 hr
Day 3. Research-I	
• How to start a research project: Defining a topic, finding collaborators, and identifying potential funding sources. Critique of mock visit to a funding agency program director.	1.0 hr
• How to write a successful proposal, get feedback, and complete the submission process.	1.0 hr
• Mock proposal review panel.	1.0 hr
• Pros and cons of multidisciplinary research. Bidisciplinary proposal exercise.	1.5 hr
• Survey of campus resources for supporting research. Introductions to support staff.	0.5 hr
• Panel on building a successful research program (research administrators, successful experienced and young researchers).	1.0 hr
Day 4. Research-II and Review of Success Strategies	
• How to recruit graduate students. Critique of mock recruiting session.	0.5 hr
• How to direct research, manage funds, collaborate with faculty colleagues and graduate students, and plan follow-up research.	1.5 hr
• Crisis Clinic: What to do when the equipment breaks down, the experiments fail, the graduate students disappoint, and the funding runs out.	1.0 hr
• Wrapping up a project. Writing final reports, writing papers, maximizing chances of acceptance, and responding to conditional acceptance and rejection.	1.0 hr
• Time management. Balancing the demands of teaching, research, service, and personal life. Reprise of Boice’s strategies for becoming a quick starter.	1.0 hr
• Panel on succeeding in academic careers—networking, incentives and rewards, tenure and promotion (Deans, Associate Deans, and several Department Heads).	1.0 hr
• Celebratory reception.	

Table 2. Mentoring Workshop

<ul style="list-style-type: none"> • Welcome, introductions, and overview of support measures for new faculty (workshops, administrative support, collegial communities, mentorships) 	0.5 hr
<ul style="list-style-type: none"> • Stresses on new faculty members. <i>The New Faculty Member</i> (Boice) and attributes of quick starters. Conflicting perceptions of senior faculty and new faculty about the existence and extent of mentoring. 	0.5 hr
<ul style="list-style-type: none"> • How can department heads support new faculty? 	0.5 hr
<ul style="list-style-type: none"> • Mentorship models (one-mentor and two-mentor models; formal and informal mentorships). Determining who should and should not be a mentor. Research-proven benefits of mentorships. Tips on making mentorships effective and pitfalls to avoid. 	1.0 hr
<ul style="list-style-type: none"> • When research mentors and teaching mentors should and should not intervene, and how to intervene effectively. Helping mentees understand and integrate into the cultures of their institution and department. 	1.0 hr
<ul style="list-style-type: none"> • Training and supporting mentors. 	0.5 hr

Table 3. TA Training Workshops

Required Sessions	
1. Survival Skills for Graduate Teaching Assistants <ul style="list-style-type: none"> • Introduction to active learning. • <u>Crisis clinic</u>. With little or no guidance, TA is called on to (a) grade homework in an unfamiliar subject, (b) grade a pop quiz with no solution key, (c) cover a lecture at short notice with no lecture notes provided. • Tips on tutoring. • <u>Crisis clinic</u>: Students bring academic, career, and personal problems to office hours. • Introduction to campus resources for advising and counseling. • <u>Crisis clinic</u>: Problems with grading, cheating, classroom management when guest-lecturing. 	3.5 hr
2. Unlawful Harassment	1.0 hr
Elective Sessions (Students must attend at least one)	
3a. Effective grading practices	1.5 hr
3b. Working with students in laboratories	1.5 hr
3c. Learning styles and teaching styles	1.5 hr

Table 4. Immediate and Post-Semester Ratings of 2005 TA Training Workshops

Workshop	Post-workshop rating[†] (N)	Post-semester Rating[‡] (N)
Survival skills	4.3 (111)	4.1 (86)
Harassment	3.9 (117)	3.2 (86)
Grading	4.4 (61)	4.2 (53)
Laboratories	4.3 (26)	3.9 (23)
Learning/teaching styles	4.6 (33)	4.2 (38)

[†] Average rating of the workshop on a scale from 1(poor) to 5 (excellent)

[‡] Average agreement with the statement “The session helped me perform my role as a TA,” with 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree

Table 5. Outline of Faculty Career Preparation Workshop

• Problems of new faculty members, “quick starters,” preview of success strategies.	0.5 hr
• “Selling your research”—in job interviews, to get grants, to attract graduate students, and to publish papers. Survey of research funding sources.	1.0 hr
• Preparing to teach: Sources of information and experience. Developing a strong teaching portfolio and using it in job applications.	0.5 hr
• Active learning and other easy but effective teaching methods.	1.5 hr
• Open discussion	0.5 hr

REBECCA BRENT, Ed.D. (*rbrent@mindspring.com*) is President of Education Designs, Inc., a consulting firm in Cary, North Carolina. Her interests include faculty development in the sciences and engineering, support programs for new faculty members, preparation of alternative licensure teachers, and applications of technology in the K-12 classroom. She was formerly an associate professor of education at East Carolina University. She is co-director of the ASEE National Effective Teaching Institute.

RICHARD M. FELDER, Ph.D. (*rmfelder@mindspring.com*, <www.ncsu.edu/felder-public>) is Hoechst Celanese Professor Emeritus of Chemical Engineering at North Carolina State University. He is co-author of *Elementary Principles of Chemical Processes* (Wiley, 2000), author or co-author of over 200 papers on engineering education and chemical process engineering, a Fellow Member of the ASEE, and co-director of the ASEE National Effective Teaching Institute.

SARAH A. RAJALA, Ph.D. (*sarah_rajala@ncsu.edu*) is Associate Dean for Research and Graduate Programs and Professor of Electrical and Computer Engineering of the N.C. State University College of Engineering. Her research interests include engineering education, the analysis and processing of images and image sequences. She is ASEE PIC IV Chair and Past Chair of the ASEE Women in Engineering Division.