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Select sections from the "Entering Mentoring" workbook are in the following pages of this pdf. We hope this information is of use in your role as a mentor to our MS students.
-The IHN

Entering Mentoring

A Seminar to Train
a New Generation of Scientists

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THE WISCONSIN PROGRAM FOR SCIENTIFIC TEACHING

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Preface

Effective mentoring can be learned, but not taught. Good mentors discover their own objectives, methods, and style by mentoring. And mentoring. And mentoring some more. Most faculty learn to mentor by experimenting and analyzing success and failure, and many say that the process of developing an effective method of mentoring takes years. No two students are the same or develop along the same trajectory, so mentoring must be continually customized, adjusted, and redirected to meet each student’s needs. A skilled mentor’s decisions and actions are guided by a reflective philosophy, a well-developed style, and an ability to assess student needs. There is certainly no book that can tell us how to deal with every student or situation, but a systematic approach to analyzing and discussing mentoring may lead us to a method for tackling the knotty challenges inherent in the job.

The goal of the seminar outlined in this manual is to accelerate the process of learning to be a mentor. The seminar provides mentors with an intellectual framework to guide them, an opportunity to experiment with various methods, and a forum in which to solve mentoring dilemmas with the help of their peers. Discussing mentoring issues during the seminar provides every mentor with experience—direct or indirect—working with diverse students, tackling a range of mentoring challenges, and considering a myriad of possible solutions. Members of the seminar may hear about, and discuss, as many mentoring experiences as most of us handle in a decade, thereby benefiting from secondhand experience to learn more quickly. We hope that, when mentors complete the seminar, they will have articulated their personal style and philosophy of mentoring and have a toolbox of strategies they can use when faced with difficult mentoring situations.

The anticipated outcome of this seminar is twofold. First, we want to produce confident, effective mentors. Second, we intend this seminar to have a far-reaching effect on the undergraduate research experience. Undergraduates obtain numerous benefits from participating in independent research and those benefits can be amplified by good mentoring. Both outcomes enrich the research experience for everyone involved.
We developed the mentoring seminar presented in this manual as part of The Wisconsin Program for Scientific Teaching, using an iterative approach of developing, testing, evaluating, and revising our teaching methods and seminar content. The material that survived is the result of seven different seminar cohorts led by four different facilitators. Therefore, the seminar presented here has been tested in mixed formats by various facilitators. We have included topics that emerged repeatedly, questions that consistently generated discussion, and readings that were universally appreciated by the mentors.

Everyone who has taught this seminar has enjoyed it, and felt changed and enriched by it. Novices who have never run a lab or research group seem to be as effective at running this seminar as seasoned faculty with decades of mentoring experience. We assume that this is because the discussions are propelled by the participants, not the facilitator, and all of us can draw on our experiences as mentees, even if we don’t have experience as research mentors. As long as the facilitator asks a few key questions, keeps the discussion focused, respectful, and inclusive, and helps the mentors see the patterns and principles raised in discussion, the seminar will be a success. We wish you fun and good mentoring as you embark on what we hope is a remarkable teaching and learning experience.

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Big Questions in Mentoring

Below are some guiding questions that may be useful in discussions about mentoring.

**Expectations**

- What do you see as your student’s greatest strength(s)?
- What area(s) do you think your student should focus on developing? How do you suggest they do this, and how can you facilitate this process?
- What do you expect your mentee to accomplish while in the lab?
- How independent should your mentee be?
- How much assistance do you expect to provide for your mentee?
- What do you hope to get out of the mentoring experience?
- What does your mentee hope to get out of the research experience?
- What have you learned about working with your student that you did not expect to learn?

**Scientific Teaching**

- What is your approach to mentoring?
- How does the concept of “Scientific Teaching” apply to mentoring?
- Does your approach to mentoring involve active learning strategies?
- What evidence do you have that your approach to mentoring is effective?
• What evidence would convince you that your approach to mentoring is effective?

• How could you improve on your mentoring based on student feedback?

Community of Resources

• What is the value of presenting mentoring challenges to your peers and hearing their approaches to a given challenge?

• Do you see your peers as a valuable resource in addressing mentoring issues?

• Do you see your adviser or another faculty member in your department as a resource on mentoring?

• Do you see your department as a network of mentors?

• How could you create a stronger community of mentors and mentoring resources?

Diversity

• How do you define diversity?

• Have you created an environment that allows your mentee to benefit from the diversity in your lab/department? How?

• How might another mentee with a different learning style, personal style, or background view your mentoring approach?

• How do you deal with diverse learning styles, personal styles, ethnicity, experience, gender, and nationality?
What are the elements of a good research project?

Mentors usually have a strong sense of what constitutes a good research project. Ask them, as a group, to come up with the elements of a good research project. Some thoughts that have emerged in previous discussions are:

- Projects should have a reasonable scope
- Projects should be feasible
- Projects should generate data that the student can present
- Projects should not simply include cookbook experiments
- Projects should have built-in difficulties that will be faced after the student has developed some confidence
- Projects should be multifaceted

How can you establish a good relationship with your mentee?

One way to start this discussion is to ask the mentors what they should do the first time they meet with their mentee. Even if they have already met the student, this discussion can help the mentors consider the importance of the personal interaction they have with their mentee. Some thoughts from previous discussions are:

- Make direct eye contact
- Be enthusiastic
- Introduce them to the lab and your lab mates
- Acquaint them with the building
- Get them started on a lab notebook
- Talk about the “big picture”
- Discuss lab policies
- Discuss the mentee’s background
- Get to know your mentee

Many mentors expressed concern that the undergraduate researchers with whom they were working either did not know basic lab protocols and techniques or needed to be reminded of them. One mentoring group developed a list of techniques and skills every undergraduate researcher should know. A copy of
that list is included in this section. This particular list was developed by mentors working in molecular biology labs; mentors working in other fields may wish to create a similar list more relevant to their lab's area of inquiry.

**Assignments**

- Ask mentors to write a paragraph describing their mentee's project.
- Have each mentor describe their mentoring philosophy in writing. There is no length requirement. As the facilitator, you may wish to develop your own philosophy and share it with the group.
Concepts, Techniques, and Practices to Review with Your New Mentee

1. Remind them that it is better to ask questions than to make a mistake that could have easily been avoided.

2. General lab safety procedures including:
   a. Appropriate clothing
   b. Food and drink in the lab
   c. Lab coat/gloves/glasses

3. How to find and use helpful reference manuals such as Current Protocols

4. Chemical and biological safety issues including:
   a. How to dispose of wastes
   b. How and when to use a fume hood
   c. How to handle chemicals safely
   d. How to clean up a spill
   e. How to assess whether a particular chemical should be handled in a fume hood
   f. How to handle and dispose of biological materials

5. “Chemical hygiene”—cleaning up, discarding excess (not returning waste to the original bottle!), using clean spatulas each time

6. How to use a pipette correctly, including how to read and manipulate it

7. Making chemical solutions; provide guide sheets for:
   a. Solution preparation
   b. Molarity calculations
   c. Dilutions

8. Understanding the importance and practice of sterile technique

9. Media preparation and how to use an autoclave
Session 1: Getting Started

10. Literature research skills

11. Basic microbiology including:
   a. Plating for single colonies
   b. Growing liquid cultures
   c. Growth conditions for an organism

12. Basic molecular biology techniques including:
   a. DNA isolation
   b. Proper use of restriction enzymes

13. DNA isolation:
   a. How to avoid contaminating DNA/RNA free/autoclaved materials
   b. How to open microfuge tubes properly
   c. How to label reagents

14. Basic guidelines for generating graphs and tables

*This list was compiled by mentors working primarily in molecular biology and microbiology labs. If your mentee's research does not use molecular biology techniques, you may wish to generate a list that is more relevant to your field.
What do you expect from your mentee and what do they expect from you?

The mentor and the mentee need to establish clear expectations in the beginning of the relationship and to revisit the discussion of expectations often.

One leading question that has proven useful is, “What do you expect from your mentee and what do they expect from you?” Asking this question of the group and compiling a list of expectations may help mentors appreciate the wide variety of expectations they may have. These expectations range from expecting a student to be punctual to expecting that a student will complete a certain experiment.

Assignments

1. Ask each mentor to interview their mentee and write a brief biography. This assignment is effective in helping to establish a connection between the mentor and mentee beyond the research project. Some guiding questions for this assignment can be found in this section.

2. Encourage the mentors and mentees to share their expectations with one another. Specific guiding questions to help the mentor and mentee in this discussion can be found in this section.

3. (optional) Consider asking mentors to have their mentees write letters of recommendation for themselves, including the items they hope their mentor will be able to address at the conclusion of the research experience.
Establishing a Relationship

Goals:

- Get to know one another.
- Begin to define your working relationship and establish expectations.
- Define the goals of your summer research project.

Students (Mentees):

- Who are you? Where is your home? How/when did you become interested in a career in science?
- What is your major and what are your future career plans?
- Why do you want to do research and how will it help you reach your career goals?
- What would success in this research program look like to you?
- Do you have any previous research experience? If so, what did you do? What did you like about it? What did you dislike about it?

  How do you learn best (e.g., hands-on experience, reading literature about a topic, verbal explanations, process diagrams, etc.)? What is the most useful kind of assistance your mentor can provide?

- Do you prefer to work alone or in groups? What kind of group or collaborative work experience have you had?
- Do you have any questions about the background reading your mentor sent you before the start of the program?
Session 2: Learning to Communicate

Mentors:

- Who are you? How did you become a scientist?
- Why have you chosen to be an undergraduate research mentor? What do you hope to gain from this experience?
- What would success in this research program look like to you? What skills (technical, communication) should your mentee develop?
- Who are the people who work in your lab? What are their responsibilities and how should your mentee expect to interact with each of them? What are the proper channels of communication?
- How many hours per week do you expect your mentee to work in the lab? Are there specific times of day that you expect your student to be in the lab?
- What is your teaching style? How do you prefer to help students learn to conduct research? Is there a process that you normally follow?

Defining Your Path

Goals:

- Reaffirm expectations between mentor and student.
- Clearly define the research project and a timeline for completion of specific experiments.

Students (Mentees):

- What do you like best about working in your lab so far?
- What do you find most challenging about working in your lab? How can your mentor help you deal with this?
- What have you learned about working in a lab that you did not expect before arriving on campus?
- Are you comfortable working with the other members of your laboratory? If not, how can your mentor facilitate these interactions?
- Now that you have thought about your research proposal, what aspects of the research project are still unclear to you? What aspects are the most exciting and interesting?
- Which of the research techniques that you will learn, or have learned, do you find most challenging? How can your mentor facilitate your learning this technique?
- How much time do you expect it will take to complete your research project?
- Would you like to be able to spend more time with your mentor? Do you feel you are ready to work more independently?
Session 2: Learning to Communicate

**Mentors:**

- What do you see as your mentee’s greatest strength(s) in the laboratory so far?
- What area(s) do you think your mentee should focus on developing? How do you suggest they do this, and how can you facilitate this process?
- How much time do you expect it will take to complete your mentee’s research project?
- What have you learned about working with your mentee that you did not expect to learn?

What is a Mentor?

The notion of mentoring is ancient. The original Mentor was described by Homer as the “wise and trusted counselor” whom Odysseus left in charge of his household during his travels. Athena, in the guise of Mentor, became the guardian and teacher of Odysseus’ son Telemachus.

In modern times, the concept of mentoring has found application in virtually every forum of learning. In academics, mentor is often used synonymously with faculty adviser. A fundamental difference between mentoring and advising is more than advising; mentoring is a personal, as well as, professional relationship. An adviser might or might not be a mentor, depending on the quality of the relationship. A mentoring relationship develops over an extended period, during which a student’s needs and the nature of the relationship tend to change. A mentor will try to be aware of these changes and vary the degree and type of attention, help, advice, information, and encouragement that he or she provides.

In the broad sense intended here, a mentor is someone who takes a special interest in helping another person develop into a successful professional. Some students, particularly those working in large laboratories and institutions, find it difficult to develop a close relationship with their faculty adviser or laboratory director. They might have to find their mentor elsewhere—perhaps a fellow student, another faculty member, a wise friend, or another person with experience who offers continuing guidance and support.

In the realm of science and engineering, we might say that a good mentor seeks to help a student optimize an educational experience, to assist the student’s socialization into a disciplinary culture, and to help the student find suitable employment. These obligations can extend well beyond formal schooling and continue into or through the student’s career.

The Council of Graduate Schools (1995) cites Morris Zelditch’s useful summary of a mentor’s multiple roles: “Mentors are advisers, people with career experience willing to share their knowledge; supporters, people who give emotional and moral encouragement; tutors, people who give specific feedback on one’s performance; masters, in the sense of employers to whom one is apprenticed; sponsors, sources of information about and aid in obtaining opportunities; models, of identity, of the kind of person one should be to be an academic.”
In general, an effective mentoring relationship is characterized by mutual respect, trust, understanding, and empathy. Good mentors are able to share life experiences and wisdom, as well as technical expertise. They are good listeners, good observers, and good problem-solvers. They make an effort to know, accept, and respect the goals and interests of a student. In the end, they establish an environment in which the student’s accomplishment is limited only by the extent of his or her talent.

**The Mentoring Relationship**

The nature of a mentoring relationship varies with the level and activities of both student and mentor. In general, however, each relationship must be based on a common goal: to advance the educational and personal growth of the student. You as mentor can also benefit enormously.

There is no single formula for good mentoring; mentoring styles and activities are as varied as human relationships. Different students will require different amounts and kinds of attention, advice, information, and encouragement. Some students will feel comfortable approaching their mentors; others will be shy, intimi-

**WHY BE A GOOD MENTOR?**

The primary motivation to be a mentor was well understood by Homer: the natural human desire to share knowledge and experience. Some other reasons for being a good mentor:

**Achieve satisfaction.** For some mentors, having a student succeed and eventually become a friend and colleague is their greatest joy.

**Attract good students.** The best mentors are most likely to be able to recruit—and keep—students of high caliber who can help produce better research, papers, and grant proposals.

**Stay on top of your field.** There is no better way to keep sharp professionally than to coach junior colleagues.

**Develop your professional network.** In making contacts for students, you strengthen your own contacts and make new ones.

**Extend your contribution.** The results of good mentoring live after you, as former students continue to contribute even after you have retired.
dated, or reluctant to seek help. A good mentor is approachable and available.

Often students will not know what questions to ask, what information they need, or what their options are (especially when applying to graduate programs). A good mentor can lessen such confusion by getting to know students and being familiar with the kinds of suggestions and information that can be useful.

In long-term relationships, friendships form naturally; students can gradually become colleagues. At the same time, strive as a mentor to be aware of the distinction between friendship and favoritism. You might need to remind a student—and yourself—that you need a degree of objectivity in giving fair grades and evaluations. If you are unsure whether a relationship is “too personal,” you are probably not alone. Consult with the department chair, your own mentor, or others you trust. You might have to increase the mentor-student distance.

Students, for their part, need to understand the professional pressures and time constraints faced by their mentors and not view them as merely a means—or impediment—to their goal. For many faculty, mentoring is not their primary responsibility; in fact, time spent with students can be time taken from their own research. Students are obliged to recognize the multiple demands on a mentor’s time.

At the same time, effective mentoring need not always require large amounts of time. An experienced, perceptive mentor can provide great help in just a few minutes by making the right suggestion or asking the right question. This section seeks to describe the mentoring relationship by listing several aspects of good mentoring practice.

**Careful listening.** A good mentor is a good listener. Hear exactly what the student is trying to tell you—without first interpreting or judging. Pay attention to the “subtext” and undertones of the student’s words, including tone, attitude, and body language. When you think you have understood a point, it might be helpful to repeat it to the student and ask whether you have understood correctly. Through careful listening, you convey your empathy for the student and your understanding of a student’s challenges. When a student feels this empathy, the way is open for clear communication and more-effective mentoring.

**Keeping in touch.** The amount of attention that a mentor gives will vary widely. A student who is doing well might require only “check-ins” or brief meetings. Another student might have continuing difficulties and require several formal meetings a week; one or two students might occupy most of an adviser’s mentoring time. Try through regular contact—daily, if possible—to keep all your students on the “radar screen” to anticipate problems before they become serious. Don’t assume that the only students who need help are those who ask for it. Even a student who is doing well could need an occasional, serious conversation. One way to increase your
awareness of important student issues and develop rapport is to work with student organizations and initiatives. This will also increase your accessibility to students.

**Multiple mentors.** No mentor can know everything a given student might need to learn in order to succeed. *Everyone benefits from multiple mentors* of diverse talents, ages, and personalities. No one benefits when a mentor is too “possessive” of a student.

Sometimes a mentoring team works best. For example, if you are a faculty member advising a physics student who would like to work in the private sector, you might encourage him or her to find mentors in industry as well. A non-Hispanic faculty member advising a Hispanic student might form an advising team that includes a Hispanic faculty member in a related discipline. Other appropriate mentors could include other students, more-advanced postdoctoral associates, and other faculty in the same or other fields. A good place to find additional mentors is in the disciplinary societies, where students can meet scientists, engineers, and students from their own or other institutions at different stages of development.

Coordinate activities with other mentors. For example, a group of mentors might be able to hire an outside speaker or consultant whom you could not afford on your own.

**Building networks.** You can be a powerful ally for students by helping them build their network of contacts and potential mentors. Advise them to begin with you, other faculty acquaintances, and off-campus people met through jobs, internships, or chapter meetings of professional societies. Building a professional network is a lifelong process that can be crucial in finding a satisfying position and career.
Professional Ethics

Be alert for ways to illustrate ethical issues and choices. The earlier that students are exposed to the notion of scientific integrity, the better prepared they will be to deal with ethical questions that arise in their own work.

ADVICE FOR NEW MENTORS

For most people, good mentoring, like good teaching, is a skill that is developed over time. Here are a few tips for beginners:

☛ **Listen patiently.** Give the student time to get to issues they find sensitive or embarrassing.

☛ **Build a relationship.** Simple joint activities—walks across campus, informal conversations over coffee, attending a lecture together—will help to develop rapport. Take cues from the student as to how close they wish this relationship to be. (See “Sexual harassment” in section on Population-diversity issues.)

☛ **Don’t abuse your authority.** Don’t ask students to do personal work, such as mowing lawn, baby-sitting, and typing.

☛ **Nurture self-sufficiency.** Your goal is not to “clone” yourself but to encourage confidence and independent thinking.

☛ **Establish “protected time” together.** Try to minimize interruptions by telephone calls or visitors.

☛ **Share yourself.** Invite students to see what you do, both on and off the job. Tell of your own successes and failures. Let the student see your human side and encourage the student to reciprocate.

☛ **Provide introductions.** Help the student develop a professional network and build a community of mentors.

☛ **Be constructive.** Critical feedback is essential to spur improvement, but do it kindly and temper criticism with praise when deserved.

☛ **Don’t be overbearing.** Avoid dictating choices or controlling a student’s behavior.

☛ **Find your own mentors.** New advisers, like new students, benefit from guidance by those with more experience.
Session 3: Goals & Expectations

Discuss your policies on grades, conflicts of interest, authorship credits, and who goes to meetings. Use real-life questions to help the student understand what is meant by scientific misconduct: What would you do if I asked you to cut corners in your work? What would you do if you had a boss who was unethical?

Most of all, show by your own example what you mean by ethical conduct. You might find useful the COSEPUP publication On Being a Scientist: Responsible Conduct in Research (1995), also available online.

Population-Diversity Issues

In years to come, female students and students of minority groups might make up the majority of the population from which scientists and engineers will emerge. Every mentor is challenged to adapt to the growing sex, ethnic, and cultural diversity of both student and faculty populations.

Minority issues. Blacks, Hispanics, and American Indians as a group make up about 23% of the US population, but only about 6% of the science and engineering labor force. Many minority-group students are deterred from careers in science and engineering by inadequate preparation, a scarcity of role models, low expectations on the part of others, and unfamiliarity with the culture and idioms of science. Mentors can often be effective through a style that not only welcomes, nurtures, and encourages questions, but also challenges students to develop critical thinking, self-discipline, and good study habits. Expectations for minority-group students in science have traditionally been too low, and this can have an adverse effect on achievement. A clear statement that you

POOR MENTORING: CULTURAL BIAS (1)

A foreign-born engineering student is reluctant to question his adviser. As a result, the adviser thinks the student lacks a grasp of engineering. The adviser tries to draw out the student through persistent questioning, which the student finds humiliating. Only the student’s determination to succeed prevents him from quitting the program.

Comment: The student grew up in a country where he learned not to question or disagree with a person in authority. Had the adviser suspected that a cultural difference was at the root of the problem, he might have learned quickly why the student was reluctant to question him. When communication is poor, try to share yourself, listen patiently, and ask the students themselves for help.
POOR MENTORING: INAPPROPRIATE BEHAVIOR (2)

The male adviser of a female graduate student has not seen her for several months. Passing her in the hall, he squeezes her shoulder as he describes concerns about her research. He sends her an e-mail message, inviting her to discuss the project over dinner. She declines the invitation. He learns that she has redirected her work in a way he does not approve of, and he asks her to return to her original plan. He is astonished when she accuses him of sexual harassment and files a complaint with the dean’s office.

Comment: In this case, the adviser erred in touching the student and extending a dinner invitation that could easily be misconstrued.

expect the same high performance from all students might prove helpful. Be aware of minority support groups on your campus and of appropriate role models. Link minority-group students with such national support organizations as the National Action Council for Minorities in Engineering (see “Resources”).

Cultural issues. You could find yourself advising students of different cultural backgrounds (including those with disabilities) who have different communication and learning styles. Such students might hail from discrete rural or urban cultures in the United States or from abroad; in many programs, foreign-born students are in the majority. If you are not familiar with a particular culture, it is of great importance to demonstrate your willingness to communicate with and to understand each student as a unique individual. Are you baffled by a student’s behavior? Remember that a cultural difference could be the reason. Don’t hesitate to ask colleagues and the students themselves for help. Finding role models is especially important for students from a culture other than yours. Examine yourself for cultural biases or stereotypical thinking.

Female representation. In some fields—notably psychology, the social sciences, and the life sciences—females are well represented as students but underrepresented in the professoriate and are not always appointed to assistant professor positions at a rate that one would expect on the basis of PhD and postdoctoral student representation. In other fields—such as mathematics, physics, computer science, and engineering—females are underrepresented at all levels. In all fields, the confidence of female students might be low, especially where they are isolated and have few female role parent, suffering marital problems, or juggling the challenges of a two-career family. You might want to send a student to a colleague or counselor with special competence in family issues.
Sexual harassment. If you mentor a student of the opposite sex, extra sensitivity is required to avoid the appearance of sexual harassment. Inappropriate closeness between mentors and students will produce personal, ethical, and legal consequences not only for the persons involved but also for the programs or institutions of which they are part.

Be guided by common sense and a knowledge of your own circumstances. Is it appropriate to invite the student to discussions at your home? During meetings, should you keep the office door closed (for privacy) or open (to avoid the appearance of intimacy)? Make an effort to forestall misunderstandings by practicing clear communication. If you do have a close friendship with a student, special restrictions or self-imposed behavior changes might be called for.

But do not restrict students’ opportunities to interact with you because of sex differences. In a respectful relationship, mutual affection can be an appropriate response to shared inquiry and can enhance the learning process; this kind of affection, however, is neither exclusive nor romantic. For additional guidance, talk with your department chair, your own mentor, or other faculty.

Disability issues. Students with physical, mental, emotional, or learning disabilities constitute about 9% of first-year students with planned majors in science and engineering. Be careful not to underestimate the potential of a student who has a disability. Persons with disabilities who enter the science and engineering workforce perform the same kinds of jobs, in the same fields, as others in the workforce. You should also keep in mind that persons with disabilities might have their own cultural background based on their particular disability, which cuts across ethnic lines.

As a mentor, you might be unsure how to help a student with a disability. Persons with disabilities can function at the same level as other students, but they might need assistance to do so. You can play a pivotal role in finding that assistance, assuring students that they are entitled to the assistance, and confirming they are able to secure assistance. Another very important role of the mentor is in making colleagues comfortable with students who have disabilities.

Many campuses offer programs and aids such as special counseling, special equipment (adaptive computer hardware, talking calculators, and communication devices), adapted physical education, learning disability programs, and academic support.

Further, your institution’s specialist in Americans with Disabilities Act (ADA) issues might provide help (for example, in securing funding from the National Institutes of Health [NIH], the National Science Foundation [NSF], and other sources). However, keep in mind that this person might know less than you do about the
needs of a student in your field—for example, in the use of particular equipment.

Remember that the student who lives with the disability is the expert and that you can ask this expert for help.

**SUMMARY POINTS**

☛ In a broad sense, a mentor is someone who takes a special interest in helping another develop into a successful professional.

☛ In science and engineering, a good mentor seeks to help a student optimize an educational experience, to assist the student’s socialization into disciplinary culture, and to aid the student in finding suitable employment.

☛ A fundamental difference between a mentor and an adviser is that mentoring is more than advising; mentoring is a personal as well as a professional relationship. An adviser might or might not be a mentor, depending on the quality of the relationship.

☛ An effective mentoring relationship is characterized by mutual trust, understanding, and empathy.

☛ The goal of a mentoring relationship is to advance the educational and personal growth of students.

☛ A good mentor is a good listener.

☛ Everyone benefits from having multiple mentors of diverse talents, ages, and personalities.

☛ A successful mentor is prepared to deal with population-diversity issues, including those peculiar to ethnicity, culture, sex, and disability.