Mentoring:
For Graduate School and Beyond
FACULTY EDITION

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Acknowledgements

We would like to acknowledge the several published manuals on mentoring graduate students by peer institutions that informed our thinking in this manual.

- *Mentoring: How to Mentor Graduate Students* by Dan Wulff and Suzanne Ortega at the University of Washington
- *How to Mentor Graduate Students: A Guide for Faculty* from the Rackham Graduate School at the University of Michigan
- *Online Graduate Faculty Mentoring Handbook* by the Office of Graduate Studies at the University of Nebraska-Lincoln
Section 1: Introduction

This manual is designed to assist engineering faculty as they think about how they want to mentor their graduate students, especially with respect to their career development. The manual was prepared as part of a program to encourage graduate students to consider a career in academia and to help them prepare for success in that career. However, the material in the manual can be helpful regardless of the career path a student selects. While a graduate student may have several mentors, this manual is primarily for the faculty member who will serve as the student’s advisor.

The following is an overview of the sections in this manual.

◊ Section 2: Mentoring
  - This section is a brief overview of mentoring, including tips for mentoring people whose backgrounds are distinctly different from the mentor’s.

◊ Section 3: The First Meeting
  - This section lays out a general approach to initiating the career mentoring process. Preparing for and conducting the first meeting are important in setting the stage for a productive collaborative experience that best aligns the student’s future career interests and the faculty member’s current work.

◊ Section 4: Works Cited

◊ Section 5: Career Mentoring Resources
  - This section consists of several worksheets referenced within previous sections of this manual to assist faculty in thinking about, and working through, the process of career mentoring.

◊ Section 6: Additional Sources of Information
  - This section lists additional sources of information related to mentoring graduate students and their career development. It includes links to on-line resources available at Purdue University. Web links to resources at other campuses are also provided. Key among these links are the connections to more in-depth graduate mentoring manuals developed by the University of Michigan, University of Washington, and University of Nebraska-Lincoln.
Section 2: Mentoring

Mentoring can be defined in many ways depending upon one’s profession and type of human interaction desired [1-4]. In general, mentoring graduate students refers to “focusing on human relationships, commitments, and resources that help graduate students find success and fulfillment in their academic and professional pursuits” [5]. The focus of this manual will be on mentoring for career development. This section of the manual discusses the role of a mentor, the benefits of mentoring, some general guidelines to consider in mentoring, and the importance of considering the needs and perspectives of mentees with backgrounds different from the mentor’s.

Being a Mentor

What does it mean to be a mentor? As a mentor, a faculty member takes on the responsibility of preparing a graduate student by acting as (1) a disciplinary guide, (2) a skills development consultant, (3) a professional development and networking consultant, and (4) an example of what it means to be a responsible member of the profession. To be successful in the aforementioned responsibilities, faculty members need to be [2, 4-6]:

- Authentically interested in the professional and personal development of the graduate student.
- Willing to work to develop a strong professional relationship with the graduate student.
- Prepared to help the student articulate his or her goals and to guide the graduate student as he or she advances toward those academic and professional goals.
- Prepared to tailor their mentoring style and content for each graduate student they mentor as every graduate student is a unique person coming from a unique background.

Benefits of Mentoring

A good mentoring relationship will provide benefits to both the graduate student and the faculty member. Specific benefits to the graduate student and faculty member are listed below.

Graduate student benefits from mentoring include [5-8]:

- Training in the discipline from both an academic and research perspective.
- Opportunities for networking and collaboration.
- Development of “scholarly citizenship” within a discipline [5].
- Exposure to the academic, social, and political aspects of the discipline and the academy.
- An understanding and appreciation of the conventions of the discipline.
- Experience and intellectual development through which the student develops the confidence to participate fully in the scholarly community.
Faculty benefits from effective mentoring of graduate students include [4-7]:

- Production of quality research
- Development of future collaborators and extension of your network of contacts.
- Ability to stay current with a broader range of research through the work of the graduate student.
- An opportunity to develop tomorrow’s leaders in the discipline.
- Fulfillment from the personal and professional relationships developed in the mentoring process.

General Suggestions for Mentors

The following suggestions may help faculty members enhance their mentoring capabilities [2, 4, 5, 7].

1. “Develop your own vision of good mentoring” [5].
   a. Reflect on your experiences of being mentored, good and bad.
   b. Consult with colleagues who have mentored students in the past.
   c. Read recent literature about interacting with the current generation of students.

2. Seek opportunities to interact with graduate students.
   a. Speak to students in the hallway and be available for informal conversations. It reinforces the fact that you value the graduate student as a person.
   b. Recognize that it takes time to build professional rapport with a graduate student. The pace of this process will vary by student, so be prepared to be patient and allow the graduate student to drive the process as befits the individual.

3. Clarify the requirements of graduate school
   a. Tell graduate students about policies and expectations related to coursework, qualifying exams, the thesis/dissertation, etc. and help them to identify and avoid potential “pitfalls.” This will benefit both them and you.
   b. Clearly identify expectations for working in your research group, including expectations for ethical behavior.

4. Recognize that graduate school is a time of development.
   a. Provide constructive/supportive feedback
   b. Provide encouragement
   c. Foster networks and other mentoring relationships
   d. Treat graduate students with respect

5. Remember graduate students are unique individuals with differing backgrounds, goals, and capabilities.
Recognizing the Importance of Diversity

Every individual is a member of some group that has unique characteristics [12, 13]. Both graduate students and faculty should be cognizant the following factors of diversity may play a role in the mentoring relationship.

- Gender
- Race and ethnicity
- Country of origin
- Disabilities
- Age
- Sexual Orientation
- Family responsibilities
- Prior work experiences
- Socio-economic status

For more in depth discussions about these factors, refer to either Section 4 of the University of Washington manual (http://depts.washington.edu/uwpa/docsANDphotos/GradFacultyMentor.pdf) or Section 6 of the online guidebook from the University of Nebraska-Lincoln (http://www.unl.edu/mentoring/mentoring-needs-diverse-community).

The key to dealing with diversity from a mentoring perspective is to recognize that each graduate student is a unique individual shaped by a lifetime of opportunities and experiences that may be different from your own. Learning about the student’s interests, career aspirations, and background will help you match your mentoring to their needs [1].
Section 3: The First Meeting

The first formal meeting between a faculty member and a graduate student is very important in setting the tone for the mentor-mentee relationship and establishing expectations. This section of the manual is designed to provide faculty members with suggestions on how they can prepare for and conduct the initial meeting and guidance they can give the student on preparing for the first meeting. Three documents are briefly discussed: (1) a worksheet to guide student thinking prior to the first meeting, (2) a faculty planning worksheet for the first meeting, and (3) proposed topics for discussion during the first meeting. The documents, themselves, are in Section 5.

Preparing for the First Meeting

Careful preparation for the first meeting can help establish a good foundation for the mentor-mentee relationship. Two worksheets, located in Section 5 of this manual, are designed to assist both the faculty member and the graduate student in preparing for the first meeting. The faculty member should share the worksheet entitled “First Meeting: Graduate Student Planning” with the prospective mentee. It lists some important questions the graduate student should be prepared to discuss at the first meeting. This worksheet also serves to remind the faculty member what questions the graduate student has probably been wrestling with and areas in which the student may need some guidance. It is important to note, that although graduate students should have been thinking about these questions, they may not have concrete answers, particularly about career aspirations, and their answers may be fluid depending on who is asking and in what context. Finally, all worksheets included in this manual are resources to guide thinking and conversation; however, none should be used exclusively as a script at the expense of a true conversation.

The other worksheet in Section 5, entitled “First Meeting: Faculty Planning Worksheet,” is designed to guide faculty members in preparing for the first meeting with a potential mentee. Even experienced mentors may benefit from reviewing the planning worksheet before engaging a new mentee. Revisiting the worksheet prompts the faculty member to think about his or her views as a researcher, mentor, and person before entering into this new mentor-mentee relationship. Reviewing the questions leads the faculty member to make sure he or she is up to date on current academic policies, such as graduation requirements, and professional development opportunities at Purdue. It is also important to note that millennial students are entering graduate school in force now, and they frequently ask “Why?” Building a good working relationship with them typically requires a serious answer to a question rather than the standard “because I tell you so”. The worksheet is divided into three sections: professional background, research and mentor-mentee relationship, and academic advancement, which mirror the agenda for the first meeting.
Initial Meeting

The initial meeting between a faculty member and a graduate student who may become one’s mentee should focus on the exploration of goals and interests of both individuals and a discussion of expectations for this relationship. In Section 5, a worksheet entitled “First Meeting Agenda” provides a working guideline for the conversation. This worksheet lists the various topics a faculty member and graduate student should discuss before considering actual career mentoring. The agenda should not be used as a script where the faculty member just goes down the list of information. Conversation, hopefully, will be less formal, more engaging, and more productive.

The agenda worksheet has two sections labeled by participant. It is hoped that the topics listed under the participant (i.e. faculty member or graduate student) will be addressed by that individual in the course of conversation. It is not necessary to cover every topic in the first meeting. It is recommended, however, that upon completing the agenda items listed for the first meeting the graduate student and faculty member stop and take some time, perhaps a week, to think about the questions at the bottom of the “First Meeting Agenda.” Answers to these questions can help both the faculty member and graduate student identify career options and appropriate professional development opportunities. The final document in Section 5, “Career Development Planning Worksheet,” provides a template for recording desired professional development goals in multiple arenas such as research, teaching, and service. This worksheet is a living document and a means of tracking progress toward those goals.

Beyond the Initial Meeting

The initial meetings between a faculty member and a graduate student are only the beginning of the mentoring, and specifically the career development process. Over time, as the graduate student matures as a scholar, the mentoring between faculty and graduate student will evolve to ensure the graduate student continues to be challenged with opportunities to succeed, as well as opportunities to fail and learn. The “Career Development Planning Worksheet” mentioned above should be revisited to determine what goals have been accomplished, what goals have not been met and why, and whether new goals should be added. Included below are links to two resources that identify professional development opportunities a student should consider pursuing at various stages of his or her graduate program.

1. Worksheet located on page 40 in the University of Washington manual (http://depts.washington.edu/uwpa/docsANDphotos/GradFacultyMentor.pdf) that identifies professional development opportunities relative to a graduate student’s evolution from learner to junior colleague.

2. A Michigan State webpage (http://careersuccess.msu.edu/prep) provides a graduate student progression matrix based on four professional skills – planning, resilience, engagement, and professionalism – key to career and professional development.
Section 4: Works Cited

8. Khiewnavawongosa, S. and E. Schmidt (2009). Proceedings from the 2009 ASEE Annual Conference and Exposition: Assessment of the Mentoring Relationship Between the Faculty and Graduate Students at Purdue University Austin, TX.

Additional Informative Works

Section 5: Career Mentoring Resources

This section contains a series of worksheets referenced in Section 3 of this manual and adapted from a variety of sources to assist you in planning for talking with graduate students about career mentoring.

Worksheet #1: First Meeting: Faculty Planning Worksheet

This worksheet is designed to prompt your thinking before initially meeting with a graduate student for whom you may become a professional mentor.

Worksheet #2: First Meeting: Graduate Student Planning Worksheet

This worksheet is designed to prompt graduate students’ thinking before initially meeting with a faculty member they are considering as a potential advisor.

Worksheet #3: First Meeting Agenda

This worksheet is designed to serve as a guide to the conversations that should take place in the first meeting(s) between a faculty member and graduate student initiating a mentor-mentee relationship. The agenda is designed as a checklist of topics rather than a script for the meeting. Items identified under the title of faculty member, or graduate student, refer to information that individual should be expected to address in the course of the conversation.

Worksheet #4: Career Development Planning Worksheet

This worksheet is a possible template for a dynamic document that can be used by faculty and graduate students to identify and track opportunities for development related to different components (teaching, research, personal, etc…) of overall professional development.
First Meeting: Faculty Planning Worksheet

The questions below can be used in preparing your thoughts for talking to graduate students about degree requirements, your research, and the mentor-mentee relationship you envision.

Thought Questions

Professional Background

1) In establishing rapport, what can I share about my professional development that is relevant to the graduate student?
2) Reflecting on my past experiences with mentoring (as both mentee and mentor), what type of mentoring experience do I want to provide my mentee?
3) What are my working and learning styles? Am I prepared to work with someone whose style may be different?

Research and Mentor-Mentee Relationship

4) Why do I want to be a mentor to a graduate student? What benefits do I hope to gain from having a graduate student as a mentee? How much time do I feel will be required for the relationship? How will this time be found?
5) What are my expectations of the graduate student as a mentee with regard to a. Working within my research group/on my research?
   b. Performing rigorous and ethical research?
   c. Advancing through the program?
   d. Managing work-life balance?
6) What expectations can I anticipate the graduate student will have of me?

Academic Advancement

7) What are the requirements for obtaining a doctoral, or master’s degree within the discipline? What are the major milestones the student must pass through? Are there “hurdles” to the process which I can forewarn the student about?
8) What academic activities do I believe will most benefit this graduate student’s career?
9) What experiences (internship, publishing, presenting at conferences, teaching) do I believe the graduate student must have before graduating? Be prepared to explain why these experiences are beneficial and necessary.
First Meeting: Graduate Student Planning Worksheet

This worksheet presents a series of questions that graduate students should think about before meeting with their advisor for the first time, or while in the process of selecting an advisor. It is in no way intended to limit what may be discussed between the student and the mentor.

Basic Background Information

1) What are my career aspirations?
   a. Upon graduation
   b. Further down the road (15-20 years)
2) Relative to teaching, research, service, and general professional capabilities
   a. What are my interests?
   b. What are my strengths? Why do I consider them strengths?
   c. What are my weaknesses? Why are they weaknesses?
3) What is my working/learning style?
4) What are my accomplishments to this point in time?

Open-ended Thought Questions

1) Why do I want this faculty member as a mentor? What benefits do I hope to gain from having this individual as a mentor?
2) Recognizing that this is a professional relationship, what expectations can I anticipate the faculty member will have of me?
3) What are some questions I could ask my faculty mentor that will assist me in establishing rapport with him/her, without prying?
4) What are some “hurdles” that I am currently facing, or that I foresee (such as having an ill parent or being hearing impaired), which may keep me from realizing my career aspirations? Do I have any strategies for overcoming these “hurdles”?
5) Are there any experiences (internship, publishing, presenting at conferences, teaching) that I absolutely want to have before graduating?
6) What questions about the graduate program do I want to be sure are answered in this early meeting with my advisor?
First Meeting Agenda
(Adapted from: Worksheet 1: Mentor expectations part of the online Graduate Faculty Mentoring Guidebook (2010). Lincoln, NE. Office of Graduate Studies)

Faculty Member

Professional Background
1. Be prepared to discuss highlights of your professional past.
2. Explain how you view the mentoring process and how it benefits you and the graduate student?

Research
3. Discuss your research. What are you doing? How did you progress to this point?
4. Define your expectations of a graduate student working for you, including the expectation of ethical behavior.
5. Reinforce the importance of performing rigorous and ethical research.

Academic Advancement
6. Explain the academic progression process.
   a. What classes should the student take?
   b. When should graduate students file a Plan of Study?
   c. When are the major milestones (qualifiers, proposal)?
   d. How should the student balance taking classes and performing research?
   e. What are the University’s and School’s requirements for graduating?
7. Identify experiences you feel are important to student’s academic/professional development.

Graduate Student
1. What are your career aspirations?
2. How did you come to be a graduate student at Purdue?
3. What do you expect out of the mentor/mentee relationship?
4. What questions do you have about the process of obtaining the MS or Ph.D.?
5. Are there certain professional experiences you would like to have before graduating?
6. What research areas interest you? Why?

Next Step
This meeting agenda is designed to help the faculty member and graduate student begin preparing a career development plan. Leaving this meeting, the faculty member and student should agree to think about the following items for the next meeting on career development.

1. What are the career interests of the graduate student?
2. What professional development activities should the student pursue while at Purdue to be prepared for future career opportunities? Does the student need to reach out beyond Purdue for certain professional development activities?
3. How can professional development opportunities be aligned with the advisor’s research endeavors and the mission of the student’s department?
Career Development Planning Worksheet

This worksheet is available for download at
https://engineering.purdue.edu/Engr/Academics/Graduate/careerdevelopmentworksheet

Faculty Member: ____________________________________________
Graduate Student: ___________________________________________
Date of Meeting: ____________________________________________

Career Goal:
What career is the graduate student targeting?
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

Goal: Teaching Development

☐ Goal met ☐ Making Progress ☐ No Progress

Planned Activities: ______________________________________________
__________________________________________________________________
__________________________________________________________________

Planned Accomplishments: ________________________________________
__________________________________________________________________
__________________________________________________________________

Anticipated Obstacles: ____________________________________________
__________________________________________________________________
__________________________________________________________________

Goal: Research and Scholarship Development

☐ Goal met ☐ Making Progress ☐ No Progress

Planned Activities: ______________________________________________
__________________________________________________________________
__________________________________________________________________

Planned Accomplishments: ________________________________________
__________________________________________________________________
__________________________________________________________________

Anticipated Obstacles: ____________________________________________
__________________________________________________________________
__________________________________________________________________
Goal: Engagement/Service

☐ Goal met  ☐ Making Progress  ☐ No Progress

Planned Activities: ____________________________________________

________________________________________________________________________

Planned Accomplishments: ____________________________________________

________________________________________________________________________

Anticipated Obstacles: ____________________________________________

________________________________________________________________________

Goal: Personal Development

☐ Goal met  ☐ Making Progress  ☐ No Progress

Planned Activities: ____________________________________________

________________________________________________________________________

Planned Accomplishments: ____________________________________________

________________________________________________________________________

Anticipated Obstacles: ____________________________________________

________________________________________________________________________

Goal: Networking

☐ Goal met  ☐ Making Progress  ☐ No Progress

Planned Activities: ____________________________________________

________________________________________________________________________

Planned Accomplishments: ____________________________________________

________________________________________________________________________

Anticipated Obstacles: ____________________________________________

________________________________________________________________________
**Goal: Work/Life Balance**

☐ Goal met  ☐ Making Progress  ☐ No Progress

Planned Activities: ________________________________
__________________________
__________________________

Planned Accomplishments: ________________________________
__________________________
__________________________

Anticipated Obstacles: ________________________________
__________________________
__________________________

**Goal: Additional Mentors**

☐ Goal met  ☐ Making Progress  ☐ No Progress

Planned Activities: ________________________________
__________________________
__________________________

Planned Accomplishments: ________________________________
__________________________
__________________________

Anticipated Obstacles: ________________________________
__________________________
__________________________
Section 6: Additional Sources of Information

On-line Graduate Student Mentoring Guides

University of Michigan
- http://www.unl.edu/mentoring/mentoring-needs-diverse-community

University of Washington – manuals for faculty and graduate students
- http://depts.washington.edu/uwpa/docsANDphotos/GradFacultyMentor.pdf

University of Nebraska
- http://www.unl.edu/mentoring/

Campus Resources

Center for Instructional Excellence (CIE)
www.cie.purdue.edu/

English as a Second Language (ESL) Program
http://www.cla.purdue.edu/english/esl/index.html
- Offers English as a second language instruction to prospective teaching assistants.
- Provides a screening and certification service for the oral English proficiency of teaching assistants whose first language is not English.

International Students & Scholars (ISS)
http://www.iss.purdue.edu
- Provides information and assistance in all matters relating to Immigration and Naturalization Service and State Department regulations to students, staff, and faculty.
- Offers counseling and help with personal and academic problems of international students. Handles all international undergraduate admissions applications and evaluation of credit from non-U.S. institutions.

The Graduate School
http://www.gradschool.purdue.edu/

The Writing Lab
http://owl.english.purdue.edu
- Offers immediate, drop-in, one-on-one help with writing skills at no charge for students, staff, and community members.