



EPSCoR Track-II: Natural Resource Management Laboratory Graduate Student Mentoring Plan

Summary: This plan provides guidance on mentoring graduate students supported on the Natural Resource Management Laboratory (NRML) Track-II project. Our goal is for each student to receive interdisciplinary research and career development mentoring that matches their specific needs. The scope of the NRML project provides opportunities for students to learn across disciplines, institutions and perspectives.

What is a mentor? *“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” (Zelditch 1990).*

Graduate students are the heart and soul of most research programs, and not just because they provide the creativity, ingenuity and hard work required to get things done. When supported properly, graduate students are catalysts who create the dynamic learning environments that we all value. The NRML team aims to provide meaningful mentorship to our grad students and acknowledges its tremendous potential for improving graduate student well-being and success. The goal of the NRML Grad Student Mentoring Plan is to provide a framework for a constructive and supportive mentor-mentee relationship for each graduate student and their faculty mentor.

Critical to graduate student mentoring are transparency, support and candor. *Transparency* means that an advisor sets clear and reasonable expectations and works with the student to develop critical thinking skills necessary to become an independent researcher. *Support* underscores the need for advisors to be affirming in their interactions with their graduate students and work with students to prepare for big events (e.g., qualifying and comprehensive exams). *Candor* is constructive criticism and honest assessment of a student’s progress, including feedback that lets the student know when expectations are not being met.

Context:

Graduate Student – An effective mentor-mentee relationship requires time. Thus, our plan pertains to students who are engaged in NRML research that is integral to their master’s thesis or doctoral dissertation, and thereby intend to be participants on the NRML project for a minimum of an academic year.

Graduate Advisor – All grad students must have a formal Departmental or Programmatic Advisor who is also likely the chair of their graduate committee. Graduate student-Advisor relationships begin organically as students and advisors choose each other, and after that selection, informal and formal mentoring protocols and behaviors vary tremendously as a result of discipline, style, and expectations. The NRML Mentoring Plan considers the Graduate Advisor to be a grad student’s primary mentor.

Plan: the NRML Mentoring Plan is designed to provide structure. In that vein, the Plan provides two broadly applicable guidelines to provide a framework for formal graduate student mentoring expectations:

- 1. NRML requires a minimum of two meetings each academic semester between each NRML graduate student and their Graduate Advisor. Mentoring meetings differ from operational research and academic meetings.**
- 2. Secondary Mentoring Experiences: NRML recommends secondary mentoring experiences and professional network development related to each graduate student's professional goals.**

The requirements listed here are provided as guidelines intended to encourage the mentor and student to develop and customize the mentoring relationship and activities to maximize effectiveness and provide for the essential needs associated with healthy learning environments and pursuit of professional goals.

1. To be clear, many graduate students interact with their advisors every day. The formal mentoring meetings described here between student and advisor are designed to ensure that key ingredients of mentoring are not ignored. Thus, *both* the grad student and the advisor are encouraged to arrive at these formal meetings with written agendas that look beyond the nuts and bolts of classes, projects and theses.

Suggested Mentoring Topics:

- a. long-term student career goals
- b. comprehensive exams and thesis defense, what they are really like
- c. quality of peer-to-peer interactions
- d. conference, workshop, etc. opportunities
- e. networking opportunities beyond the lab
- f. broader skill set development, including working across disciplines
- g. papers being read
- h. issues of concern to students; i.e., the agenda provided by student
- i. annual committee meeting

2. **Secondary Mentoring Experiences:** By default, relationships between graduate students and their formal Advisors entail a power structure that is institutionally formalized. The NRML mentoring plan encourages establishing a 'secondary mentor' and in so doing promotes a mentor mentee dynamic distinctly different from that between student and their Graduate Advisor. This approach follows the business world that an effective mentor is typically not your boss. Students are encouraged to seek mentorship outside of their immediate research program. Such mentors may come from a student's committee, or may be a professional involved with NRML activities. Based on feedback from NRML's postdocs and graduate students, networking and mentoring from outside academia is a very high priority. Therefore, we also encourage primary mentors to help students make connections with potential mentors through external government and private partners on the NRML project.

A component of secondary mentorship can be development of a professional network that provides opportunities for career establishment. In this sense, a secondary mentor can be selected to help coach and open the door to people who can connect the graduate student with additional professional development learning and opportunity identification and pursuit.

Some topics and activities of interest may include:

Topics:

- a. personnel dynamics
- b. thesis/dissertation expectations
- c. quality of engagement
- d. idea development
- e. opportunities and relationships beyond the lab and academia
- f. professional development that compliments research training
- g. role models for career development

This plan can be updated through mentor-mentee experiences and influx of new ideas.

This material is based upon work supported in part by the National Science Foundation EPSCoR Cooperative Agreement OIA-1757351. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.