PLAN YOUR WORK & WORK YOUR PLAN

ESSENTIAL CAREER COMPETENCIES for PhDs

MICHIGAN STATE UNIVERSITY

introduction

*f*inding and landing a professional position is *more than simply completing a degree or completing a postdoc, internship, or temporary job.* It is a complex process that varies by discipline and requires development of and confidence in your abilities, an aptitude to effectively network within and across disciplinary fields, and the capacity to analyze your skills, knowledge, and strengths.

If you are earning or have a Ph.D., you already have *advanced transferable skills* that will allow you to excel in a variety of environments. What you need is a way to develop and effectively describe these skills and competencies. That is what this guidebook is all about.

Plan Your Work & Work Your Plan highlights key transferable skills that are important for the career and professional development of those earning or holding a Ph.D. degree. Our goal for this guidebook is to help you:

- Recognize the skills you are acquiring that complement and go beyond your disciplinary specialization

- Understand the broad uses of those skills during graduate school, the postdoc experience, and your future career

- Identify ways to strengthen and consolidate those skills while you are a graduate student or postdoc

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using this guide

Six broad skill areas are defined and exemplified through interviews with doctoral degree recipients who talk about how those skills have been important in their professional lives.

A section called "Putting It to Work" is included in each chapter. This section identifies specific suggestions on how to develop and improve each skill now, and the resources available to assist you both within and outside your department.

In addition, a "PREP Spotlight" box features workshops and programs associated with the Graduate School. PREP is the MSU Graduate School career and professional development model designed to help you plan for a successful doctoral experience and a smooth transition into your future role in academia, government, industry, corporations, or agencies. For more on PREP programs, see the end of this guide, and visit **http://careersuccess.grd.msu.edu**.

Becoming a competent and effective professional who will be competitive for a variety of careers will require dedicated time and effort on your part. The investments you make in your professional development today will serve you well throughout your graduate and postdoc experiences and beyond.

Several research studies have focused on identifying the transferable skills that academic and non-academic employers are seeking from those with a Ph.D., including those conducted by:

- Center for Innovation and Research in Graduate Education
  http://depts.washington.edu/cirgeweb/c/

- Re-Envisioning the Ph.D. Project
  http://www.grad.washington.edu/envision/

- National Postdoctoral Association
  http://www.nationalpostdoc.org/

contents

Original research, scholarship, and creative activities are the core components of a doctoral program; they distinguish the Ph.D. from all other higher education degrees. A dissertation does more than demonstrate specialized expertise: it also shows that its author acquired skills that are highly valued in academia, government and private agencies, and corporations. Designing and successfully carrying to completion a research or creative project requires:

- Mastering research methodologies and creative techniques, and recognizing how they are used both within and outside your discipline

- Knowing how to synthesize the work of others and integrate it with your own, giving credit where credit is due

- Approaching your field creatively in order to expand or explore new avenues in research, scholarship, or performance

- Defining a problem, and identifying and effectively using relevant resources to address it

- Practicing independent, critical thinking, problem-solving, data analysis and synthesis

- Managing a project to completion, including defining the parameters, prioritizing a range of tasks, and effectively partnering with researchers and staff

- Writing clearly, developing your original ideas within an existing community of scholarship, and defending those ideas to peers

- Sustaining passion for your area of expertise, and communicating that passion to others.

thinking application

Nailah Orr (Ph.D. Zoology/Neuroscience) received a BSc degree from the University of Western Ontario (Canada) and an MSc from the University of Waterloo-Canada after which she came to MSU for a Ph.D. Subsequently, she held two postdocs at MSU. In 1992, she was hired as an Insect Receptor Biochemist with DOW AgroSciences, where she became a Senior Scientist. At DOW she was involved in various aspects of the biology, biochemistry and molecular biology/genetics of a number of discovery-based insecticidal actives and was the lead scientist involved in identifying novel insecticidal actives and novel modes of action. Dr. Orr is currently the CEO of YourBioLink LLC, a consulting group in Indiana. She serves as a liaison for a number of universities, not-for-profit organizations and life-sciences based companies and has been active in helping them develop strategic plans and acquire funding. Recently, Dr. Orr was asked to participate in a panel that will review and develop the science curriculum for the elementary and middle schools in the Carmel-Clay district for the next 6 years.

Being a researcher outside the academy involves engaging the passion and knowledge you have developed in your area of expertise and applying them to new problems. For Dr. Nailah Orr, making the transition from working in an academic lab to using her science at Dow Chemical meant discovering how techniques or methodologies she already knew could be used in different areas of research. "Applicability," says Dr. Orr, "is a key differentiator in industry, because in industry everything really boils down not to the actual thing you are doing or the technique or the skill, but its applicability outside your field." While doing doctoral research, there are many opportunities for you to develop this competency: "One of the ways that I feel has been underappreciated is the simple concept of understanding what you are doing. For instance, if you have been given a project, start by becoming very familiar with the literature surrounding that specific topic, but also branch out." In other words, do not be afraid to expand your research to other disciplines when necessary. As Dr. Orr explains, "When you branch out, you are essentially asking yourself, 'What other things may this particular set of techniques I'm learning be used for?' You are asking very important questions about the applications of your research."

Maintaining a high level of curiosity about other disciplines in the university is another way of making connections between your specialty and other domains. A good way to make connections, says Dr.Orr, is to take the time to attend lectures, presentations, or symposiums in other disciplines. She also suggests taking that curiosity a step further: "If there are people on campus who have been invited, who are experts in their field, take the initiative, if you find that topic even remotely interesting, to read about them a little bit, maybe even contact them if you have a question or idea." The key is to constantly seek new ways to expand your knowledge base in order to develop breadth and depth. Developing an understanding for the applications of your research is a fruitful starting place. "When you start thinking application, it opens up all sorts of other avenues for you."

thinking creatively

Marilyn Frye (Ph.D. Philosophy) received the BA with honors in philosophy from Stanford University in 1963, and her doctoral degree in Philosophy at Cornell University in 1969. She is a University Distinguished Professor in Philosophy at MSU. Before coming to MSU in 1974, she taught in the Philosophy Department at the University of Pittsburgh. In 2008 she was the Phi Beta Kappa Romanell Lecturer. She has also served as Associate Dean for Graduate Studies in the College of Arts and Letters. Dr. Frye is the author of two books of essays in feminist theory: *The Politics of Reality* (1983) and *Willful Virgin* (1992), and numerous essays in major collections and journals in the field. Her research focuses on understanding social categories.

"Academics," notes Dr. Frye, "are always engaged in some kind of creative reconstruction of information. For instance, a literature major is always thinking as she or he reads, 'But what about this?' or 'What if we see this same idea from a different perspective?' or 'No one has approached this topic from this position before.'" For Dr. Frye, creative engagement and perspective-taking are not just productive habits of mind; they are active research practices. Dr. Frye has used these approaches to reshape the field of philosophy, interrogating categories and terminology from unexpected points of view. Her foundational work in feminist philosophy starts from what we assume we know about categories of everyday life, and employs position-taking to reformulate those assumptions.

Academic research, Dr. Frye explains, is about pushing yourself beyond what is familiar, and coming up with creative solutions to address constantly changing fields. "Because of our training," she observes, "academics tend to enjoy those situations when our way of thinking about something is called into question. So, we respond to problems with excitement, rather than discomfort." Reacting constructively to questioning and feedback can lead to unanticipated directions in research and creative performance. Leaders in their fields have the passion to argue for "the productivity and merit of another approach," and they communicate that passion to colleagues and students.

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Putting It to Work

Research studies of the graduate student experience consistently show that clearly communicated expectations improve advisor-advisee relationships and promote degree completion. How do you learn about the necessary skills and tools for research, scholarship, and creative activities in your field? Here are some key questions to ask faculty and peers:

- What are the major journals and performance or exhibition venues in my field?
- Which conferences and disciplinary society events should I attend and follow?

- What campus seminars or workshop series should I attend?
- What are the leading methods of research or performance or creative techniques in my field? What are their limitations?

- How do I plan and manage a large-scale project and associated personnel?
- What sources of funding are there for projects in my field, and how do I find them?

PREP Spotlight

The PREP matrix included at the back of this guide can be used not only as a career planning tool but also to plan the stages of your scholarship and research.

Some sample activities are included in the cells below.

Tailor the grid to your own project.

	PLANNING	RESILIENCE	ENGAGEMENT	PROFESSIONALISM
EARLY	• Identify appropriate research methods for your objectives	• Create a timeline for the stages of your project • Create a network of professional mentors in your program	• Apply for necessary approvals and human or animal subject permits	• Engage in research ethics training • Identify standards in your discipline for presenting your work
MID	• Identify resources and potential publication outlets	• Identify a professional network outside MSU • Learn how research or creative works are peer-reviewed	• Apply for funding	• Create clear evaluation standards for working teams
LATE	• Know deadlines for submitting your dissertation or research results	• Work with mentors to understand and incorporate feedback	• Share research findings or creative works with peers	• Assist in mentoring undergraduate research in your field

In the face of rapidly changing structures in higher education, corporations, agencies, and other professional organizations, employers are actively seeking advanced degree holders with strong, demonstrable leadership and management skills. Leadership involves developing new ideas and directions and knowing how to bring together the people and resources needed to implement them. In a highly interdependent world, it also involves developing interpersonal skills that go beyond communicating with those in your field. Leadership requires that you:

- Facilitate learning by sharing knowledge
- Actively listen, question, and advise

- Foster collaboration by promoting cooperative goals and trust
- Motivate others to act by communicating your passion for a shared goal and actively incorporating their values and interests
- Purposefully build, maintain, and evaluate teams, research groups, and learning communities
- Lead teams that include diverse personalities
- Identify and diagnose problems, generate and implement solutions, and follow through with evaluation and adjustment
- Manage human and economic resources and make decisions in a timely manner.

thought leadership

Brad Love (Ph.D. Media and Information Studies) received a B.S. in Journalism from the University of Florida before coming to MSU for a Ph.D. He is currently an assistant professor in Advertising and Public Relations at the University of Texas at Austin. His primary research interests include investigating the persuasive capabilities of mass media, particularly as applied to pro-social topics such as public health. Love's research has appeared in *Journalism and Mass Communication Quarterly*, the *Journal of Computer-Mediated Communication*, the *Journal of Postgraduate Medicine*, and *Disease Management and Health Outcomes*. While at MSU, Dr. Love received the Excellence-in-Teaching Citation. He served in several leadership roles on campus, including president of the Council of Graduate Students (COGS).

"Many academics," Dr. Brad Love notes, "view the world through a narrow, prescribed window aimed at achieving specific goals." Academic leaders, however, must be able to see the broader picture. The best leaders, says Dr. Love, "are able to look beyond trendy or fundable ideas into where a field is really (or ought to be) heading." Those leaders who can envision the impact that work done inside the academy may have in other spheres are what Dr. Love calls "thought leaders." Thought leaders promote inclusivity and interdisciplinary thinking in the academy. They encourage inclusivity by supporting academic research that is responsive to and reflective of significant real-world issues and shifts. They encourage interdisciplinarity by foregrounding the common interests that are shared among various disciplines, and using these common interests to foster a "collaborative spirit" within the university.

Dr. Love suggests that you think of yourself as a thought leader from the beginning of your academic career. "Engaged Ph.D. students," he says, "have the option of broadening their scope." Consider combining fields of study within your research. In his own work he has bridged the areas of public health, psychology, and digital media studies. Working across fields, he maintains, "is the first step in developing a leadership competency that permits graduates to make assertions as to where research is or should be going."

leadership as service

Karen Klomparens (Ph.D. Plant Biology) has served as Dean of the Graduate School and Associate Provost for Graduate Education at MSU since 1997. She is a Professor of Plant Biology and is on leave as Director of MSU's Center for Advanced Microscopy. Prior to becoming Assistant Dean for Graduate Student Welfare in 1994, Dr. Klomparens was on a Fulbright-supported sabbatical at the University of Cambridge. She and her colleagues developed a program on "Setting Expectations and Resolving Conflicts in Graduate Education" that is the topic of a 2008 Council of Graduate Schools' monograph; the program has been used in a variety of settings inside and outside of academe for the past 10 years. Dean Klomparens served a two-year term as the Chair of the Big Ten (CIC) graduate deans group, three years on the Executive Committee and five years on the Board of Directors for the Council of Graduate Schools, two years on the Professional Science Master's Board of Directors, two years on the GRE Board, and two years on the Executive Committee of the Association of Graduate Schools (AAU).

According to Dr. Karen Klomparens, leadership doesn't always mean having a title. The most visible and respected scholars in a field are those whose research is published in leading journals, whose books, textbooks, and creative works receive acclaim, and who are called upon by those outside the university to offer assistance, opinions, and presentations. This disciplinary leadership in research, scholarship, and creative activities often leads to leadership and service in disciplinary and professional societies: participation on or chairing committees, elected or appointed offices of the society itself, and participation on journal editorial boards. Disciplinary leadership can help prepare you for other leadership positions in universities that do have titles.

Dr. Klomparens believes that leadership in academia is defined by service. "Every dean and every chair," she explains, "serves other people—this is our job. People are depending on you. If I fail to do something, someone else out there on campus does not get what he or she needs." For this reason, says Dr. Klomparens, strong academic leadership requires personal selflessness and a strong awareness of how your actions may impact those around you. "Essentially," she says, "leadership means having personal discipline about getting things done for others—even the boring things that you do not like doing."

Leaders serve others by upholding fundamental principles and values: "Having principles and values," Dr. Klomparens explains, "means that when you see something that is not right, you call it on the carpet. Whatever it is, you do not let it happen on your watch." Ensuring that problems are addressed and fixed is a leader's responsibility. Leading through service often means "asking the hardest questions, even when you would rather hand off the problem to someone else." In meeting this responsibility, you are also ensuring the rights and welfare of others in more vulnerable positions: "The bottom line is that when you are in a position of power, you must speak up for all those people who cannot speak." Ultimately it is not enough to *simply know* when something is wrong. As a leader, "you must develop the courage to say it out loud and the persistence to ensure that it is corrected."

Putting It to Work

Leadership means doing more than the minimum. Seek out opportunities to build your skill base and contribute to your department, institution, discipline, and community. To find leadership opportunities, look inside and outside your program. You can be a leader without a title!

- Are there opportunities to serve on committees in your department, college, or university? Which ones does your advisor value?
- If you are working as part of a research team, are there parts of the project for which you can take additional responsibility?
- How can you serve as a mentor for undergraduates, either within your program or elsewhere in the university?
- Are there ways you can be involved in national or international disciplinary societies?

PREP Spotlight

You can become a leader in your field in ways that build on and extend your disciplinary expertise. Consider applying for one of MSU's programs for graduate students across campus:

- **Residential College in Arts and Humanities Leadership Program** integrates graduate and undergraduate education in the arts and humanities around the dual focal points of enhancing the scholarship of teaching and learning, and the scholarship of engagement. **http://grad.msu.edu/castl/**
- **FAST (Future Academic Scholars in Teaching) Fellowship Program** engages doctoral students in natural sciences, engineering, math, and veterinary medicine in a year-long mentored teaching experience. **http://grad.msu.edu/fast/**
- **University Graduate Certification in College Teaching** helps graduate students organize and develop their teaching experience in a systematic and thoughtful way. It includes a mentored teaching project and culminates in a teaching portfolio. Students who complete the program will receive a notation on their transcript. **http://grad.msu.edu/collegeteaching/**
- **Interdisciplinary Inquiry and Teaching Fellowship Program** helps graduate students integrate new methods of pedagogy to improve teaching and learning in interdisciplinary studies. Linked to James Madison College, the focus is on teaching in the social sciences for undergraduates. **http://grad.msu.edu/iit/**
- **Graduate Certificate in Community Engagement** prepares students for academic careers that integrate scholarship with community engagement. It is tailored in cooperation with the student's graduate advisor and University Outreach and Engagement, and includes instruction and a mentored experience in community engagement. **http://outreach.msu.edu/gradcert**

Having a sense of professionalism involves reflecting on how you practice research, scholarship, creative activities, and teaching in your respective discipline, as well as on the values underlying the choices and decisions you make on a daily basis throughout your career. Performing with ethics and integrity entails a personal commitment to understanding and steadfastly adhering to high moral principles while carrying out professional responsibilities, interacting with colleagues and students, and managing projects. It also includes showing integrity in your work practices and maintaining ethical principles in professional relationships. Developing strong professional ethics and integrity requires that you:

- Understand and apply professional standards of ethics and research integrity

- Adhere to professional, moral, and ethical principles

- Be honest, truthful, and forthright

- Communicate effectively

- Protect and respect research participants and collaborators

- Disclose and report potential conflicts of interest

- Practice confidentiality and respect the ownership rights of intellectual property

- Understand and comply with the rules and guidelines in your discipline

- Be collegial by working well with others

- Give recognition and credit where credit is due

- Perform research with integrity

- Understand your discipline's and institution's professional code of ethics.

character first

Joseph Hoedel (Ph.D. Family & Child Ecology) earned a B.S. in Psychology from Grand Valley State University, and a masters and Ph.D. from MSU with a specialization in Marriage and Family Therapy. A former college professor at the University of North Carolina, and a high school teacher, he is now a consultant for several K–12 school systems. He has created, taught, and evaluated the Character Development and Leadership curriculum, which is used in over 600 schools nationwide. He is the author of the book *Role Models: Examples of Character and Leadership*, which uses case studies to demonstrate leadership in practice.

"Every day we create our own reputation," explains Dr. Joseph Hoedel. "Reputations make or break businesses." This value was important in his own family, and it became even more important as he began his professional career as a faculty member at the University of North Carolina and then as a consultant. For Dr. Hoedel ethics and integrity are part of something much larger: one's character.

He defines character as the constellation of a number of personal traits: loyalty, integrity, courage, tolerance, perseverance, appreciation, compassion, responsibility, self-control, honesty, respect, preparation, and attitude. According to Dr. Hoedel the more of these traits that an individual possesses, the stronger his or her character. If one of these traits is missing, he or she has what is called "a character flaw."

As a doctoral recipient you will likely assume leadership positions in the public or private sector, so it is crucial to continually reflect on your goals and values, especially as they change over time. Dr. Hoedel believes that the more power and influence a person has, the greater his or her responsibility to act in ethical and just ways. Those in leadership positions, Dr. Hoedel notes, "have influence over large groups of people. For instance, a professor's attitudes and behaviors are a role model" for students and colleagues. Be aware of how your behavior and choices might influence the practice of those around you.

responsibility rules

Terry May (Ph.D Environmental Biology) attended Goshen College in Indiana before graduating from Colorado State University (B.S. and M.S. Wildlife Biology) and the University of Colorado for the doctoral degree. His area of study is avian ecology, specifically of white-tailed ptarmigan in Colorado and migratory shorebirds in Maine. A general interest in the process of research led him to undertake a career in research administration spanning nearly 26 years at four prior universities (University of Maine, University of Delaware, Thomas Jefferson University, and Northern Arizona University) before moving to MSU in 1998. Dr. May's recent efforts have focused on implementing the university's faculty conflict of interest policy, supporting a task force of senior faculty considering research mentoring of graduate students, and planning and offering a series of workshops to graduate students on the responsible conduct of research.

For Dr. Terry May, Faculty Conflict of Interest Information Officer, it is essential that Ph.D.s conduct themselves according to the highest level of professional integrity. In his extensive experience in research administration at MSU and elsewhere, Dr. May has witnessed what happens when students are found to have engaged in research misbehaviors. In the most serious cases, degrees can be revoked.

Doctoral students and postdocs come from around the world and bring significant moral and ethical diversity to MSU. This diversity is what makes MSU a dynamic place to learn and grow professionally. However, this also results in differences in professional cultures and definitions of misconduct. Dr. May's goal is to educate students about a common understanding of research integrity and ethics as defined in the U.S. He explains that "education about the Responsible Conduct of Research and matters of Research Integrity is not intended to modify an individual's personal moral perspective or ethical framework. Nor is it about trying to make someone a 'good person.' It is about acquiring the skills and understanding needed to practice and verify the integrity of one's scholarship or professional contributions."

Having to provide evidence justifying one's actions and to explain them is not an indication of lack of trust; it is what professionals are expected to do. "Documenting one's actions and professional decisions in a clear and timely manner," Dr. May suggests, "is valuable both on a day by day basis and in the rare event when there are doubts about the accuracy and motivations of professional decisions."

In practice this requires good planning and routinely being conscientious and diligent about what can often seem small matters. "Responsible people," according to Dr. May, "know how to manage their actions and professional time commitments in ways that contribute to their work being efficient and productive *and* trusted and valued." Being careful and organized about small decisions and practices can head off problems before they turn into major lapses in academic or research integrity. "People are forgiving and understand the importance of helping others to tackle problems as they arise," Dr. May concludes, "but there is no excuse and little forgiveness for a knowing violation of professional standards of integrity." Be proactive in learning about and adopting professional standards in your research and scholarship.

Putting It to Work

Make sure you know the guidelines and standards for research and creative activities at MSU and in your field. *Before* you start your research, ask the following questions:

- Do disciplinary societies have guidelines for research, scholarship, and professional practice in your area? What are they?
- How will credit on a collaborative project be shared? How is authorship decided on joint publications?
- What federal, state, and university research regulations apply to your project? What kinds of approvals will you need before you collect data?
- What are the standards in your discipline for acknowledging the work of others? How would plagiarism be defined?
- Are there any potential conflicts of interest in the research you are doing? How do you know what counts as a conflict of interest?

You can find more about MSU guidelines by visiting:

- **Guidelines for Integrity in Research and Creative Activities.** http://grad.msu.edu/publications/docs/integrityresearch.pdf
- **Guidelines for Graduate Student Advising and Mentoring Relationships.** http://grad.msu.edu/publications/docs/studentadvising.pdf
- **Data Management, Access, and Control.** http://grad.msu.edu/researchintegrity/docs/ri01.pdf
- **Authorship Guidelines.** http://grad.msu.edu/researchintegrity/docs/ri01.pdf
- **Conflict of Interest.** http://grad.msu.edu/researchintegrity/docs/ri06.pdf

PREP Spotlight

Responsible Conduct of Research Workshop Series

As a key component of MSU's plan to promote the responsible conduct of research, the Offices of the Provost, the Vice President for Research & Graduate Studies and the Dean of the Graduate School join together to offer a series of workshops to be presented throughout the academic year. This series is intended to provide specific information about the responsibilities of students, postdoctoral researchers, faculty, and staff in proposing, conducting, and reporting on research, scholarship, and creative activities. It is designed to stimulate discussions, complement department activities, reinforce issues highlighted in the *Research Integrity Newsletter*, and promote a common understanding of integrity and responsible conduct across disciplines while allowing for the application of differences in professional standards. Attendance at this full series will be recognized with a certificate of completion. Visit: **http://grad.msu.edu/rcr/**

collaboration

Many disciplines require collaboration from the outset (e.g., writing groups and research groups where working as part of a team is expected). Often, collaboration is a skill learned in the process of researching, teaching in the classroom, presenting or applying research to a broader community, or working with a dissertation guidance committee that spans various interests or fields. Effective collaboration includes the ability to:

- Work as a productive member of a team, group, or organization

- Remain flexible and open in response to the needs and opinions of your working group

- Partner with diverse groups to pursue a common goal

- Give and receive constructive feedback

- Assume responsibility for communicating, problem-solving, and completing tasks

- Communicate across disciplines and audiences, both academic and non-academic

- Build and sustain networks of faculty and peers within and outside your program or department, as well as outside MSU

- Operate in a mentor-mentee relationship with those of varying degrees of knowledge and experience.

the collaborative spirit

Julius Jackson (Ph.D. Microbiology) received his Ph.D. from the University of Kansas; he was an NIH Postdoctoral Fellow and a Postdoctoral Research Associate at Purdue University. At MSU he is professor of Microbiology and Molecular Genetics and serves as Associate Dean for Student Affairs in the Graduate School. Over his career, Dr. Jackson has held administrative positions in academics and government that include Chair of the Department of Microbiology at Meharry Medical College, Dean of the School of Arts and Sciences at Clark Atlanta University, and Director of the Division of Molecular and Cellular Biosciences at the National Science Foundation. His research interests include the study of bacterial and archaeal genomes as information systems that determine the physiological states of an organism.

As an associate dean in The Graduate School and a professor of microbiology, Dr. Julius Jackson understands the importance of collaboration in academic settings. "For graduate students," says Dr. Jackson, "learning to collaborate with others is critical because it helps them learn to articulate their research to others outside of their discipline." At the same time, collaboration exposes you to research and projects in other fields. Articulating your own work to diverse audiences requires some understanding of work being done beyond your area of expertise. When you use collaboration as a tool of exchange and understanding across areas, says Dr. Jackson, you are engaging in "cross-disciplinary" or "interdisciplinary" conversations—or "cross-talk" for short.

Dr. Jackson points out that "cross-talking" is still a relatively new idea in academia. "Traditionally," he explains, "collaboration has been defined by specialization or expertise, meaning that a project is divided into slices and each person takes a slice, does their own thing with it, and then everyone comes together again to publish or finalize the project. One of the problems with this model, in my opinion, is that no one gains an understanding of the work that their co-workers are contributing. Rather, you are concerned mainly with your own slice of the project. However, this traditional model of collaboration is popular and useful because it succeeds in the sense that it generates lots of publications." Increasingly, says Dr. Jackson, the academy has moved toward a collaboration model that values "cross-disciplinary" understanding as well. In this newer model, "the slices are now more overlapping slices. That is, persons A, B, and C are working together to gain some greater fundamental knowledge. A knows what B and C are doing and so forth. And this time, the underlying goal is to understand how their research intersects and to discover new applications for their work." The idea, says Dr. Jackson, is that "together academics are more knowledgeable—about their own work, others' work, and the whole context for research in the university."

Dr. Jackson believes that practicing "cross-talk" promotes better communication

embracing collaboration

Paula Foster Chambers (Ph.D. Rhetoric and Composition) received a B.F.A. in Dramatic Film from the California Institute of the Arts, an M.A. in English from California State University, Northridge, and a Ph.D. from Ohio State University in 2000, where she won a university graduate associate teaching award. Dr. Chambers is founder and list manager of Work for Us, a national email discussion list about post-academic careers for people with graduate degrees in Humanities and Social Science disciplines; she won a Woodrow Wilson National Fellowship Foundation Innovation Award for that effort in 2001. Today Paula is expanding her service to graduate students and Ph.D.s by writing a book called *The Versatile Ph.D.*, about transitioning from the academy to the nonacademic workforce. She also continues to manage Work For Us with support from Duke University.

Dr. Paula Chambers explains that in non-academic workplaces "relationships should be your number one priority." A large part of the transition from academic to non-academic careers involves embracing a reward system that values productive collaborative relationships as much and often more than individual achievements. The doctoral process focuses intensively on individual performance and reward: "Starting with your orals, you go before one panel of gatekeepers after another, showcasing your work and always hoping for the same thing: that these people will officially agree that you are smart/gifted/brilliant enough to proceed to the next level."

of information and fosters a more inclusive and active academic community. One way to create opportunities to collaborate, he suggests, is to organize regular activities that bring together people from diverse disciplines. In one such collaboration at MSU, researchers from the natural sciences, mathematics, engineering, and social sciences hold monthly community meetings. In "cross-talk presentations," Dr. Jackson explains, "there are no props, no electronics—we just talk. This way, the participants are learning to simply *talk* about their work in a way that is clear to anyone. Similarly, they are learning to *listen* and understand ideas and terms from disciplines other than their own." Participating in cross-talk communities helps you prepare for a constantly changing academic environment: "This is a good first step for our faculty of the future. This new style of collaboration is really needed for a more inclusive and cohesive academia."

As you progress, working in teams may seem secondary, and ultimately not as rewarding as individual excellence.

In non-academic workplaces, Dr. Chambers reports, working with others is the rule, not the exception. In academia, collaborations are often formed voluntarily and temporarily around specific research, teaching, or service goals. In non-academic jobs, collaboration is ongoing and mandatory: "You are thrown into working groups on a regular basis, usually at the discretion of someone else, towards a goal that has not emerged from you personally, but rather from the needs of the organization." In such a highly collaborative environment, success is being perceived not as brilliant, but rather as *likeable*, *competent*, *flexible*. As Dr. Chambers puts it, "Your mental space is shifted more towards relating well to your collaborators and less towards achieving a high degree of excellence in the final product. Excellence is good, but goodwill is the *sine qua non*."

Focusing on collaboration does not mean abandoning your academic training outside the academy. But careers in other sectors will challenge you to seek out new and creative ways to apply your scholarship, knowledge, and intellectual skills in a collaborative framework. Dr. Chambers recommends developing your relationship-building skills now by cultivating a growing awareness of other people's perspectives. This means being attuned to others' strengths, challenges, needs, desires, working styles, and deadlines. and expressing that awareness outwardly in the form of supportive remarks and behaviors. "This is not about being phony," adds Dr. Chambers. Rather, "it's about learning how to work well with others, and working well starts with getting along." She also advises graduate students to take the initiative in forming positive working relationships with others within and outside of their discipline.

Putting It to Work

Making collaborations work requires planning from the outset. Asking the following questions will help you become aware of diverse needs and expectations and potential conflicts before they become a problem:

- In cross-disciplinary projects, what are the expectations and standards in the disciplines involved? Do they differ? If so, how might that be significant for your project?
- How does your program value and balance collaborative and individual efforts?
- How will collaborations be evaluated? If there is more than one evaluator, do they have similar expectations?
- What are the interests and expectations of the different parties in a collaboration? How can they be clearly communicated and addressed? How would you address disagreements?
- What strengths and weaknesses does each collaborator bring to the group? How can these be used to balance each other? How will they influence how work is delegated?

PREP Spotlight

Setting Expectations & Conflict Resolution

Although there is national recognition of the serious nature of interpersonal conflicts between graduate students and faculty, little has been done to address the problem. The MSU Graduate School developed and tested a unique, proactive approach using interest-based negotiation strategies to set expectations within graduate programs and for individuals in an early and ongoing manner, as well as to resolve conflicts between graduate students and faculty. Program goals are to: (1) introduce interest-based negotiation strategies to faculty and graduate students for use in setting expectations and resolving conflicts; (2) raise awareness of issues of potential conflict, particularly in doctoral education; (3) improve graduate handbooks (where explicit expectations are codified); and (4) improve retention.

Workshops are offered on the MSU campus and at various campuses across the country. The program is also featured in the monograph: Klomparens, K., Beck, J., Brockman, J., and Nunez, T. (2008). *Setting Expectations and Resolving Conflicts in Graduate Education.* Washington, D.C.: Council of Graduate Schools Publications.

Find more information at **http://grad.msu.edu/conflictresolution/**

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As a doctoral student, you will be communicating your research and current ideas in your field to multiple audiences: your committee, peers, students, granting agencies, professionals at conferences, and various public groups. But clear communication is just as important outside academia: according to numerous national studies, employers want individuals to have excellent teaching and communication skills so that they can work effectively in teams. If you pursue job opportunities in industry, non-government organizations or with agencies, you will be teaching materials to management groups, upper-level administration, staff, and public constituents. Good teaching and communication skills include the ability to:

- Understand and apply principles of active and cooperative learning to diverse audiences

- Facilitate learning in small and large groups

- Explain technical information to lay audiences

- Speak and write clearly for diverse audiences

- Share your enthusiasm for your material

- Give and receive criticism effectively for continuous improvement

- Assess the effectiveness of your communication methods and adapt them to the needs of different groups

- Practice active listening, and learn to hear other perspectives and points of view

- Use various delivery systems including technology to effectively communicate ideas.

finding your communication style

Julie L. Brockman (Ph.D. Adult Education) received masters degrees in organizational communication from Ohio State University and in Labor and Industrial Relations from MSU before completing her doctorate. She is currently an assistant professor in Labor and Industrial Relations, where she is an instructor and consultant for the Labor Education Program (LEP) and the Program on Innovative Employment Relations Systems (PIERS). In LEP she has conducted workshops locally and nationally for union organizations and their joint partners; in PIERS, she assists unionized organizations in developing and implementing joint union/management initiatives. Dr. Brockman also coordinates the conflict Resolution Program for the Graduate School. Her research focuses on the workplace as a location for adult learning and development, negotiation and conflict resolution, and the process of joint union/management collaboration.

Dr. Julie Brockman believes that a large part of communication involves "active listening" and self-evaluation. "In your academic career," she explains, "you will be constantly barraged with feedback: criticism, proposals, others reviewing your work. If you keep yourself open and choose to absorb that feedback, you will be much more successful in your career." One way to prepare yourself for this cycle of feedback, she suggests, is to put yourself in situations where your ideas can be tested, critiqued, or scrutinized by others: "Graduate students need to be able to experiment more, make themselves a little more vulnerable to feedback from other students, faculty, or administrators, or whoever is around that can help."

Dr. Brockman stresses the importance of sharing your work frequently with colleagues and advisors. She knows this from experience: "I have learned over the years that it is beneficial to myself in my own work if I share with people mid-sentence, or if I share drafts of papers, or if I just sit down and take 15 minutes and throw an idea around with a colleague, and then take what they have, go back and do a little more work." In sharing your work, especially in its "rough"

writing as communication

Peter Fiske (Ph.D. Geological and Environmental Sciences) received his A.B. in Geological and Geophysical Sciences and a Certificate of Accreditation in Civil Engineering from Princeton; subsequently he was awarded a National Science Foundation Graduate Fellowship which helped to support his doctoral work at Stanford in 1988. He received his MBA from U.C. Berkeley's Haas School of Business in 2002. In 1996, Dr. Fiske was selected as a White House Fellow and served in the Pentagon as Special Assistant to the Under Secretary for Acquisition and Technology. Fiske also created a novel fellowship program to bring talented young scientists and engineers to Washington; for this work he was awarded the Defense Outstanding Achievement Award in 1997. He is currently VP for Business Development for PAX Streamline, Inc., Chief Technology Officer at PAX Water Technologies, and VP for R&D for parent company, PAX Scientific, Inc. Before joining PAX, Fiske led a research team in condensed matter physics at Lawrence Livermore National Laboratory, and then was co-founder and VP for Business Development and Sales of RAPT Industries.

We often regard effective communication as a verbal skill. Dr. Peter Fiske emphasizes the importance of thinking about writing as communication. This is especially true in non-academic positions, says Dr. Fiske, where you will frequently have to write "persuasive documents" such as proposals or grant applications: "If you are in business you will be writing proposals, if you work in a government lab you will be writing proposals, everywhere you will be writing persuasive documents." Many graduate students, notes Dr. Fiske, mistakenly assume that non-academic positions will be less writing-intensive than academic positions. In

stages, you learn how to accept constructive criticism. More importantly, you are creating opportunities to practice communicating effectively with those around you.

Teaching can become a good "base for communication." "In one way," Dr. Brockman explains, "teaching helps you develop communication techniques that are not only effective, but comfortable for you. You are, in a sense, finding your own style of communication." Finding your own style involves inviting and accepting feedback from your students, and using this feedback to evaluate your performance. "As a teacher," says Dr. Brockman, "you are giving of yourself, you are out there open for whatever comes at you."

reality, he says, "No matter where you work, you will be writing persuasive documents." What changes from academic to non-academic jobs is the nature of the written communication. In non-academic positions, explains Dr. Fiske, you frequently write "marketing documents that help convince people to invest, in one form or another, in the work you are doing."

Clear written communication entails an awareness of your audience. "In scientific writing," Dr. Fiske observes, "we assume that the data should speak for themselves. Outside of science, persuasion is most effective when it combines 'facts' with a tone and style that solidifies the writer's credibility and creates a connection between the writer and the reader. This is not just writing prose that's easy to read, but framing arguments from the perspective of the reader—using appropriate analogies and quoting authorities that the reader will find credible." Know when your disciplinary style needs to be adapted for a non-academic audience.

Because written communication is likely to play a large role in your future career, Dr. Fiske suggests you get comfortable with writing on a daily basis. Treat writing as another type of communication skill that must be cultivated and sharpened as you progress through your degree. The goal, says Dr. Fiske, is to become not just comfortable with writing, but experienced with writing persuasive and engaging proposals.

As a newly hired Ph.D. you will be challenged to balance multiple tasks simultaneously, integrate the products of your work with those of others to meet the multiple missions of your organization, and maintain a satisfying personal life. Finding a way to balance your professional and personal responsibilities and interests is essential if you hope to finish your degree and sustain a long-term, satisfying career. Building and maintaining balance and becoming resilient will require you to:

- Set reasonable goals for work, personal, and family life
- Prioritize tasks and organize your schedule
- Understand the multiple missions and expectations of your employer, organization, or institution
- Understand your own expectations and role within the organization or institution
- Communicate frequently with your supervisor(s) regarding expectations, job responsibilities, priorities, and personal responsibilities
- Learn from colleagues who successfully balance personal and professional responsibilities
- Be resilient and flexible to the challenges that will arise in your professional and personal life
- Negotiate and resolve conflicts between yourself and others, as well as between the various demands on your time and personal resources
- Maintain a balanced health and wellness program that includes exercise, good nutrition, recreation, stress reduction, sleep, and healthy personal relationships
- Engage in short- and long-term financial planning.

modeling balance

Houston Brown (Ph.D. Organic Chemistry) received a B.S. in Chemistry from UCLA before coming to MSU for the doctorate. He is currently Manager of Graduate Recruitment & University Relations for Shell Oil Company. For his first 19 years at Shell, Dr. Brown was a polymer chemist for Shell Chemicals, working from the Westhollow Technology Center. He was a subject matter expert in the field of polymer fiber spinning. His work with fiber spinning spanned six continents, over 100 talks related to fiber spinning, seven U.S. patents, and many published papers. Fascinated by the changing face of computer technology, Dr. Brown then switched his career to the field of IT, with responsibility for technology scanning and architecture. In addition to other duties, he was part of the campus recruiting effort at Shell, focusing on MSU, MIT, Texas A&M, and University of Houston. He was campus manager for MSU. This work led to his interest in graduate recruitment, and to his current position in human resources. To achieve work/life balance, Dr. Brown relaxes by refereeing soccer games at youth, high school, and "big kid" levels.

Many corporate workplaces are making an increasing commitment to practices that promote their employees' overall sense of wellness. For instance, Dr. Houston Brown points to his own organization's growing dedication to an institutional philosophy of work/life balance. Shell's proactive approach to wellness in the workplace is justified, explains Dr. Brown, by the fact that employees who achieve work/life balance also tend to find their careers more satisfying and enjoyable. As a corporate recruiter who spends a great deal of time with graduate students, Dr. Brown has noted that Ph.D.s entering the corporate world often struggle most with balance. "In graduate school," he explains, "Ph.D.s are taught to focus, focus, focus. You are expected to do nothing but read and learn." Dr. Brown strongly encourages making the effort to cultivate a life outside of school: "I think it is very important for people to keep a perspective during that time period. I would advise graduate students to periodically stop and ask themselves, 'What does my life look like outside of graduate school now? Do I have any relationships? Am I nurturing those relationships that mean the most to me? Have I tried to cultivate new relationships, friendships, or interests outside of school?'"

Dr. Brown also notes that as he has moved into senior management, he has become aware of how his own practice becomes a model for others. And yet "the higher your position, the more difficult it becomes to achieve work/life balance." Nevertheless, says Dr. Brown, leaders must be adept at creating balance because
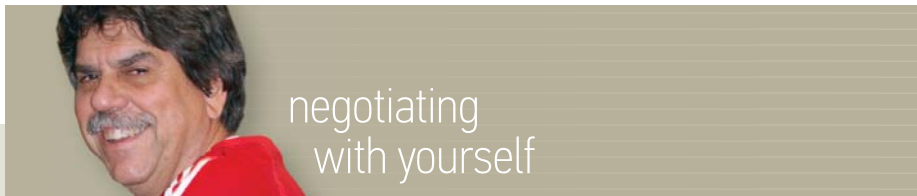
negotiating with yourself

Antonio A. Nunez (Ph.D. Psychology) received his Ph.D. in 1977 from Florida State University. Following post-doctoral training at the University of Massachusetts, Amherst, he joined the faculty of the Psychology Department and the Neuroscience Program at MSU. He is currently professor of Psychology/Neuroscience, Associate Dean for Academic Affairs in the Graduate School, and Director of the MSU Postdoctoral Office. Dr Nunez's research focus is the study of the neural mechanisms responsible for the circadian regulation of sleep and wakefulness in mammalian species. Some of his recent work also includes studies of environmental contaminant effects on neural and behavioral development. He has served on several grant review panels for NSF and NIH.

As an associate dean, professor, and father, Dr. Tony Nunez is keenly aware of how challenging it can be to balance multiple and often competing demands and responsibilities. He suggests you learn to be a "generalist" when it comes to managing the demands of school, work, and home: while striving to become a specialist in your chosen field, you also need to strive for an overall sense of balance in your personal and professional lives.

For Dr. Nunez, balance derives from good time negotiation strategies. "It is necessary," he says, "to negotiate time for yourself and for the people and activities that you value." Effective time negotiation requires being *realistic:* "It is important to be honest with yourself about how much time you have, how much you can allot to certain tasks, and what you can realistically accomplish within that allotted time." It also

they must model this behavior for their own employees. "Senior management," he explains, "has to believe in things like every other Friday off for team members. They have to practice it and they cannot be selective in when they choose to support it or not." If leaders fail to practice balance, their employees or the organization may feel the negative impact.

For all of these reasons, Dr. Brown emphasizes the importance of thinking about wellness now. Be attuned to how you manage personal and professional demands during graduate school, and avoid becoming so overwhelmed with the heavy workload that you lose sight of family, friends, and your own needs. Ultimately, Dr. Brown stresses, success over a long career depends on how effectively you integrate the various aspects of your life.

requires making *compromises*. Rather than struggling to meet every demand being made of you, Dr. Nunez suggests that you prioritize those demands and make decisions about what must be done and what may wait. He offers his own experience of balancing parenthood and his academic career to illustrate this point: "When our son was younger, there were certain activities at his school that we were simply not going to miss. But sometimes that meant missing a great lecture." In the end, Dr. Nunez explains, you have to constantly "negotiate with yourself" to achieve a healthy balance between competing demands.

Dr. Nunez believes that these same values hold true when it comes to managing one's academic career. Strive for balance in your life with the same voracity that you strive for excellence in your chosen discipline. One way to do this, suggests Dr. Nunez, is to learn to work efficiently and give yourself needed breaks—in other words, learn to pace yourself. "When I have a graduate student who works too hard," Dr. Nunez says, "I worry because I know that he or she will not always have the time to work that hard. As a professor, I know that the next stage is even more demanding." Treat your academic career like a marathon, he advises, rather than a sprint.

The challenge of balance *begins* in graduate school, but it certainly does not end there. Negotiating and managing one's time is, according to Dr. Nunez, "an ongoing process, which will and must be evaluated often as the demands change." Being resilient means being attuned to those shifts in your professional and personal life that will require you to reevaluate how you negotiate and manage your time.

Putting It to Work

- Do you take proactive measures to maintain balance?
- Do you know where to seek assistance for physical, mental, and emotional issues?
- Do you know how to handle periods of stress?
- Do you have a personal support group, as well as a professional support group?

MSU has support structures to help you practice balance and resilience. The partners in the Graduate Student Wellness Initiative offer many services that are free for graduate students and employees. You already have access to the following benefits:

- **The Counseling Center** provides personal, couples, and group counseling. All full-time MSU students, currently enrolled in classes, are eligible for Counseling Center services, with up to 8 free sessions. All services are confidential.
- **Employee Assistance Program** services are available to MSU faculty, staff, graduate student employees, retirees, and their immediate family members. All services are confidential. Graduate student employees are eligible for 6 free sessions.
- **Health4U** classes, coaching services, and groups span topics from meditation and yoga, to cooking, and managing stress and personal relationships. Health4U classes, coaching, and groups are free.
- **Olin Health Center.** The first 3 medical office visits are prepaid, each school year you are an enrolled MSU student, whether or not you are insured. The first 3 lifetime psychiatry visits are prepaid for enrolled MSU students, whether or not you are insured. Free financial wellness and nutrition counseling sessions are available.

PREP Spotlight

Wellness Initiative

This collaboration of MSU offices and programs, brought together by the MSU Graduate School, offers workshops and services for a proactive approach to health and wellness. Partners include the Counseling Center, the Employee Assistance Program, Olin Health Center, the Intramural Sports and Recreation Service Department, and Health4U.

For a look at available services from these partners, and research on key wellness issues for graduate students and postdocs, visit **http://grad.msu.edu/wellness**

PREP @ msu

PREP is the MSU Graduate School career and professional development model, designed to help you plan for a successful doctoral or postdoctoral experience and a smooth transition into your future role in academia, government, industry, corporations, or agencies.

The acronym "PREP" foregrounds four professional skills that are key to your doctoral and professional career: *planning, resilience, engagement, and professionalism*.

Employing these skills at every stage of your graduate experience—from the first day in your program through the finished dissertation, postdoctoral fellowships, and an effective job search—helps you maximize your opportunities for professional growth and discover a fulfilling career path.

Acquiring field-specific knowledge and the multiple skills necessary to thrive in graduate school and beyond requires thinking about your progress as more than specific hurdles or milestones. Each stage is part of your overall professional development—the process of socialization and integration into a professional context, and the continued process of learning and growth throughout a career.

The PREP matrix (*right*) is a career planning tool. It tracks the four professional themes through the early, middle, and late stages of a doctoral program, and highlights workshops and programs offered by the Graduate School and its MSU partners that will help you develop your skill base, work toward completion, and plan your future. These resources complement the career development and professional training you receive from your primary advisors, mentors, department, and college.

Visit our website to find workshops and to access hundreds of career resources through the PREP stages and skill areas: **http://careersuccess.grd.msu.edu**.

PLANNING

EARLY STAGE
- The PREPed Graduate Student: A Model for Career and Professional Development
- Effective, Powerful, and Healthy Public Speaking and Presenting

MID STAGE
- What's Out There? Identifying Non-Academic Options in the Ph.D. Job Market
- Translating Academic Success into Expanded Career Opportunities
- Planning for a Sustainable Career: From Graduate Student to Professional
- Planning, Managing, and Funding the Research Project

LATE STAGE
- Searching for an Academic Position: How to Be Successful
- Developing Your Written Credentials and Preparing Application Materials: CVs, Cover Letters, and More
- Talking About Teaching in the Interview
- Talking About Research in the Interview
- From CV to Résumé: Developing Written Credentials for Non-Academic Positions
- Negotiating Job Offers

RESILIENCE	ENGAGEMENT	PROFESSIONALISM
▪ Wellness Institute ▪ Be a Change Agent in Graduate School, Your Professional Life, and Beyond: Tapping and Using Your Emotional Intelligence	▪ Navigating the Ph.D.	▪ Investing in Responsibility and Integrity for a Productive Career ▪ Responsible Decision-Making in Academic Research: Ethical and Moral Perspectives ▪ Personal Responsibility in Conducting Research and Advancing Your Career
▪ Developing Communication and Conflict Management Skills to Save Time and Enhance Productivity ▪ Taking Charge: Strategies for Success in Academia	▪ Leading Through Teamwork: How to Be a Successful Professional ▪ Graduate Certificate in Community Engagement ▪ EF21U (Entrepreneurial Faculty for the 21st Century) Fellowship Program	▪ Maintaining a Productive and Responsive Environment for Conducting Research ▪ Responsibility to the Subjects of Research: Animals ▪ Responsibility to the Subjects of Research: Humans ▪ Objectivity and Conflicting Interests in Academic Research ▪ Understanding and Handling Classroom Incivility ▪ Effective Test Making ▪ Teaching Across Cultures ▪ Discussions that Work: Engaging Students, and Getting Them to Engage One Another
▪ Counseling Center Dissertation Support Groups ▪ Writing Center Dissertation Writing Groups	▪ University Graduate Certification in College Teaching ▪ University Graduate Certification in College Teaching Institute ▪ FAST (Future Academic Scholars in Teaching) Fellowship Program ▪ CASTL (Carnegie Academy for Scholarship of Teaching and Learning) Fellows Program	▪ Creating a Teaching Philosophy, Part 1: Establishing the Basics ▪ Creating a Teaching Philosophy You Can Use, Part 2: Developing a Professional Praxis ▪ Teaching Philosophy Development: The BASICS!

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