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# Compact Between **Biomedical Graduate Students** and Their **Research Advisors**

*A framework for aligning the graduate student mentor-mentee relationship*

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The following members of the compact review team are gratefully acknowledged for their contributions to this update:

Jerome Breslin, PhD, USF Health Morsani College of Medicine

Patricia Cameron, PhD, Augusta University

Lique Coolen, PhD, University of Mississippi School of Medicine

Victoria Freedman, PhD, Albert Einstein College of Medicine

Ambika Mathur, PhD, Wayne State University

Nancy Schwartz, PhD, The University of Chicago

Jodi Yellin, PhD, AAMC

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## Introduction

The *Compact Between Biomedical Graduate Students and Their Research Advisors* presents guiding principles intended to support the development of positive mentoring relationships between predoctoral students and their research advisors. A successful student-mentor relationship requires commitment from the student, mentor, graduate program, and institution. This document offers a set of broad guidelines that are meant to initiate discussions at the local and national levels about the student-mentor relationship.

There are several potential uses for this document. Among those suggested are the following:

- As a starting point for discussions between predoctoral students, research advisors, and institutional administrators about the issues addressed by the compact
- As part of the orientation for new predoctoral students
- As part of a regular and ongoing discussion between predoctoral students and their research advisors
- As a source of topics to be discussed in graduate research programs
- As a part of the orientation for new research faculty
- As a source of topics to be discussed in faculty mentorship programs
- As a component of faculty evaluations
- As a tool to initiate the development of additional programs and support services for predoctoral students within a graduate research program

This compact was originally drafted in 2008 in collaboration with representatives of the AAMC Group on Graduate Research, Education, and Training (GREAT Group) and is modeled on the AAMC's *Compact Between Postdoctoral Appointees and Their Mentors*, available at [www.aamc.org/postdoccompact](http://www.aamc.org/postdoccompact). Input on this document was received from GREAT Group representatives and members of the AAMC governance. The document was endorsed by the then AAMC Executive Council on September 25, 2008. In 2016, a team consisting of representatives from the GREAT Group and the AAMC Council of Faculty and Academic Societies (CFAS) reviewed and updated the document. The GREAT Group, CFAS, and AAMC staff leadership provided input on the revised draft.

## Compact Between Biomedical Graduate Students and Their Research Advisors

Predoctoral training entails both formal education in a specific discipline and research experience in which the graduate student trains under the supervision of one or more investigators who will mentor the student through graduate school. A positive mentoring relationship between the predoctoral student and the research advisor is a vital component of the student's preparation for future careers and mentoring roles.

Individuals who pursue a biomedical graduate degree are embarking on a path of lifelong learning and are therefore expected to take responsibility for their scientific and professional learning and development from the onset. Graduate students must be in charge and take ownership of their progress through the graduate program. This means seeking guidance on and knowledge about course requirements and program requirements, policies, and procedures. Students must also commit to working on an individual development plan. Faculty members who advise students—with the backing of the graduate program and institution—are expected to fulfill the role of mentor, which includes providing scientific training, guidance, instruction in the responsible conduct of research and research ethics, and financial support. The faculty advisor also serves as a scientific and professional role model for the graduate student. In addition, the advisor offers encouragement as the graduate student prepares an individual development plan and facilitates the experiences and professional skills development essential for a broad set of career paths.

## Core Tenets of Predoctoral Training

### **Institutional Commitment**

Institutions that train biomedical graduate students must be committed to establishing and maintaining rigorous graduate programs with the highest scientific and ethical standards. Institutions should work to ensure that students who complete their programs possess the foundational knowledge, skills, and values that will allow them to mature into scientific professionals of integrity. They should have oversight of the graduate curricula, length of study, stipend levels, benefits, career guidance, grievance procedures, and other matters relevant to the education of biomedical graduate students (e.g., consideration of, preparation for, and exposure to various career paths). Institutions should recognize and reward their graduate-training faculty. With changing and diversified biomedical workforce needs, institutions should recognize the necessity of faculty development around multiple career paths for trainees and provide opportunities for faculty to acquire such skills and experiences. Additionally, institutions should also foster an environment that is diverse and inclusive.

### **Program Commitment**

Graduate programs should establish training that prepares students with broad and deep scientific knowledge and the technical, professional, and leadership skills necessary for a successful career in the biomedical sciences. Programs should closely monitor the progress of graduate students during their course of study by establishing milestones and clear parameters for outcomes assessment, as well as maintain and make available career outcomes data.

## Quality Mentoring

Effective mentoring is crucial for graduate school trainees as they begin their scientific careers. Faculty mentors must commit to dedicating substantial time to the scientific, professional, and personal development of the graduate student. Whether a faculty member acts as the primary research advisor or sits on a student's advisory committee, a relationship of mutual trust and respect between mentor and graduate student is essential for healthy interactions and to encourage individual growth. Effective mentoring should include teaching the scientific method, providing regular feedback in the form of both positive support and constructive criticism to foster individual growth, teaching the "ways" of the scientific enterprise, and promoting careers by providing or directing students to appropriate opportunities. The best mentors are careful listeners who actively promote and appreciate diversity. They possess and consistently maintain high ethical standards, acknowledge and recognize the contributions of students—in publications and intellectual property, for example—and have a record of research accomplishments and financial support. Finally, it should be recognized that mentoring does not end with a student's completion of the graduate program but continues throughout the student's professional life.

## Skill Sets and Counseling for a Broad Range of Career Choices

The institution, training programs, and mentor should provide training relevant to a broad variety of careers that will allow graduate students to appreciate, navigate, discuss, and develop career choices. Effective and regular career guidance activities should be offered.

## Commitments of Graduate Students

- **I acknowledge that I have the primary responsibility for the successful completion of my degree.** I will be committed to my graduate education and will demonstrate this by my efforts in the classroom, the research laboratory, and all other related academic and professional activities. I will maintain a high level of professionalism, self-motivation, initiative, engagement, scientific curiosity, and ethical standards, including complying with institutional and research group standards for contributing to an inclusive research environment.
- **I will meet regularly with my research advisor to provide updates on the progress and results of my course work, research, and professional and career development activities.**
- **I will work with my research advisor to develop a thesis/dissertation project.** This will include establishing a timeline for each phase of my work. I will strive to keep engaged with the work, discuss experimental findings and any pitfalls, and meet the established goals and deadlines.
- **I will work with my research advisor to select a thesis/dissertation committee.** I will commit to meeting with this committee at least annually (or more frequently, according to program guidelines). I will discuss my progress to date and be responsive to the advice and constructive criticism from my committee.
- **I will be a good lab citizen.** I agree to take part in shared laboratory responsibilities and will use laboratory resources carefully and frugally. I will maintain a safe and clean laboratory space. I will be respectful of, tolerant of, and work collegially with all laboratory personnel. I will be an active contributing member to all team efforts and collaborations and will respect individual contributions. I will also contribute to an environment that is safe, equitable, and free of harassment.
- **I will maintain detailed, organized, and accurate research records. With respect to data ownership, I acknowledge that original notebooks, digital files, and tangible research materials belong to the institution and will remain in the lab when I finish my thesis/dissertation so that other individuals can reproduce and carry on related research, in accordance with institutional policy.** Only with the explicit approval from my research mentor and in accordance with institutional policy may I make copies of my notebooks and digital files and have access to tangible research materials that I helped to generate during my graduate training.
- **I will discuss policies on work hours, medical leave, and vacation with my graduate program and research advisor.** I will consult with my advisor in advance of any planned absences and apprise my advisor of any unexpected absences due to illness or other issues.
- **I will discuss policies on authorship and attendance at professional meetings with my research advisor.** I will work with my advisor to disseminate all relevant research results in a timely manner before completion of all degree requirements.

- **I will be knowledgeable of the policies and requirements of my graduate program, graduate school, and institution.** I will commit to meeting these requirements in the appropriate time frame and will abide by all institutional policies and procedures.
- **I will attend and actively participate in laboratory meetings, seminars, and journal clubs that are part of my educational program.** To enhance research, leadership, and additional professional skills, I will seek out other enrichment opportunities, such as participation in professional organizations and meetings, student representation on institutional committees, and coordination of departmental events.
- **I will be knowledgeable of all institutional research policies.** I will comply with all institutional laboratory safety practices and animal-use and human-research policies. I will participate in my institution's Responsible Conduct of Research Training Program and practice the guidelines presented therein while conducting my research. I will also seek input on and comply with institutional policies regarding my research design and data analysis.
- **I acknowledge that I have the primary responsibility for the development of my own career.** I recognize that I need to explore career opportunities and paths that match and develop my individual skills, values, and interests to achieve my desired career goals. I understand that there are tools such as the individual development plan that I should use to help me define my career goals and develop my training plan. I will seek guidance throughout my graduate education from my research advisor, career counseling services, thesis/dissertation committee, other mentors, and any other resources that can offer advice on career planning and the wide range of opportunities available in the biomedical workforce.

## Commitments of Research Advisors

- **Throughout the graduate student's time in my laboratory, I will be supportive, equitable, accessible, encouraging, and respectful.** I will foster the graduate student's professional confidence and encourage intellectual development, critical thinking, curiosity, and creativity. I will continue my interest and involvement as the student moves forward into a career.
- **I will be committed to meeting one-on-one with the student on a regular basis. I will regularly review the student's progress and provide timely feedback and goal-setting advice.**
- **I will be committed to the graduate student's research project.** I will work with the student to help plan and guide the research project, set reasonable and attainable goals, and establish a timeline for completion of the project.
- **I will help the graduate student select a thesis/dissertation committee.** I will assure that this committee meets at least annually (or more frequently, according to program guidelines) to review and discuss the graduate student's progress and future directions. I understand that the function of this committee is to help the student complete the doctoral research, and I will respect the ideas and suggestions of my colleagues on the committee.
- **I will provide an environment that is intellectually stimulating, emotionally supportive, safe, equitable, and free of harassment.**
- **I will demonstrate respect for all graduate students as individuals without regard to gender, race, national origin, religion, disability or sexual orientation, and I will cultivate a culture of tolerance among the entire laboratory.**
- **I will be committed to providing financial resources, as appropriate and according to my institution's guidelines, for the graduate student to conduct thesis/dissertation research.** I will not require the graduate student to perform tasks that are unrelated to the training program and professional development.
- **I will expect the graduate student to share common laboratory responsibilities and use resources carefully and frugally.** I will also regularly meet with the graduate student to review data management, storage, and record keeping. I will discuss with the student intellectual policy issues regarding disclosure, patent rights, and publishing research discoveries.
- **I will discuss with the graduate student authorship policies regarding papers.** I will acknowledge the graduate student's scientific contributions to the work in my laboratory, and I will provide assistance in getting the student's work published in a timely manner.
- **I will be knowledgeable of and guide the graduate student through the requirements and deadlines of the graduate program and the institution, as well as teaching requirements, if any, and human resources guidelines.**



- **I will encourage the graduate student to attend and present their research at scientific/professional meetings and make an effort to secure and facilitate funding for such activities. In addition, I will provide opportunities for the student to discuss science and their research findings with colleagues and fellow scientists within the institution and broader scientific community—for example, at lab meetings, research days, and seminars.**
- **I will promote the training of the graduate student in professional skills needed for a successful career. These skills include but are not limited to oral and written communication, grant writing, management and leadership, collaborative research, responsible conduct of research, teaching, and mentoring.** I will encourage the student to seek opportunities to develop skills in other areas, even if not specifically required by the student's program. I will also encourage the graduate student to seek input from multiple mentors.
- **I will create an environment in which the student can discuss and explore career opportunities and paths that match their skills, values, and interests and be supportive of their career path choices.** I will be accessible to give advice and feedback on career goals. I will work with the student on an individual development plan to help define career goals and identify training milestones. I will provide letters of recommendation for the student's next phase of professional development.



**Association of  
American Medical Colleges**

655 K Street, NW, Suite 100, Washington, DC 20001-2399

T 202 828 0400

[www.aamc.org](http://www.aamc.org)