

A Compact between  
Computer Science Graduate Students  
and their Advisors

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## Introduction

This **Compact between Computer Science Graduate Students and their Advisors** is a guide intended to support the development of a positive and professional mentoring relationship between graduate students and their research advisors. A successful relationship requires commitment from the student, advisor, graduate program, and institution, and this document provides guiding principles toward that relationship. As such, it is aspirational in nature, being a statement by the Computer Science faculty regarding how they believe the relationship between advisors and graduate students should be, and the behavior that we commit to strive for.

This compact relies heavily on a document drafted in 2008 by the American Association of Medical Colleges<sup>1</sup>, and modified for Virginia Tech in 2017 by the faculty of the Mining and Minerals Engineering Department. The Virginia Tech Graduate School provides a more extensive document, *Expectations for Graduate Education*, that Graduate students are expected to also familiarize themselves with. This compact does not supplant the VT *Expectations for Graduate Education*, but provides brief, department-specific guidance.

## The Compact

Graduate 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 graduate student and the research advisor is a vital component of the student's preparation for future careers and mentoring roles. Individuals who pursue graduate education are embarking on a path of lifelong learning and are expected to take responsibility for their scientific and professional learning and development from the onset. This includes 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 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.

## Quality Advising

Effective mentoring is crucial for graduate school trainees as they begin their scientific careers. Faculty advisors 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 advisor 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 advisors 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.

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<sup>1</sup>AAMC(2016) Compact Between Biomedical Graduate Students and Their Research Advisors: A framework for aligning the graduate student mentor-mentee relationship. The Association of American Medical Colleges, Washington, DC. <https://www.aamc.org/initiatives/research/gradcompact/>

## A Note about Academic Civility

The Department of Computer Science is committed to sustaining a positive workplace and learning environment that respects individual dignity and is free of coercion, harassment, intimidation, fear, and exploitation (see Virginia Tech's *Principles of Community*). Graduate students, therefore, have a reasonable expectation of civility from faculty and staff with whom they interact. Likewise, they are expected to extend that civility toward others in the Virginia Tech community.

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

Graduates in Computer Science have a broad range of options regarding the types of careers available to them. The University and the Computer Science Department provide a variety of resources that will allow graduate students to appreciate, navigate, discuss, and develop career choices. Graduate students are encouraged to take advantage of these resources during the course of their graduate studies. Advisors are expected to offer advice and guidance on such topics as well.

## 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, research activities, 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 discuss my progress to date and be responsive to the advice and constructive criticism from my committee. I will meet at least once per semester with my advisor or my committee to set goals and timelines for my degree progress.

**I commit to learning how to write in scientific and technical English in my area of computer science.** I commit to improving my writing skills during my graduate studies. As needed, I will take classes or workshops, practice writing, and read appropriate materials on writing to advance my writing skills to the level required for publication and graduation.

**I will be a good citizen of my department and of my research group.** I agree to take part in shared research group responsibilities and will use research group and departmental resources carefully and frugally. I will maintain a safe and clean research space. I will be respectful of, tolerant of, and work collegially with all departmental and university 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 acknowledge that my work space may be somewhere other than the Virginia Tech campus.

**I will maintain detailed, organized, and accurate research records.** Ownership of intellectual property created by graduate students is governed by Virginia Tech Policy 13000. With respect to data ownership, I acknowledge that original notebooks, digital files, source code, and tangible research materials belong to the institution and will be provided to my advisor or supervisor when I finish my thesis/dissertation so that other individuals can reproduce and carry on related research, in accordance with institutional policy. Institutional rights of ownership, especially of software, are often non-exclusive, and I also have rights to access and use the software that I produce, in accordance with institutional policy. I will consult with my advisor and appropriate University authorities if I wish to make use of software and data created as part of my research work.

**I will discuss policies on work hours, medical leave, and vacation with appropriate representatives of my graduate program and my 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 acknowledge that an adequate publication record is necessary for graduation.** I will discuss expectations for publication with my advisor.

**I will attend and actively participate in research meetings and seminars 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 recognize that professional service is important for my field and my own career development.** Professional service may include serving on committees at the university, reviewing papers, and organizing conferences and meetings.

**I will approach teaching assignments with the same integrity and commitment as my research endeavors.** I will be knowledgeable of institutional and departmental expectations with respect to teaching. I will perform my assigned duties ethically, and with respect for the Virginia Tech *Principles of Community*. I will seek pedagogical training or mentoring when appropriate.

**I will conduct my research in an ethical and professional manner.** I will be knowledgeable and comply with all institutional research policies, including those related to laboratory safety practices, animal-use and human-research, and waste disposal policies. I will participate in my required safety, ethics, and conflict of interest training, 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 field of Computer Science.

## Commitments of Research Advisors

**Throughout the graduate student's time working with me, 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 my student on a regular basis.** I will regularly review the student's progress and provide timely feedback and goal-setting advice. I will meet at least once per semester with the student to set goals and timelines for their degree progress.

**I will be committed to my 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 my student select a thesis/dissertation committee.** I will assure that this committee meets as appropriate 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 their 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 my entire research group.

**I will be committed to providing financial resources, as appropriate and according to my institution's guidelines, for my student to conduct thesis/dissertation research.** For students with external funding, I will work to provide resources for non-covered activities (e.g., travel), as appropriate.

**I acknowledge and respect that graduate students often have legitimate demands on their time aside from their research.** In particular, students typically have a course load, and students that I do not myself support with a research position will likely have teaching or other job-related duties. I will not make unreasonable demands on their time or cause unreasonable conflicts among their various obligations.

**I will expect my student to share common research group responsibilities, and to use resources carefully and frugally.** I will also 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 my student authorship policies regarding papers.** I will acknowledge the graduate student's scientific contributions, and I will provide assistance in getting the student's work published in a timely manner.

**I will discuss with my student appropriate goals for publication.** I will communicate minimum expectations for publication quality and quantity for graduation. I will provide guidance on publication venues, and I will offer timelines for successful completion.

**I will guide my student to materials for learning writing and will provide feedback on writing that my student provides me.** I will provide sufficient deadlines to allow for multiple iterations on manuscripts, theses, and dissertations as required.

**I will be knowledgeable of and guide my 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 my 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 research group meetings, research days, and seminars.

**I will assign student research, teaching and services responsibilities with respect for a reasonable and balanced work load, and in accordance with institutional policies.** I recognize that a range of activities are important for professional development, and I will expect students to participate in a range of activities over the course of their graduate program. I will serve as a mentor and direct students to appropriate training or guidance when necessary.

**I recognize that professional service is important for career development.** When appropriate, I will encourage students to pursue additional service opportunities on a limited basis according to their specific interests.

**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.

## Getting Help

The process of getting a graduate degree is stressful for many students. Not only can things go wrong academically, but things can also go wrong with the interpersonal relationships that are important to academic success. In an ideal world, when you find yourself facing difficulties—with your classes, your research, or life in general—then you could talk to your advisor. But what if the problem involves your advisor? Or what if you just don't feel comfortable talking with your advisor about this issue?

Everyone needs a support network, including trusted people that they can talk to. Friends and family might make good sounding boards and can give support to guide you to a solution to your problems. But many times they won't understand the specific nature of CS classwork or the special relationship between a student and their advisor.

One good source of advice and support is the Program Director for the CS graduate program, also referred to as the Associate Department Head for Graduate Studies. As of this writing, that is Dr. Shaffer. Whoever holds that position understands that one of the most important parts of the job is to help graduate students navigate the difficulties of graduate life. He or she can certainly help to lay out strategies for the academic side of things. But they also understand that there can be issues between a student and their advisor, other instructors, or co-workers. The grad program director understands that such discussions should be held in confidence, and that privacy must be respected. You also might talk with any other faculty member that you feel comfortable discussing the topic with.

Another resource is the Ombudsperson for the Graduate School (see <https://www.graduate.ombudsman.vt.edu/>). That person is trained in conflict resolution, and can provide a safe space for you to be heard.

The Cook Counseling Center (<https://www.ucc.vt.edu/>) provides a wide range of services, including counseling on handling stress and depression. They also provide a range of services related to academics, including study skills training.