

Graduate Student Research Agreement

Performing Independent Research in Astronomy: Guidelines and Expectations

Last updated August 2020 by K. E. Whitaker

Advisor:

Office:

Phone:

Email:

Student:

Phone:

Email:

Meeting times:

This agreement provides an updated set of guidelines for you in your role as a graduate student performing independent research in astronomy. The purpose of this document is to provide a clear set of expectations, which will help make you more successful in your journey, enhance your development, and ensure that we are all on the same page. These are complementary to my role as an advisor (see Advising Commitment). If you have any comments, concerns or questions, please let me know. Open lines of communication are especially important in this environment.

The first lesson to learn is that research is hard work and often, you're not totally sure of what you're doing. The documentation for the code, the literature surrounding the idea, and the description of the problem are not complete, otherwise, it wouldn't be research. Research is not an individual enterprise. Your work will be done as part of our research group. You will benefit from them, and they will benefit from you. We have a shared Slack channels set up; comment and post questions regularly, help each other out.

Work, Hours, and Personal Issues

- All students are expected to maintain a **professional attitude** towards their research, fellow students, and faculty.
- **Productivity is more important** than the total number of hours you work. *My advice is: work hard, be productive, but don't make yourself crazy.*
- **Communication is essential** in science. I expect you to check your email and Slack regularly and to respond to me, collaborators, or other faculty within 24 hours during the work week.
- You are expected to **keep up with the relevant literature** by reading the daily astro-ph listings, participating in the astro-ph coffee, and/or attending journal club.
- Graduate students are required to **attend colloquium** as it is part of the course requirement for their entire duration of their PhD. This is a department-wide event and it is my expectation that you will also generally plan to attend these talks.
- You should consider working in your office or within the department most other days of the week. Although astronomy research is very flexible and can be done almost anywhere, **it is advantageous to be present in the department** to generally interact with other students and faculty.
- If you are ill and expect to be away from the department, let me know. There is no set number of "sick days", but I want to be informed of any health issues that will significantly impact your work.

- You are strongly encouraged to consult with me regarding all research, organization, and work-related issues.
- If you are having an interpersonal problem with another student or faculty member, I am happy to mediate. You don't have to love your colleagues, but you do have to respect one another and make a good effort to work together when required.

Individual and Group Meetings

- You are expected to attend weekly meetings with me in person to discuss your current research progress, with exceptions being when I am on extended periods of travel. You will also maintain regular communication via slack, with the length of time between updates extending no longer than 48 hours during the work week.
- You are encouraged to contact me at any time to request additional meetings or assistance with research.
- We will meet at least once mid-semester to discuss your progress and goals.
- You are expected to attend weekly group meetings, as scheduled, with no preference between in-person or virtual participation. During this time, each group member will give a succinct update on their research progress.
- You are expected to interact and engage with our research group members as the research topics intersect. .

General PhD Expectations

- Much like the open ended nature of research, there is no 'one size fits all' for a PhD timeline. With that said, there is a history of success within the field from which we can learn some lessons. It is with this in mind that I suggest a nominal set of expectations to complete a competitive PhD thesis in observational galaxy formation and evolution.
 - **Papers:** at least 3 first-author publications listed on CV at time of job applications (i.e., fall of final year) directly relevant to thesis work. These should include a combination of longer, more technical papers and short science letters; you need to show diversity in your writing skills.
 - **Travel:** Travel is critical for networking, establishing new connections, and inspiring new directions for research, but it can be quite time consuming; a general rule to follow is publication first, conference presentation to follow. You need to take initiative in finding relevant conferences and establishing your own networks through the connections I will make for you.
 - **Conferences:** give at least one talk per year at a relevant conference, with 2+ encouraged leading into your final year of PhD.
 - **Collaborator visits:** at least one collaboration visit per year is optimal, with extended stays encouraged during your PhD to develop relationships with potential letter writers (i.e., 3 months at the Cosmic Dawn Center).
 - **'Talk Tour':** plan a series of coordinated visits to universities to give lunch talks in the fall semester of job applications showcasing results from your thesis work. While exhausting, this is potentially great exposure and a chance to meet big names in the field.
 - **Fellowships:** while national fellowships for graduate students are extremely competitive, and therefore very hard to get, they are excellent ways to build your reputation (and CV) at a very early stage in your career. Applications to all major national fellowships are strongly encouraged, as well as to any additional sources of funding (travel grants, etc). These are time consuming and require hard work well in advance of the deadlines.

- **Length of PhD:** nobody will care/notice if you graduate in 4 years or 7 years. Rather, you must examine your academic readiness and consult with your advisor and your mentoring committee and other post-docs. Ask yourself these questions: *In one year, could I write proposals and run a set of observational programs by myself? Have I accomplished everything I want to in terms of PhD papers, code releases, etc? Am I known for something (your 'academic brand')?*

OTHER RELEVANT INFORMATION AND POLICIES

Code, Data collection, and Archiving

- Not all codes that you will use in your research are public. You must obtain permission before sharing restricted code outside the research group.
- Any unreleased observational data or data products should not be distributed without prior permission from me.
- Any new code developments or functionality for existing code that you create as part of your research should be added back into the code repository.
- You are responsible for backing up your data to guard against fires, natural disasters, and theft. If you need additional storage, please ask.

Ethics & Moral Conduct

- Plagiarism and manipulation/fabrication of data is not tolerated. Instances of unethical research behavior will result in dismissal from my group and possibly from the graduate program.
- Astronomy, and science generally, belong to *all people*, independent of race, religion, gender, gender identity, gender expression, or sexual orientation. Incidents of discrimination, assault, harassment, threats, intimidation, profiling, or coercion based on membership or perceived membership will not be tolerated in my group.
- Insubordination or failure to perform your assigned research duties will result in dismissal from my group.

Some helpful resources:

- General and professional astronomy advice: <http://www.astrobetter.com>
- General advice on the academic trajectory: "The Chicago Guide to Your Academic Career" by Goldsmith, Komlos, and Gold. <http://www.press.uchicago.edu/ucp/books/book/chicago/C/bo3623007.html>
- List of upcoming astronomy conferences: <http://www1.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/en/meetings/>
- AAS Women's Blog/Newsletter (issues of diversity, work/life balance etc) <http://womeninastronomy.blogspot.com>

ADVISOR MENTORING COMMITMENT

By joining my group, you are committing to bring your hard work and passion for science toward achieving your PhD. I commit to match your passion and energy, and to support your goals at each stage of the process. This agreement provides a list of ways in which I will support your journey.

Scientific Expertise and Credibility/standing within the Profession

- Ideas for, and access to, interesting research projects, leading to quality theses.

- Access to expertise (scientific and technical) -- me, other team members, external collaborators.
- Exposure to, and entry into, a broader network of mentors and opportunities (internships, collaborations with top people in the field, opportunities to attend conferences).
- Advocacy to, and promotion within, the astronomical community, and positioning for bigger opportunities (suggestions for and help with fellowships, help with development of strong postdoc applications, letters of recommendation, "behind the scenes" advocacy).

Supervision and Time

- Responsiveness: willingness to schedule appointments as needed, rapid turn-around on emails, pointers to resources, immediately address pleas for help.
- Guidance and training in the preparation of manuscripts for scientific journals and presentations at conferences.
- Constructive criticism, challenges for growth, regular prods and provision of "stretch" assignments.
- Being paid attention to. Unsolicited communication with advice, thoughts, concerns, action items, ideas, etc.
- Advising related to preparation of proposals, e.g. graduate school, fellowships, computing, observing. I will provide you with opportunities to learn best practices in proposal preparation including identification of key research questions, definition of objectives, description of approach and rationale, and construction of a work plan, timeline, and budget.
- Career counseling, to the extent of my expertise, will be directed towards providing you with the skills, knowledge, and experience you need to excel in your chosen career path.
- If you are having administrative problems (payroll, office space, etc), it is my responsibility to try to help you. I will do my best to find you quick, satisfactory resolutions, as long as you notify me of such issues.

Connections

- Development of the larger program in which we all live and work -- e.g. this department; your graduate curriculum; the astronomy community.
- Introduction to senior researchers and specialists.
- Access to external and international collaborations as available.
- Participation opportunities in existing observing programs as available.

I hereby agree to the best of my ability to adhere to the above guidelines.

Advisor: _____ Date: _____

Student: _____ Date: _____