GRADUATE STUDENT COMPACT
WOODHAMS LAB, UNIVERSITY OF MASSACHUSETTS BOSTON
http://WoodhamsLab.com

Mentor-Mentee Contract v1, August 17, 2017
(adapted from: https://www.aamc.org/initiatives/research/gradcompact/ 2017, Trina McMahon Mentor-Mentee Contract, and http://jonathanklassenlab.com/ 2013)

Welcome to the Woodhams Lab!

The broad goals of my research program

In the Woodhams Lab, we study the immunological ecology of infectious disease, and the evolution of symbiotic microbiota. This includes aspects of host-symbiont-pathogen biology, environmental physiology, and conservation medicine. Our goal is to advance probiotic strategies to mitigate the effects of chytridiomycosis on wild amphibian populations, and to reduce the risk of arbovirus transmission by mosquitoes. Development of novel biotherapies to stabilize beneficial microbial communities is one application linking ecology to public health.

We will be carrying out this research together to make tangible contributions to science, the academic community, and to society. It is imperative that we use good scientific method, and conduct ourselves in an ethical way. While conservation of amphibians and public health are ultimate goals, we must keep in mind that publication in scientific journals, and dissemination of the knowledge we gain is critical to the advancement of these goals, and to the field of disease ecology. Additionally, outreach and informal science education, both in the classroom and while engaging with the public are components of our lab mission. You are invited to be a part of this mission.

As the principle investigator, it is my job to define the broad themes of our lab's research, write grant proposals to fund our work, promote our science to both the scientific and broader public communities, and help you to grow and succeed as a scientific professional. Correspondingly, there are certain responsibilities that you as a graduate student have to ensure both your own and our lab's success, and reciprocal responsibilities that I have towards you. The purpose of this document is to list these responsibilities, agreed to by both you as mentee and by me as mentor, such that they govern the conduct of our relationship during your program. Please discuss these expectations with me at the start of your degree program, and as we evaluate progress and make specific plans at the start of each semester and summer.

What I expect from you

Part of my job as a professor is to train and advise students. I must contribute to your professional development and progress toward your degree. I will help you set goals and hopefully achieve them. However, I cannot do the work for you. In general, I expect you to:

- Learn how to plan, design, and conduct high quality scientific research
- Learn how to present and document your scientific findings
- Be honest, ethical, and enthusiastic

- ▶ Be engaged within the research group and department
- ▶ Treat your lab mates, lab funds, equipment, microbes and their hosts with respect
- ▶ Take advantage of professional development opportunities
- ▶ Obtain your degree
- ▶ Work hard—don't give up!

Responsibilities of the graduate student mentee:

You are expected to take ownership over your educational experience

- ✓ **Acknowledge that you have the primary responsibility for the successful completion of your degree.** This includes both your classroom and laboratory work, which must be conducted at all times with professionalism, self-motivation, engagement, scientific curiosity, and high ethical standards.
- ✓ **Ensure that you meet regularly with me and provide me with updates on the progress and results of your activities and experiments.** Make sure that you also use this time to communicate new ideas that you have about your work and challenges that you are facing. Remember: I cannot address or advise about issues that you do not bring to my attention.
- ✓ **Be knowledgeable of the policies, deadlines, and requirements of the graduate program, the graduate school, and the university.** Comply with all institutional policies, including academic program milestones, laboratory practices, and rules related to chemical safety, biosafety, and fieldwork.
- ✓ **Work with me to develop a thesis project for your degree.** Your degree requires that you produce a coherent body of research representing a contribution to your scientific field. Ensure that your research is ultimately proceeding towards this goal.
- ✓ **Be responsive to advice and constructive criticism.** The feedback you get from your colleagues, your committee members, your course instructors, and me is intended to help you. Respect the wisdom of those who have gone before you.
- ✓ **Conduct research at the world-class standards of this institution.** I expect that you will learn how to plan, design, and conduct high quality scientific research.
- ✓ **Actively cultivate your professional development in non-research contexts.** Becoming a successful scientist requires more than just academic research. You are expected to continually develop as a teacher, as a scientific ambassador to the general public, and your scientific network. This may include taking advantage of professional programs offered through the university, active participation in external seminars, conferences, and workshops, and membership in one or more professional societies (e.g., the American Society for Microbiology), as examples.
- ✓ **Routinely read the scientific literature.** Your research does not happen in a vacuum; reading papers provides knowledge of your field and prevents you from wasting time on questions that have already been answered. A broad reading of the literature allows you to identify theory and applications relevant to your research (and to prepare you for your general exam), and keeps you abreast of news and trends in the scientific community (e.g., as published in the journals Nature and Science). I ultimately expect you to have more expertise in your specific study topic than I do by the completion of your degree, and to read significantly before starting experiments and (especially) before writing. Plan to spend at least 1 hour a week on literature review and perusing tables of contents.
- ✓ **Actively participate in department seminars.** Departmental seminars are another way to remain current with others' research, which often has unexpected connections to your

own. I also expect you to take advantage of opportunities to interact with relevant visiting speakers; developing your scientific network is a part of your scientific development and often the means to the next step in your career. Remember that interesting seminars happen across the entire campus. You may also request to invite and host seminar speakers that are important researchers or collaborators in your field that also attract interest broadly across the department.

- ✓ **Present your data to the scientific community early and often.** You will begin presenting your work in department seminars and external meetings as soon as you begin generating data (i.e., quickly after you begin your program). You will engage fully in the scientific program of the conferences that you attend; these should not be viewed as vacations, but educational and networking opportunities. Graduate students can obtain funding to present their work at a conference at least once per year through departmental and graduate school competitive funds. Additional conferences may be grant-dependent.
- ✓ **Publish.** You will also publish your work in peer-reviewed journals. I expect that the bulk of your research be written up BEFORE your graduation; early publication enhances your success in obtaining scholarships and in finding your next position. The 'currency' of science is published papers, and because our lab is supported by taxpayer dollars we have an obligation to complete and disseminate our findings. Barring unusual circumstances, it is my policy that students are first-author on all work for which they took the lead on data collection and preparation of the initial draft of the manuscript. Students pursuing a Masters degree will be expected to be first author on at least one journal paper submission and to make major contributions to others for co-authorship. Students pursuing a doctoral degree will be expected to be lead author on at least two journal paper submissions, preferably three or four. Ph.D. candidates are also expected to be corresponding authors; however, after graduation, failure to work through the publication process for submitted papers within 1 year may result in transfer of corresponding privileges to the PI in an effort to follow through on publishing commitments.
- ✓ **Mentor and train other students and help them with their projects.** I expect that senior students will mentor junior ones, and that people with unique and specialized skills will share them with the rest of the lab as teachers and/or collaborators. Mentoring junior students (e.g., undergraduate researchers) is a particularly valuable skill that is important for your career development. An addendum to this compact is an example of a similar compact for you to use while developing a mentoring relationship with undergrads.

You are expected to be a team player

- ✓ **Actively participate in laboratory meetings.** Lab meetings are times when, as a lab, we celebrate each others' achievements, brainstorm new directions, and collaborate with each other to strengthen each other's research, and problem solve. Beyond punctual attendance, you are expected to offer well thought out and constructive suggestions and criticisms and respect those given to you. Our lab is the safest crucible for forming research; better that deficiencies are identified here than in public.
- ✓ **Be a good lab citizen.** Recognize that our laboratory is a shared environment with shared resources. If you use the last of a common reagent, it is your responsibility to order more. Please cc' me on all orders through the office staff, and I will verify which account to spend on, or suggest alternatives. Likewise, if you break something it is your responsibility to fix or replace it. Ensure that the laboratory remains clean and organized so as to not compromise the work efficiency of your

colleagues. Protect samples and data that are shared with others, especially where confidentiality is protected. Be respectful, tolerant, and work collegially with all your co-workers; especially respect individual differences in values, personalities, work styles, and theoretical perspectives.

- ✓ **Be a good collaborator.** Collaborate both within and beyond our lab group, ensuring effective and frequent communication, mutual respect, trust, shared goals, and consistent acknowledgement of your collaborators' efforts. If you need time to gather information in response to an email, please acknowledge receipt of the message and indicate when you will be able to provide the requested information.
- ✓ **Always have a written plan for animal care.** In the event of a planned absence from the lab during an ongoing experiment or when you are responsible for animal care, always find a responsible person to cover for you, and have the plan in writing, including emergency contacts.
- ✓ **Rigorously document all of your methods and results.** Every experiment (including computational ones) MUST be documented in its entirely, including EVERY result. To do otherwise is unethical and grounds for dismissal. Lab notebooks (both paper and electronic) are lab property, and therefore must be maintained to a standard where they can be interpreted by someone other than yourself. (You are welcome to a copy when you leave the lab.) All raw data and results, and also photos or other materials for publicity, should be promptly backed up to the Microsoft OneDrive (Sign in here: https://onedrive.live.com/about/en-us/). The Woodhams Lab google calendar should also be updated with travel or events that may affect others.
- ✓ **Any computer code that you generate must be properly documented and reproducible.** Expect that all of your code will be published alongside manuscripts. Broken code constitutes an irreproducible experiment, and as such is grounds for retraction of published work. Employ good programming practice to the best of your ability, especially commenting your code and using some form of version control.
- ✓ **Collect all necessary metadata for each of your experiments and document it properly in the lab database (OneDrive).** Most scientific resources that you generate (samples, cultures, DNA sequence, phenotypic data) have the potential to be used by others in the lab at some point, even after you leave. Such meta-analyses (acknowledging your original work) are impossible without complete documentation. In addition, all frozen samples should be labeled appropriately, and also described on the freezer excel sheet located in the Woodhams Lab OneDrive.
- ✓ **Discuss data publication plans (papers, conferences, public database deposition) with me BEFORE the data is released into the public domain.** This is primarily for two reasons: (i) so that I can ensure that credit is allocated appropriately and ensure that omissions are rectified; and (ii) so that intellectual property can be adequately protected, either from competition or for commercial application as warranted.

Your Relationship with me:

- ✓ **Meet with me regularly to update me on your research progress and plans.** Regular one-on-one meetings (at minimum every 2 weeks) enable me to help you to develop your research ideas and keep you from straying too far down unproductive side roads. Take the initiative to set up a meeting or drop by my office informally.
- ✓ **Set and strive to meet deadlines.** Deadlines are a means to keep yourself

accountable for your progress, and will be set in conjunction with myself and your committee. While obviously there is flexibility for changes in plans and life circumstances, I expect that you will maintain these timelines to the best of your ability. We will establish mutually agreed upon deadlines for each phase of your work during one-on-one meet- ings at the beginning of each term and for the summer. For graduate students, there is to be a balance between time spent in class and time spent on research and perhaps on outreach or teaching. As long as you are meeting expectations, you can largely set your own schedule. It is your responsibility to talk with me if you are having difficulty completing your work and I will consider your progress unsatisfactory if I need to follow-up with you about completion of your lab or coursework.

- ✓ **Be mindful of the constraints on my time.** As a professor, I bear responsibility not only for the progress of my lab and everyone in it, but also the students of the classes that I teach, my commitments to the university and the broader community, and my commitments to my family and other relationships outside of work. It is therefore necessary that you allow me to organize my time efficiently, setting and keeping meetings with me for in-depth conversations and letting me know your needs from me like (e.g., comments on drafts or letters of recommendation) at least 1 week before their due date, preferably 2 for more involved projects. When we set a deadline, I will block off time to read and respond to your work. If I do not receive your materials, I will move your project to the end of my queue. Please do not assume I can read materials within a day or two.
- ✓ **Show good time management.** Frankly, people with poor time management are not typically successful in upper-level science. Use work time efficiently so as to not distract yourself or your co-workers. Save recreational internet usage for at home. Be prompt when attending meetings and in responding to email.
- ✓ **Provide feedback on my mentorship of you.** Not everyone has the same mentoring needs and personalities, so there will inevitably be places where my efforts do not line up with your preferences. I am not infallible, but can only make adjustments when I know that they are needed.
- ✓ **Discuss policies on work hours, sick leave, and vacation with me directly.** Graduate school is a commitment greater than an average job; working beyond a typical 40 hour work week is not unusual (and a nearnecessity if you are planning to continue in academia). On the other hand, one of the great benefits of academic life is its flexibility; my lab is no different. I require that you be productive in your research and the other elements of your graduate program (teaching etc.). How you achieve this is ultimately up to you and should be customized to fit your working style (e.g., single- vs. multitasking). However, if you are not progressing adequately I will require you (after we discuss it) to construct a more concrete working schedule and stick to it. Vacations and work-life balance are important for creative thinking and good health. However, please consult with me before making plans, and understand that some activities are time-sensitive (e.g., field sampling, preparing for grants, manuscripts, exams, or conferences). As a general rule, you should not plan for more than ~2 weeks of personal vacation time per year, as is standard for most entry-level jobs. I am also certainly willing to accommodate sick and/or parental leave as required, and will determined this on a case-by-case basis.

Responsibilities of the mentor:

Your Degree

• **I will help you navigate your graduate program of study.** As stated above, you are responsible for keeping up with deadlines and being knowledgeable about requirements for your specific program. However, I am available to help interpret these requirements, select appropriate coursework, and select committee members for your oral exams.

• **I will be committed to your research project.** I will help you design an independent project within the scope of my lab's research for your thesis. I will be intellectually committed to your research, including when you extend the research interests of my lab. This includes helping you to generate experimental and theoretical ideas, interpreting and constructively criticizing your data and contextualizing it within a broader context, and supporting you in presenting your ideas and results to the scientific community. I will help you set reasonable goals and keep you accountable for reaching them.

• **I will be committed to providing financial resources to you as appropriate and/or according to my institution's guidelines to allow you to conduct your thesis research.** To the best of my ability, I will provide the resources that you need to conduct your experiments, travel for field work, and attend conferences. Depending on funding, I will also attempt to provide you with some teaching relief, especially over summers and later in your degree program and as your progress warrants. I will support you in trying to obtain external funding for your degree program.

Your Career Development

• **I will ensure that you receive world-class training.** I will provide resources and mentorship from both senior lab members and myself so that you have the technical skills that you need to accomplish your research. Training outside the lab with collaborators or at workshops may also be supported, as needed.

• **I will lead by example and facilitate your training in complementary skills needed to be a successful scientist, such as oral and written communication, applying for grants, lab management, mentoring, and scientific ethics and professionalism.** I will encourage you to seek teaching opportunities, even if not required for your degree, include you where appropriate in grant writing and manuscript reviews, and provide opportunities for you to mentor junior researchers. I will enforce high standards of scientific ethics and professionalism.

• **I will help you build your professional social networks, including presenting at scientific meetings.** I will attempt, as funding allows, to send you to a major conference every year when you have material to present. I will also help you to identify and apply for travel fellowships to help pay for attending these conferences.

• **I will provide career advice and assist you in finding a position following your graduation.** I will give advice and feedback on your career goals, and encourage you to explore opportunities both outside and within academia as suits your interests and progress. I will promptly provide honest letters of recommendation whenever they are requested of me.

Your Relationship with the Lab

• **I will work tirelessly for the good of the lab group.** The success of every

member of our group is my top priority, no matter their personal strengths, weaknesses, or career goals.

• **I will provide everyone under my supervision an environment that is intellectually stimulating, emotionally supportive, safe, and free of harassment.** I will enforce a culture governed by collegiality that values differences in personalities and opinions.

• **I will enforce expected behavioral standards for communal behavior in our lab group.** You can expect me to ensure that you are not disadvantaged by others' poor stewardship of lab supplies, samples, and data, *e.g.,* care of lab equipment, research animals, archiving and maintenance of samples, metadata, and computer code.

• **I will discuss issues relating to authorship and intellectual property with you and ensure that credit is allocated fairly.** This includes mediating a consensus between collaborators inside and outside the lab, and making clear any expectations of confidentiality.

Your Relationship with me

• **I will be available for both regular one-on-one meetings and informal conversations.** Despite my busy schedule, meeting with you is always a priority. As noted above, please schedule longer meetings and understand that other obligations may mean that I am running off for things like meetings and classes.

• **I am committed to mentoring you, even after you leave my lab.** My ultimate goal is for your success, and I will advise you and guide your career development as long as you wish. My aim is to have all former mentees as friends and colleagues.

• **To the best of my abilities, I will be supportive, fair, accessible, encouraging, and respectful.** I will work hard to understand your unique situation and learning style and mentor you accordingly. Everyone comes from different backgrounds and has different goals and constraints, and I will work hard to help you balance your unique situation with the high expectations of your graduate program. If there are ways that you think I can better strengthen your confidence, critical thinking, skepticism, and creativity, please discuss them with me. Your success is my ultimate goal.

Regular evaluations

At the beginning of each semester and each summer, we will sit down to discuss progress and goals. Below is a Milestone Guide to aid our discussion. At that time, you should remember to tell me if you are unhappy with any aspect of your experience as a graduate student here. Remember that I am your advocate, as well as your advisor. I will be able to help you with any problems you might have with other students, professors, or staff.

Similarly, we should discuss any concerns that you have with respect to my role as your advisor. If you feel that you need more guidance, tell me. If you feel that I am interfering too much with your work, tell me. If you would like to meet with me more often, tell me. At the same time, I will tell you if I am satisfied with your progress, and if I think you are on track to graduate by your target date. It will be my responsibility to explain to you any deficiencies, so that you can take steps to fix them. This will be a good time for us to take care of any issues before they become major problems. We can be proactive with mentorship and conservation.

Milestones Guide
Name:
Date of meeting:

1. **Career Goals and Training**
   (Describe your ideal job, and the training needed to attain your goals)
2. **Current Research Activities**
   (Make a table with column headings including: Project title, Central hypothesis, Experiments, Collaborators)
3. **Planned Publications**
   (Make a table with column headings including: Paper title, Authors, Target journal, Main point, Target submission date)
4. **Planned Grant Proposals**
   (Make a table with column headings including: Agency/Program, Project goal, Specific aims, Target submission date)
5. **Planned Teaching**
   (Describe the course schedule and time commitment)
6. **Planned Outreach**
   (Describe the event and time commitment)
7. **Other Planned Training, Committee Meetings, Conferences etc.**
   (Indicate dates and times, and needs for scheduling or funding)