Guidelines for graduate students _ Tom Gleeson, Civil Engineering, McGill

Most students enter a relationship with a thesis advisor without a clear idea of what they can expect so I have compiled this handout to give you some idea of what I expect of you as student and what you can expect of me as an advisor.

Your reasons for wanting to do graduate work will affect how we tailor your experience here to best meet your overall goals. My top priority is for both of us to communicate and set mutually-agreed-upon goals and then both do our best to make those goals into reality. As one of my students, I plan to treat you as a junior colleague who is maturing into a professional engineer or scientist. This means that you can actively co-create opportunities to meet your goals, and also puts a large responsibility on your shoulders to live up to the expectations of performance that are required of a colleague.

I hope you learn:
- how to do good science along with how to do your specific project
- creative problem solving and a sense of fearlessness about technical issues and new ideas
- technical writing and presentation skills, a sense of professionalism and project management
- to support colleagues and value a collegial, challenging, fun and interdisciplinary environment.

Your time

Graduate degrees in North America generally take ~2 years for a Masters and ~4 years for a PhD. Course work is a significant part of each degree which means your training takes longer but is broader than graduate degrees in Europe. My goal is to do my best make sure that you graduate within this time frame. The time commitment to research tends to be one of the most important issues for graduate students and advisors. As long as I can see progress towards our mutually-agreed-upon goals at a reasonable rate, I will not pay any attention to how you spend your time. Each term, we will sit together down together and identify reasonable goals to be completed by the end of that term. We will write them down and revisit them periodically throughout the term during weekly meetings. Additionally, the department requires formal annual reports with goals and progress.

I expect you to regard graduate school as a full time job (with room for both vacations and overtime). I anticipate that you will take vacations since you are being paid as a full time graduate student from taxpayer funding. In North America two weeks of vacation per year is standard and I consider this the minimum for students. I often take more holidays since I have a work hard-play hard mentality. I am happy to discuss longer vacations with students, depending on your performance and proximity to graduation deadlines. I will expect you to work during academic 'holidays' such as reading break. On the subject of 'overtime', there will probably be times when you will need to work on weekends if a deadline is near.

Sometimes, early in a project students are unclear what they should be doing – this is normal and please come and see me. It can be difficult to know how to divide your time between reading and writing and 'real work'. I have never known a student that has over-allocated time to writing and reading – most people really underestimate how long this stuff takes. I make 'how to' guides to help students on how to read a paper, how to review a paper, how to write a paper, how to run the stable isotope analyzer. As you approach the end of your graduate work, you will probably find that you will work more hours so that you can finish on the time line that you identify. Although this unequal distribution of work does not occur for everyone, this seems to be a typical experience for grad students. I have a number of time management and organizational tricks (big rocks, 4 hour chunks etc) that work for me and I am happy to share if you would like.

My time

I generally plan one group meeting per week when everyone can discuss their progress, problems and goals – normally at the beginning of the week. Additionally I try to meet with each student individually every week for about an hour – sometimes longer, especially at the beginning of a project. I have an open door policy if you have an urgent or quick

question, but if I am occupied with something else I may ask you to come back. For longer conversations, I prefer to set up a meeting so that both of our attention will be focused on the topic.

Writing, authorship and ideas

I hope that you write a manuscript-based thesis that will have 1-2 papers (Masters) or 3-4 papers (PhD) that will be largely submitted to journals while you are still here. This is sometimes quite challenging and I am happy to work closely with you to write paper outlines, rapidly review sections and help however I can. The length of the paper and journal will depend on the research subject and quality of the results, but I generally aim for high-impact journals.

This comes to the question of co-authorship: you will be an author on a published paper if you have provided a substantial portion of the intellectual and physical work involved, and have completed your portion of the work satisfactorily. This involves participation both in the writing and the research work involved. You will be first-author if you contributed the majority of the intellectual effort and completed the project, including the writing. Like all things, I encourage an open dialogue about this topic.

I strongly value new ideas and working in a research environment where new and interesting ideas are bubbling up all the time from me and students. So don't be shy about sharing new, wacky or strange-sounding ideas - you never know where they go. Academics often get attached to 'this is my idea' and people have imperfect memories so I always encourage an open dialogue about who contributed to an idea being born, developed and brought to fruition. Also it is important to have strong integrity and honesty in your work – never skewing, biasing or misrepresenting results to fit a previous idea.

Data recording and backing up

Tracking and recording work is very important. Taking clear notes feels very boring but pays off massively later when you are writing. This can be in a field note book or an excel sheet where they keep track of model runs depending on the project. Backing up your work at least once a week is also crucial – we all know a story of a student that didn't to this. Also when you're done, your organized files should be backed up on a mutually-shared computer so that future students can use the data.

Safety

Field and lab safety is paramount. I provide training but it is important to learn and practice safety procedures and what to do in an emergency, wherever you may be. If you don't know whether a particular action is dangerous, don't do it until you consult me or someone else who knows.

Bottom line

I try to do everything I can to help you be a successful, productive student that is having fun and learning lots. Let me know how I can make that happen.

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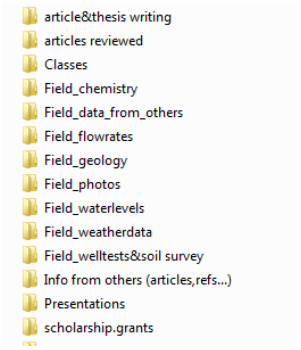
More Resources…

When starting your research:

- hopefully get an office from Jinxia Liu jinxia.liu@mcgill.ca and keys from Sandy sandy.shewchuk-boyd@mcgill.ca
- fill out a form for printing/network privileges from Sandy and get a photocopying card from me
- Sometimes a structured literature review is useful. 'Structured' means that I can help guide you on the papers that you are reading, we discuss what you are getting out of them, what questions you could be asking while reading...
- Check out the McGill green book of student rights and responsibilities

During your research:

- Safety during research is paramount. For working with any hazardous equipment or in laboratories after hours we have to fill out forms for this – please ask me about this.
- I consider open communication and feedback very important. In January, there is a formal departmental evaluation and goal setting for every graduate student. As part of this I like to also ask for feedback on working together during the last year. I like students to think about:
    - their successes and weaknesses over the year
    - my successes and weaknesses as an advisor over the last year
    - detailed research priorities for you and how you plan to make them happen so that we can discuss a plan of attack.
- Various types of workshops on teaching and research are available from Skillsets and writing help is available from the writing center
- Document your research well (on paper and/or in electronic logs).
    - Keep a systematic folder architecture – this is very useful for sharing files and resources with me, collaborators or future students. For inspiration my 'PhD' folder looked like this….. I am not suggesting everyone conform to a certain system but it would be awesome if you had your own logical system with major folders for your major research work like: 'analytical model, thesis writing, numerical model, GIS' etc and then other folders for classes, scholarships, admin…



When finishing your research

- Prepare your thesis following the McGill thesis guidelines and fill in the initial submission forms.
- Give Tom an organized version of all your files and data. You have the first rights to your original research notes giving the advisor a copy is standard in research groups for purposes of backing up and keeping consistent databases in one place
- Return your keys to Tom or Sandy.
- Have a formal evaluation session of your performance and my supervision
- Check out preparing for an academic career in the geosciences