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## Principles and Guidelines for Students, Postdocs and Other Research Personnel (Not Joking)

Version 3.0 7-23-91 (compiled by Dr. Yen Wei\*)  
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### Duties of Students, Postdocs and Other Researchers:

Highly motivated, honest, hard-working, "gung-ho" (on research only), independent, initiatives, persistent, cooperative, creative (particularly senior years)...  
Realize the fancy dreams of your boss.

### Duties of Professor (Advisor, "Boss"):

Research ideas, big picture, money money money, a better writer, lesser SOB, "Dutch Uncle" to students...  
Dream more fancy dreams.

### Ethics 101 (Absolutely no excuses and no compromise):

1. Never, never, never fake research data!
2. Plagiarism is a capital crime! (Including any form of plagiarism, such as taking ideas, sentences, results, etc. from others without proper attribution of credit) **Any string of 6 or more words copied from others without quotation mark is plagiarism.**
3. Other misconduct. (Follow your intuition, you know what's wrong and what's unethical. If you are not sure, see your professor ASAP.)

### Other general principles and guidelines:

1. Research results (including papers, notebooks, disks, spectra, etc.): Anything done in your lab is the property of Drexel University and the Research Group. You cannot publish anything done at Drexel without consulting with your advisor. Any results you presented in writing to your advisor or in your draft papers or reports must be those that have been experimentally reproduced at least twice.
2. Publications: Students are responsible to write at least the first draft of his/her own papers. The order of names in the publications will follow the extent of contribution made, including idea-generation, intellectual input, experiments, paper work, fund-raising, etc. The final decision will only be made by the professor.
3. Safety: Make sure that you read and understand the safety rules (available to everyone in Chemistry Office) and do not kill yourself (believe me, our lives worth more than degrees!)
4. Thou shalt love thy instruments and any facility in the lab. If you don't, the worst consequence will be:
  - (a) Your boss will be jumping up and down on you,
  - (b) Cost money of somebody's (you have to care about this because your project may have to be terminated if money runs out. Everything is expensive nowadays and there is no easy money),
  - (c) Your work will be delayed or even terminated and you will be further away from your degree, or
  - (d) All of the above.

**Caution:** Do not let the fear of breaking

something affect your research progress.

5. Thou shalt love thy neighbor researchers and collaborate with them for maximizing your productivity and getting out of this hated place (with degree, of course) sooner.
6. Nothing in your experimental results is unimportant. All the pages in your notebooks must be numbered, dated, and witnessed. All your primary data (spectra, thermograms, chromatograms, analysis reports, etc.) should be dated and John Hancocked by you.
7. A valid & proven assumption: Your boss will never intentionally screw you up. The reason is very simple: *if you succeed, he/she looks good and vice versa*. When he/she is really mad at you, you will know. Be mature.

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## How to Finish Your Dissertation without Actually Dying (Not Joking)

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1. You should start your research work *as early as possible*. Find out what "dream" or "dreams" your boss wants you to realize and make up a rough plan for your dissertation. (Note: believe me, this plan *WILL* be altered many, many times during the benchwork.) Dig in and work as hard as you can.
- 2a. You will find out most of your boss' "dreams" are nonsense. Be persistent, meaning that do not give up easily (if anybody proves those "dreams" are not nonsense later, you will be in big trouble!) Even you hit the wall, make sure you have complete sets of results (of course, the reproducible results) proving the idea did not and will not work. Warning: do not toss away any negative results for the following two reasons, (1) the results may represent more important discoveries if one could interpret them correctly and (2) these results, even without proper explanation, can and *must be* incorporated into your dissertation.
- 2b. If your work goes nicely as planned, something might be fishy. Check your results and experimental design multi-times. The following may be true:
  - (a) Your boss had, and you are working on, some trivial ideas,
  - (b) Your boss is a genius,
  - (c) You are a genius,
  - (d) Systematic errors in experiments,
  - (e) God forbidden, foul play?!
  - (f) All of the above, or
  - (g) None of the above (meaning you are exceptionally lucky).
3. *Think about your dissertation all the time*, i.e. whatever results (e.g. graphs, spectra, etc.) you feel will be usable in your dissertation, make clean copies in a publishable form. This will save a great deal of time later, believe me. This also applies to literature cumulating.
4. *Publish every ROUND story along the way*. Write up a

*decent and completed* (from Introduction to References with neatly drawn graphs, structures and equations, etc.) first draft of paper and place it on your busy boss' desk. One *sure* response from your boss will be an EAR-TO-EAR smile. *These papers (suggested number: >5; total number of pages: >120), whether they eventually got published or not, will be part of your dissertation!*

5. Wiseguy/gal likes collaboration with other fellow researchers (particularly with posdocs and technicians in the group because they do not need to write thesis).
6. Normally, when you have finished 9999 experiments and published 99 papers, you boss will tell you that you should start your writing. Also if you feel (OOPS, sorry, not you feel, you must be *sure*) you have enough results for a dissertation, you should "sheeplly" approach your boss and ask whether you may start writing. The latter is not very desirable. Do not try it unless you are sure.
7. Once the writing begins, *do not* initiate any new project. (If you do have good ideas as expansion of your thesis work, tell your boss and let other people do the dirty lab work for you. Write these ideas in your thesis and you will get the credit!) While you are writing, you *WILL* find many more (*absolutely necessary*) experiments to be done to tie up loose ends. Make time-allowance for this.
8. Dissertation-writing should start with an outline that defines the framework and where to put what. Discuss the outline with your adviser.
9. If you followed these advises early on, your total writing will take about 6 months. You should start looking for a job when writing starts (with permission from your boss). You have to finish the first draft at least 3 months before your idealized date of defense. Consult your advisor before you accept a job offer.
10. Nothing will flat your boss too much in the acknowledgment section of your dissertation. Make sure to acknowledge the committee members and whomever helped you along the way.

*Never get PHYSICAL with your boss or committee members!*

*At last, congratulations, DOCTOR!* (Believe me, you will later wonder if this is worthwhile for all the troubles you have been through. Particularly, it is not **M.D.** after all.)

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## Tips on How to Write Decent Papers/Reports/Dissertations That Will Not Be Thrown Back at Your Face by Your Boss

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1. *Completeness*: The paper/report has ALL the magic ingredients: Title, Abstract, Introduction, Experimental, Results, Figures, Tables, Schemes, Charts, Discussion, Conclusions, References and Acknowledgment.
2. *Details*: Give ALL the details, detailed and DETAILED (step-by-step) experimental procedures.
3. *Details again*: Describe figures and tables, what are they,

what do they tell, what are the conclusions you draw from them: pretend that you do not have them and try to describe them in writing to convince your readers.

4. *Generous referencing*: Cite ALL the papers that are directly or even indirectly relevant to your work. Be specific. Don't use something like "Refs. 1-14". Second hand referencing is very dangerous!
5. *Be nice to your readers*: Think about your readers and try your best to make their lives easier in comprehending what have been done in the literature, what you are trying to achieve (new stuff in your work) and why (significance of your work), how you achieve your goals, what the results are, how these results are interpreted, and how these results and interpretations LOGICALLY support your conclusions.
6. *Do good graphics*: The modern trend (though I do not like it) is "do good cartoon/computer presentations". Try to use cartoons, computer graphics and/or animations to convey your ideas/conclusions that are firmly supported by your data. However, be realistic and truthful (Cartoons are not science! Hype will eventually ruin one's reputation.) Label all the figures with consideration that the figures may be reduced in size by 50% or more. Never publish same results twice in original papers (just cite previous paper).
7. *Quality is Number 1*. Never break one substantial paper into several for the sake of "productivity". Any full paper based on previously published communication needs more than 60% more new results (with citation and attachment of the communication when you submit the full article).
8. *Please care about the little things* like comma, period, style of references, spelling, space between sentences and between the numbers and units. If you are sloppy on your writing, why should any one trust your science? Do computer spell-check before submission- if your English is not as good as others, you should at least eliminate spelling errors.
9. *Congratulations* if you receive the editor's letter that allows you to revise your manuscript with major or minor revision. Be appreciative! The referees are WORKING for you for free. Please thank the editor for giving you the second chance and thank referees for their time and suggestions. Please revise your paper CAREFULLY according to the referees' comments and suggestions. However, you DO NOT have to agree with everything that referee said as long as you have a rational reason. (Limitation of the scope of the present study is a good reason if a referee suggests more experiments that are not essential for substantiating the conclusions drawn. You may thank for the suggestions and say that you may get these experiments done and publish the results in the future.) Write a "Point-to-point response to referee's comments" in which you respond to every point of every referee and also specify the change/corrections made in the revised manuscript on specific page and lines.

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\* You are highly welcome to amend and/or add more items to this list (call or email Dr. Yen Wei at 215-895-2650 and [weiyen@drexel.edu](mailto:weiyen@drexel.edu)). All the words in red were written on 3/31/06.