

# How Not to Be a Graduate Student

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2002-09-26

**ABSTRACT.** The speaker is well qualified, since he has managed not to be a graduate student, or at least has managed to avoid acquiring a PhD, over a period of more than four-score years.

How should you fill your time and organize your life during this important stage of your career? What should you, or, more importantly, what shouldn't you, read? write? say? or listen to?

After listening to this lecture you won't fail to avoid failure in all your future endeavors.

As indicated in the abstract, I'm well qualified to speak on this subject. I do admit to having a Master's degree. This was achieved by waiting three years after my Bachelor's degree and then sending five guineas to the Registrar. Of course, a Bachelor's degree at my university is equivalent to a Master's anywhere else.

When I used to give regular courses, I would begin with the old trick of saying that I would introduce occasional deliberate mistakes in order to make sure that the students were awake (and to cover for the non-deliberate mistakes). Today I issue the following

**WARNING!!**  
There will be some  
deliberately true statements  
in this lecture.

DON'T ATTEND LECTURES!!

Especially this one!

How do we learn? By observing and communicating. By

1. Reading,
2. Writing,
3. Speaking, or
4. Listening,

using some language, including sign language, body language, etc. Now the least efficient of these four is Listening. You have no control over the speed. There's no instant replay. Once you've missed the thread, especially in a mathematical presentation, you're lost, and the rest of the time is wasted.

If you **do** attend lectures,

DON'T TAKE NOTES!!

**Either** you don't look at them again, and you've been wasting paper and time which should have been spent in paying closer attention to the lecture,

**Or**, you do, and you recall how confused you were about the subject and you wish that you'd spent more time listening, instead of writing.

DON'T BOTHER ABOUT  
THE ENGLISH LANGUAGE

especially if it's not your mother tongue. Basic English contains about 800 words and is sufficient to express anything you want to say.

DON'T BOTHER ABOUT  
OTHER LANGUAGES

except perhaps German, where the words are very similar to English:

wenn — when?  
wo — who?  
wer — where?

and you don't need to translate the whole sentence to get the drift, especially if it ends in '... nimmer sind' or '... nicht ist'.

KEEP QUIET !!

As my mother was fond of advising:

Better to keep your mouth shut and be thought a fool than open it and dispel all doubt.

Or, if you turn to the Bible:

A fool uttereth all in his mind.

Proverbs, xxix, 11.

DON'T TALK TO OTHER  
GRADUATE STUDENTS

They'll steal any good ideas you may have.

DON'T TALK TO FACULTY MEMBERS

— especially your supervisor. They're busy doing research at a much higher level; they're heavily involved in the search for pure knowledge; and in justification for their tenure, promotion, etc.

DON'T TALK TO VISITORS

They are specialists and their interests don't overlap yours. Or even if they do, they are so far advanced that you have no chance of understanding them, so don't insult them with stupid questions and trivial remarks.

DON'T GIVE LECTURES YOURSELF

unless you're forced to: in which case

DON'T USE THE BLACKBOARD

Most people can read about ten times faster than most people can write, so you would be wasting their time.

Use an overhead projector and you can crowd an enormous amount of information onto a single transparency. Don't waste time defining well-known mathematical concepts. For example, everyone knows what a parabolic cylinder function is and here you can see the relation between the two solutions of the Weber equation, and a general asymptotic expansion and a contour integral for the function, all at same time.

DON'T READ BOOKS

It's impossible to write a mathematics book without making mistakes. I should know! If you copy from a book it would be just your luck to copy out one of the wrong statements.

Many years ago Sol Golomb found a proof of the Twin Prime Conjecture (you know what that is?) It hinged on a lemma in Aurel Wintner's monograph, *Eratosthenean Averages*, Waverly Press, Baltimore, 1943, which gave a sufficient condition for a summation method to be 'regular' in the sense of Schur-Toeplitz. This supplies the needed 'abelian theorem' to complete the proof, not only that there are infinitely many twin primes, but also that they have the conjectured asymptotic density. However, the lemma is false!

I've given a good deal of negative advice. You are entitled to something more positive:

SPECIALIZE!!

Concentrate on some particular corner of mathematics and then find out more and more about less and less and in the limit you'll know everything about nothing (as opposed to newspaper reporters who know nothing about everything).

And what of the future? You've had 12 years at school, then 4 years as an undergraduate and now 3 or 4 as a graduate student. You've got to persuade someone to pay you some money for doing something. You realize that your supervisor can be of some help after all.

I guessed that some faculty members might attend this lecture, so, in conclusion, as a public service, I've written a standard letter of recommendation that can be used on all occasions (the masculine pronouns are easily changed to feminine ones, if required).

To Whom It May Concern

I cannot speak too highly of

*X*

whose long career as a graduate student I have followed with interest and amazement.

His competence and usefulness cannot be underestimated.

He will successfully carry out any task for which he is found capable.

He loses no time in learning about the latest advances in his subject.

His thesis contains results that you would not expect from a graduate student; and his published work fills a much needed gap in the literature.

You will be lucky if you get him to work for you.