



- GRADUATE STUDY = TRANSITION

from

physics student

with basic physics knowledge  
some exposure to physics research

to

research physicist

creative, critically thinking,  
independent professional



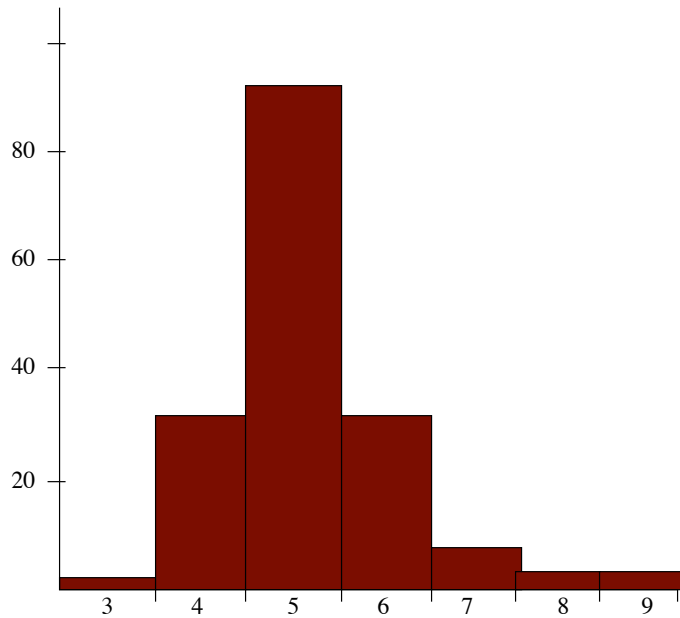
- Set goals and minimum standards:

Which skills and what level of knowledge and accomplishment do we expect from a fresh physics PhD?

- Structure the graduate program:

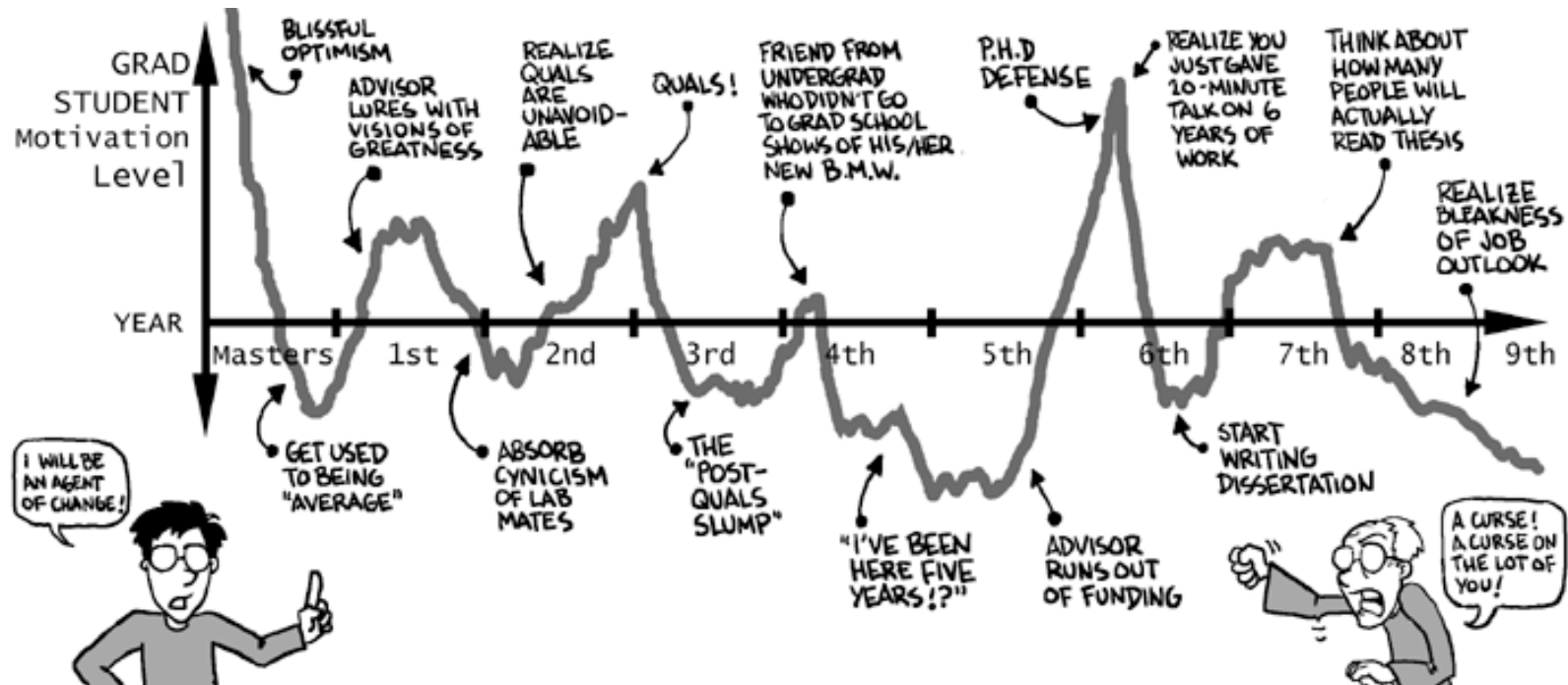
such that students, with the right talent and skills, will be able to meet these goals within  $\sim 5$  years.

A little bit of statistics (of incoming classes since 1992):



- 280 entering students, 263 passed generals, attrition < 15%
- 34 female students, 33 passed generals, attrition < 10% .

To bring a graduate study to successful end, one needs...



... motivation, determination, communication skills, adaptability, initiative, confidence, critical mind, analytical skills, knowledge ...



- Admissions:  
GRE scores , grades, letters, personal statement!
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- Prelim exam: Class Mech, Quantum, Stat Mech, E &M
- Friday Beer: Christmas caroling
- Experimental project: around the end of 1st year
- 3 Core Courses: GR, HEP | QM2, QFT | Bio, CM, Atom
- Mentoring: pre-generals advisor, DGS, fellow students

## Generals Requirements must be passed in 2 years



- Pre-Thesis Project: beginning of 3rd year

start of thesis research;  
sets up thesis committee:  
advisor + 2 faculty

- Re-Enrollment Interview: end of every year
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hurdles

- EX: exams, equipment, project time-scale, changing advisors
- TH: finding an advisor, confidence, motivation, exp. project

- 1st Year Fellowships: time to study, keeps them out of labs
- Core Courses: minimal grade B, hard for some EXP students
- Mentoring: DGS, pre-thesis committee, faculty meetings
- Interdisciplinary Advisors: Biophysics, Astro, Chemistry, ...
- Theory students: some peer pressure to finish in 5 years
- Degree Completion Enrollment: 6th and 7th year
- Group morale: ... Friday beer, Recruiting, Recital, Picnic, ...