

## GRS AS802 - Graduate Research and Scholarship - Spring 2015

**Lecture/Discussions:** Wednesdays, 2:30-3:45pm, CAS 500 (see "Course Calendar" for breaks in the schedule)

**Instructor:** Professor Dan Clemens, Office - CAS417, Ph - 353-6140, email - [clemens@bu.edu](mailto:clemens@bu.edu), [website](#)

**Office Hours:** AS802/803 specific - Mondays & Fridays 1-2pm; can also utilize Office Hours for AS441 (MW 9-10), though AS441 students will have priority then

**Course Description (in BU Bulletin):** An introduction to the methods of research and scholarship required for successful graduate study and the associated ethical issues. Topics include choosing a research advisor, the research topic, scholarly writing and publishing, intellectual property, and research funding.

**Course Overview:** Pursuing advanced degrees in Astronomy is quite different than what you experienced as undergraduates seeking BA and BS degrees. There are courses, teaching responsibilities, comprehensive exams, research groups, data collection and analyses, modeling, and career building - all taking place at the same time and seemingly without a rule book. In this course, we will discuss and discover the stages of graduate study in Astronomy at Boston University and how to best prepare yourself for a fruitful and fun career. In doing so, we will cover topics that overlap nicely with those required of everyone conducting research at Boston University, under the rubric of Responsible Conduct of Research (RCR) - a catchall that includes clarifying relationships and responsibilities of mentors and mentees, how to collect and manage data, what publishing entails, how to avoid and/or spot research misconduct, how to manage conflicts, and how to be a responsible society member.

**RCR Certification** takes the form of completion of four on-line modules, plus all eight of the "RCR Live" lecture/discussion/case studies included in this course this semester (see the "Course Calendar"). In-class quizzes will be used to verify attendance as well as assess understanding of all RCR topics.

### Books & Resources for this Course:

#### A. Required

1. "A Mathematician's Survival Guide - Graduate School and Early Career Development" by Steven G. Krantz, 2003, (American Mathematical Society), ISBN: 978-0-82183-4558 (Don't be scared off by the 'mathematical' label - I think this is the best book for real nuts and bolts of graduate school and early career steps and issues) - "**M-#**" on an entry in the Course Calendar means "Chapter # in A Mathematician's Survival Guide"
2. "The Art of Being a Scientist - A Guide for Graduate Students and their Mentors" by Roel Snieder & Ken Larner, 2009, (Cambridge University Press), ISBN: 978-0-521-74352-5

(kind of a standard, and offers lots of advice, but is thin on the nuts and bolts) - "A-#" is Chapter # in this book

3. "On Being a Scientist" National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, 2009. (Washington, DC: National Academies Press), free download: [http://www.nap.edu/openbook.php?record\\_id=12192](http://www.nap.edu/openbook.php?record_id=12192) - "B-p#" means the Chapter starting on page # in this document

**B. In my library:** (Books that are relevant, but not as closely so as the ones above. *Feel free to come borrow these*)

4. "The Smart Way to Your Ph.D. - 200 Secrets from 100 Graduates" by Dora Farkas, 2009, (Your PH.D. Consulting; Arlington, MA), ISBN: 978-0-9821092-0-5 - "S-#" is Chapter # in this book

5. "Mastering your PhD - Survival and Success in the Doctoral Years and Beyond", Second Edition, by Patricia Gosling & Bart Noordam, 2011, (Springer), ISBN: 978-3-642-15846-9 - "P-#" is Chapter # in this book

6. "Good Grad! - A Practical Guide to Graduate School in the Sciences and Engineering" by Joseph W. Gangestad, 2013, (Tesseral Press), ISBN: 978-0-9889726-0-5 - "G-#" is Chapter # in this book

7. "How to Be a Good Graduate Student" by Frank Vahid, 2007, (Lulu), ISBN: 978-1-4303-2296-2 - "H-#" is Chapter # in this book.

**C Used in previous AS802 Offerings:** (But didn't float my boat...)

8. "A PhD is not enough: A guide to survival in science", by Peter J. Feibelman, 2011, (Basic Books), ISBN: 978-0465022229 (too opinionated for me - missing key nuts and bolts discussions) - "F-#" is Chapter # in this book

## Weblinks

[learn.bu.edu](http://learn.bu.edu) - BlackBoard - you will complete your RCR on-line modules via BlackBoard

[www.bu.edu/orc/rcr](http://www.bu.edu/orc/rcr) - BU's RCR site - Introduction, Steps, Info, additional links

if you will work in a laboratory in AS or ENG - you must obtain additional training/certification, see:

<http://www.bu.edu/orc/training/environmental-health-safety/lab-safety-committee-training/>

Export Control & ITAR: <http://www.bu.edu/orc/programs-committees/export/>

**Assignments, Quizzes, and Grades (see "Assignments" Tab at left)**

RCR Quizzes - In Class - 8, each worth 5% of final grade

Curriculum Vitae (CV) - Developed, submitted for comments (by April 21), edited, resubmitted (by May 1) - 10% of final grade

Research Project Budget - Developed, submitted for comments (by April 14), edited, resubmitted (by April 28) - 10% of final grade

Professional Website - Developed, submitted for comments (by April 28) - 10% of final grade

Draft 5-year Work Plan - Developed, submitted for comments (by Feb 16th), edited, resubmitted (by Mar 2) - 10% of final grade

Skeleton PhD Dissertation, in LaTeX - Developed, submitted for comments (by Mar 18), edited, resubmitted (by Apr 1) - 10% of final grade

Discussion Participation - Silence is deadly, here - Join in! - 10% of final grade

CITI Certification - Email a copy of your course completion certificate to Prof. Clemens before the end of instruction, or I can't certify your completion of the full RCR training (and, again, you won't get paid...)