MATH 8802 ENG
Professional Development for Mathematicians, Fall 2015 (Draft updated on 9/29: links updated)

Instructor: Martin Engman
Office: Skiles 130
Office Hours: Tues: 11am-12noon, Wed: 1-2pm, Thurs: 10-11am, or by appointment
e-mail: engman@math.gatech.edu
URL: [http://www.math.gatech.edu/~mengman3](http://www.math.gatech.edu/~mengman3)

Texts and online resources: Krantz, Steven G., *A mathematician’s survival guide: Graduate school and early career development*, American Mathematical Society, Providence, RI, 2003, pp. xvi+222, ISBN: 0-8218-3455-X; Presentation slides based on PHIL 6000 by Jason Borenstein; *The Not So Short Introduction to \LaTeX* by Tobias Oetiker; *How to Write a Paper?* by Arieh Iserles

Location and times: Skiles 170; M, W: 0905 - 0955

**Important Announcement**

All doctoral students admitted Fall 2011 or later are required by the GT RCR Academic Policy for Doctoral Students to complete in-person RCR training either through PHIL 6000 or through an approved in-house RCR training approach. The last 11 weeks of this course fulfill this requirement. There is also an online CITI RCR training requirement. Please visit [RCR online training](http://www.math.gatech.edu/~mengman3) for more information.

**Format of the course**

The format of this course includes short lectures and panel discussions with panelists consisting of experts, on the various topics, from the faculty of the School of Mathematics. Students are expected to participate in the discussion and should prepare questions and/or comments for the panelists before each class.

**N.B.:** This syllabus will evolve during the course of the semester. This means that any downloaded copy will, rapidly, become obsolete. The most up-to-date version will always be the one posted [here](http://www.math.gatech.edu/~mengman3).

**Schedule**

- **Mon, 8/17** Introduction: Class requirements, RCR Compliance, Finding an advisor, Article on Choosing an Advisor, Overview of Research Horizons
  
  *Panelists:* John Etnyre, Mohammed Ghomi

- **Wed, 8/19** Math arXiv, MathSciNet, Kile 2.1, \LaTeX, Oetiker’s book, bibtex, papers, exams, presentations, style files, journal specific style files
  
  *Panelists:* Lew Lefton

- **Mon, 8/24** Getting the most out of seminar/colloquium talks; “Three Things” exercise by Ravi Vakil, Stanford What should be in the Research Horizons reports? How to attend a conference.
  
  *Panelists:* John Etnyre, Mohammed Ghomi, Michael Lacey

- **Wed, 8/26** Getting involved: AMS local chapter, AMS Club, GT SIAM Student Chapter, High School Math competitions, Club Math, AMS blog on organizing seminars
  
  *Panelists:* Enid Steinbart, Fabio Difonzo, Eric Sabo

- **Mon, 8/31** Grant writing, Funding agencies: NSF, NIH, AMS, MAA, et. al. “Broader Impacts”, “intellectual merit”, evaluation. Go to “TSR: Grants” FAQs FastLane about CAREER proposals
  
  *Panelists:* John Etnyre, Wing Li
Wed, 9/2 Writing a CV, research/teaching statement, teaching more teaching, developing a web page. *TSR: Dan Margalit, Georgia Tech*  
Good CV template  
*Panelists: Lew Lefton, Dan Margalit*

Mon, 9/7 **Labor Day:** No classes

Wed, 9/9 Grant writing cont.: NSF Graduate Research Fellowships.  
*NSFGRF* proposals is October 30, 2015, 8pm EDT.  
*FAQ NSFGRF* Deadline for  
*How to win a fellowship article by Evans Harrell*  
*Panelists: Luca Dieci,*

Mon, 9/14 **Job Search:** Getting letters of recommendation, types of jobs, AMS-EIMS Employment Center, Math-jobs.org, See jobs on Dan’s TSR page, Chronicle of Higher Education, jobs in the private sector and elsewhere  
*Panelists: John Etnyre, Doug Ulmer, Sung Ha Kang*

Wed, 9/16 Time management, habits of successful mathematicians  
*Panelists: Luca Dieci, Yao Yao*

Mon, 9/21 **Responsible Conduct of Research (RCR):**  
*NSF* Overview: Professional Ethics in general

Wed, 9/23 How to structure a paper. Which journal do I publish in? Journal Impact Factor, h-index, Peer review process  
*How to Write your first paper, Steven G. Krantz*  
*Panelists: Prasad Tetali, Mohammad Ghomi, Michael Damron*

Mon, 9/28 **RCR** Math in Society: mathematicians as responsible members of society, work place conduct

Wed, 9/30 Giving talks/class lectures, how to structure a talk/class lecture. How to use Beamer, Powerpoint.  
*Dan’s page on talks: Click TSR: Talks*  
*Teaching Math Grad Students how to teach*  
*Panelists* Matt Baker, Mo Burke, Michael Damron

Mon, 10/5 **RCR** Authorship and publication, Copyright laws.

Wed, 10/7 No class: REPLACED BY ATTENDANCE AT REASEARCH HORIZONS TALKS OR COLLOQUIA

Mon, 10/12 **Fall Break:** No classes

Wed, 10/14 No class: REPLACED BY ATTENDANCE AT REASEARCH HORIZONS TALKS OR COLLOQUIA

Mon, 10/19 **RCR** What is plagiarism, self-plagiarism, plagiarism-detection software? Examples.

Wed, 10/21 No class: REPLACED BY ATTENDANCE AT REASEARCH HORIZONS TALKS OR COLLOQUIA

Mon, 10/26 **RCR** Collaborative research, Conflict of interest,

Wed, 10/28 Optional Grant Writing check-up day

Mon, 11/2 **RCR** Data acquisition, management, ownership, and sharing. Posting papers on my web site.

Wed, 11/4 No class: REPLACED BY ATTENDANCE AT REASEARCH HORIZONS TALKS OR COLLOQUIA

Mon, 11/9 **RCR:** Peer review, The responsibilities of mentors and mentees.

Wed, 11/11 No class: REPLACED BY ATTENDANCE AT REASEARCH HORIZONS TALKS OR COLLOQUIA

Mon, 11/16 **RCR** Research misconduct and policies for handling research misconduct.

Wed, 11/18 No class: REPLACED BY ATTENDANCE AT REASEARCH HORIZONS TALKS OR COLLOQUIA

Mon, 11/23 **RCR** Online CITI RCR training, and forms for RCR:  
*RCR Academic Policy for Doctoral Students, Georgia Tech RCR Compliance Policy*
Grading Instruments and Grades

Grades will be based on three assignments:

1. Reports, typeset in \LaTeX, on four of the Research Horizons Seminars or Colloquia
2. Write a grant proposal for an NSF Graduate Research Fellowship (or alternative assignment)
3. Case study paper on an RCR issue.

This course is offered as Pass-Fail

Special Statement on attendance To receive a passing grade, each student must attend the entire course. If a student has to miss a class, the student must contact the instructor prior to the day of the absence (unless the absence is due to illness) so that the instructor can determine whether it will be considered excused. If an absence is considered excused by the instructor, the student must provide proper documentation within one week of returning to class (for example, a physician’s note for an illness). Students will have to write make-up paper(s) for any class time that is excused. Missing class time for an unexcused reason will result in a failing grade.

Additional Resources

- *How to win a Fellowship for Graduate Study in Mathematics* by Evans Harrell
- Springer Author Academy
- rejections in math
- MAA handbook for TAs
- NSF Graduate Research Fellowship Program Login page, GRFP
- GA Tech, Responsible Conduct of Research RCR and here
- RCR Compliance policy Compliance
- RCR courses
- Online RCR training
- Click TSR: Excellent Resources for Professional Development by: Dan Margalit, Georgia Tech
- Advice for Potential Ph.D.’s including “Three Things“ exercise by Ravi Vakil, Stanford
- MathJobs.org, Mathjobs.org
- AMS Jobs site: EIMS
- NSF Directorate for Mathematical and Physical Sciences
- AMS Author Resource Center
- AMS Site on Ethics in Mathematics
- How to Avoid Plagiarism, Provost’s office, Northwestern U.
- Physics Journal plagiarism scandal
White Paper on Self-Plagiarism

Miscellaneous matters

• All students are expected to comply with the Georgia Tech Honor Code (the honor code can be found at http://www.osi.gatech.edu/plugins/content/index.php?id=46).

• Students with Disabilities and/or in need of Special Accommodations: Georgia Tech complies with the regulations of the Americans with Disabilities Act of 1990 and offers accommodations to students with disabilities. If you are in need of classroom or testing accommodations, please make an appointment with the ADAPTS office to discuss the appropriate procedures. More information is available on their website, http://www.adapts.gatech.edu.