

MATH 6001

Introduction to Graduate Studies in Mathematics, Sample Syllabus

Instructor: Martin Engman

Office: Skiles 130

Office Hours: Tues: 11am-12noon, Wed: 1-2pm, Thurs: 10-11am, or by appointment

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Location and times: Skiles 154; M, W: 0905 - 0955

Texts and online resources

- 1) 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;
- 2) Presentation slides based on *PHIL 6000* by Jason Borenstein;
- 3) *The Not So Short Introduction to L^AT_EX 2_ε* by Tobias Oetiker;
- 4) *How to Write a Paper?* by Arie Iserles

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 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.

Course Description

This course is a professional development course that will ensure students begin their graduate careers effectively and with the tools needed to succeed. Specifically, a sample of topics that are covered in the course are “how to find a research advisor”, “how to get the most out of seminars”, “how to build a strong CV and create a professional internet presence”, “getting the most out of conferences and workshops”, and “career paths in academia and industry”. In addition the course will fulfill the Institute mandated Responsible Conduct of Research requirements by exploring topics related to ethical and professional issues such as conflicts of interest, the peer review process, research misconduct, and the responsibilities of mentors and trainees.

The exact professional development topics may vary from semester to semester but the RCR portion will always cover, at a minimum, the topics mentioned above and listed in the course outline below.

Learning outcomes

Students completing this course will

1. Understand the ethical and professional challenges associated with careers in the mathematical sciences.
2. Become familiar with the research being done by faculty in the School of Mathematics.
3. Be able to create a professional website and CV.
4. Be able to write papers and proposals in L^AT_EX 2_ε.
5. Understand the importance of, and how to maximize the benefits gained from, attending seminars and conferences.

Grading Instruments and Grades

This course is offered as Pass-Fail. To receive a passing grade in the course a student must

1. Get a passing grade on 4 reports, typeset in L^AT_EX, on the *Research Horizons* Seminars or Colloquia.
2. Get a passing grade on a case study paper on an RCR issue.
3. Addend all classes (see below).

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.

Academic Integrity

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>.

Schedule

- Mon, 8/18 Introduction: Class requirements, RCR Compliance; Finding an advisor, Article on Choosing an Advisor, Overview of *Research Horizons*
Panelists: John Etnyre, Robert Rahm, Ranjini Vaidyanathan
- Wed, 8/20 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, Brett Wick
- Mon, 8/25 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, Michael Lacey
- Wed, 8/27 Getting involved: AMS local chapter AMS Club, GT SIAM Student Chapter, High School Math competitions, Club Math, AMS blog on organizing seminars
Panelists: Luca Dieci, Enid Steinbart, JD Walsh
- Mon, 9/1 Labor Day: No classes
- Wed, 9/3 Grant writing, Funding agencies: NSF, NIH, AMS, MAA, et. al. "Broader Impacts", "intellectual merit", evaluation. Go to "TSR: Grants" FAQs about CAREER proposals: here
Panelists: John Etnyre, Wing Li, Doug Ulmer
- Mon, 9/8 Math arXiv, MathSciNet, Kile 2.1, L^AT_EX, Oetiker's book, bibtex, papers, exams, presentations, style files, journal specific style files
Panelists: Lew Lefton
- Wed, 9/10 Grant writing cont.: NSF Graduate Research Fellowships. FAQ NSFGRF **Deadline for NSFGRF proposals is October 30, 2014 (Thursday) 8pm EDT** *Panelists:* Luca Dieci, JD Walsh

- Mon, 9/15 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, Dan Margalit
- Wed, 9/17 Time management, habits of successful mathematicians
Panelists: Doug Ulmer
- Mon, 9/22 **Responsible Conduct of Research (RCR)**: Sec. 7009; NSF; Overview: Professional Ethics in general ,
- Wed, 9/24 How to structure a paper. Which journal do I publish in? Journal Impact Factor. Peer review process. How to Write your first paper, Steven G. Krantz
Panelists: Kirsten Wickelgren
- Mon, 9/29 **RCR** Math in Society: mathematicians as responsible members of society, work place conduct
- Wed, 10/1 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, John Etnyre
- Mon, 10/6 **RCR** Authorship and publication, Copyright laws.
- Wed, 10/8 No class: REPLACED BY ATTENDANCE AT RESEARCH HORIZONS TALKS OR COLLOQUIA
- Mon, 10/13 Fall Break: No classes
- Wed, 10/15 No class: REPLACED BY ATTENDANCE AT RESEARCH HORIZONS TALKS OR COLLOQUIA
- Mon, 10/20 **RCR** What is plagiarism, self-plagiarism, plagiarism-detection software? Examples.
- Wed, 10/22 No class: REPLACED BY ATTENDANCE AT RESEARCH HORIZONS TALKS OR COLLOQUIA
- Mon, 10/27 **RCR** Collaborative research, Conflict of interest,
- Wed, 10/29 Optional Grant Writing check-up day
- Mon, 11/3 **RCR** Data acquisition, management, ownership, and sharing. Posting papers on my web site.
- Wed, 11/5 No class: REPLACED BY ATTENDANCE AT RESEARCH HORIZONS TALKS OR COLLOQUIA
- Mon, 11/10 **RCR**: Peer review, The responsibilities of mentors and mentees.
- Wed, 11/12 No class: REPLACED BY ATTENDANCE AT RESEARCH HORIZONS TALKS OR COLLOQUIA
- Mon, 11/17 **RCR** Research misconduct and policies for handling research misconduct.
- Wed, 11/19 No class: REPLACED BY ATTENDANCE AT RESEARCH HORIZONS TALKS OR COLLOQUIA
- Mon, 11/24 **RCR** Online CITI RCR training, and forms for RCR: *RCR Academic Policy for Doctoral Students, Georgia Tech RCR Compliance Policy*
- Wed, 11/26 No class: REPLACED BY ATTENDANCE AT RESEARCH HORIZONS TALKS OR COLLOQUIA
- Mon, 12/1 Survey .
- Wed, 12/3 No class: REPLACED BY ATTENDANCE AT RESEARCH HORIZONS TALKS OR COLLOQUIA
- Wed, 12/10 Final Project Paper Due