MATH 6001, Introduction to Graduate Mathematics

Note: the syllabus and course schedule are subject to change. Any changes to the syllabus and/or course schedule will be relayed to the students in class and through e-mail.

Instructor: [Chris Jankowski]
Office: Skiles 261. Email: cjankowski3@gatech.edu.
Office hours: Tuesdays 1:00-2:30 PM, Wednesdays 2:15-3:45 PM, and by appointment.

Class location and times: Skiles 169, MF 12:20 PM - 1:10 PM. The Friday class will generally be replaced by mandatory attendance to Research Horizons several weeks into the semester.

Texts and online resources
2) The Not So Short Introduction to \LaTeX by Tobias Oetiker.
3) How to Write a Paper? by Arieh 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. Math 6001 fulfills the in-person requirement. There is also an online CITI RCR training requirement.

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. We will have short lectures and panels with faculty in the School of Mathematics. It is expected that you do readings as assigned and come prepared with questions to ask panelists. Some topics that are covered in the course are:

• Getting involved in the mathematical community
• Finding a research advisor
• Getting the most out of math talks and conferences.
• Building a strong CV, and pursuing 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, the responsibilities of mentors and trainees, and more.

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 \LaTeX.
5. Understand the importance of, and how to maximize the benefits gained from, attending seminars and conferences.

Grades
This course is offered as Pass-Fail. To receive a passing grade in the course a student must do all of the following.
1. Get a passing grade on 4 reports (typeset in \LaTeX) on the Research Horizons Seminars or Colloquia. Aim for roughly a page and a half for each report.
2. Write a grant proposal for an NSF Graduate Research Fellowship (or alternative assignment).
3. Get a passing grade on a case study paper (4 pages in length) on an RCR issue. I will post a list of topics, but feel free to approach me with your own idea. This will serve as our final paper.
4. Attend all classes.
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.

The Honor Code and Academic Dishonesty

Do not cheat! Abide by the [honor code](http://honor.gatech.edu) at all times. See [http://honor.gatech.edu](http://honor.gatech.edu) and [here](http://honor.gatech.edu).

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 accommodations, please make an appointment with the Office of Disability Services to discuss the appropriate procedures. More information is available on their [website](http://disability.gatech.edu). Please make an appointment with me to discuss your accommodation, if necessary.

Schedule

**Monday, Aug. 21:** Introduction. Class overview, RCR Compliance (see [here](http://honor.gatech.edu), [here](http://honor.gatech.edu), and [here](http://honor.gatech.edu), and go [here](http://honor.gatech.edu) for the online part). Developing a webpage. [Research Horizons](http://researchhazards.gatech.edu) and its [schedule](http://researchhazards.gatech.edu) What should be in Research Horizons reports.

**Friday, Aug. 25:** Getting involved. The [math GT site](http://math.gatech.edu) has links for the AMS Grad Student Chapter, the Association for Women in Math Chapter, the GT SIAM Student Chapter, and more. There is also the [High School Math Competition](http://hsmc2017.org) and [Club Math](http://clubmath.gatech.edu). See the [AMS blog](http://ams.org/blogs) on organizing seminars.

Panelists: Enid Steinbart, Samantha Petti, Timothy Duff

**Monday, Aug. 28:** Getting the most out of seminar and colloquium talks, including the [“Three Things” exercise](http://ravi.org/three-things) by Ravi Vakil, Stanford. Looking forward: How to attend a conference.

Panelists: Michael Damron, Mayya Zhilova, Michael Northington

**Friday, Sep. 1:** Grant writing, funding agencies: NSF, NIH, AMS, MAA, and others. “Broader Impacts,” “intellectual merit,” evaluation. [NSF Graduate Research Fellowships](http://www.nsf.gov/awardsearch/award.jsp?dyid=GRF) and more [fellowships](http://grants.gov) some for international students. Deadline for NSFGRF proposals is October 27, 2017 (Friday) at 5:00 PM. Also, see [How to win a Fellowship for Graduate Study in Mathematics](http://www.math.uga.edu/~evans/NSFGRF.html) by Evans Harrell.

Panelists: Luca Dieci, Caitlin Leverson, Justin Lanier, Anna Kirkpatrick

**Monday, Sep. 4:** Labor Day: No classes

**Friday, Sep. 8:** Math [arXiv](http://arxiv.org) MathSciNet [TEX](http://texetter.net) (see [Oetiker’s book](http://holy.bugs吸纳.net), bibtex, Beamer, and style files. [Structuring a paper](http://www.crcpress.com/Structuring-a-Paper-A-Practical-Guide-for-Scientific-Writers/Oetiker-9780849375556) deciding where to submit a paper based on a variety of considerations such as Impact Factor.

Panelists: Dan Margalit, Wenjing Liao, Padma Srinivasan

**Monday, Sep. 11:** Campus closed and class canceled due to weather.

**Wednesday, Sep. 13:** MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)

**Friday, Sep. 15:** Writing a CV, and choosing [templates for a CV and thesis](http://www.latex-project.org/help/latex-help/thesis) Choosing a thesis advisor. Time management as a graduate student and mathematician.

Panelists: Sung Ha Kang, Megan Bernstein, Peter Lambert-Cole, Justin Lanier, Dan Margalit

**Monday, Sep. 18:** Job Search: research statement and teaching statement. Getting letters of recommendation, types of [jobs](http://mathjobs.org) and [EIMS](http://eims.math.wisc.edu). See [Jobs on Dan’s TSR page](http://www.math.gatech.edu/~damron/TSR) jobs in the private sector and elsewhere.

Panelists: Greg Blekherman, Ronghua Pan

**Wednesday, Sep. 20:** MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)
Friday, Sep. 22: **Responsible Conduct of Research (RCR)** overview; professional ethics in general; discussion of online CITI RCR training, and forms for RCR.

Monday, Sep. 25: RCR: The peer-review process.

Wednesday, Sep. 27: MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)

Monday, Oct. 2: RCR: Math in Society; mathematicians as responsible members of society, work place conduct

Wednesday, Oct. 4: MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)

Monday, Oct. 9: Fall Break: No classes.

Wednesday, Oct. 11: MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)

Monday, Oct. 16: RCR: Authorship and publication, Copyright laws

Wednesday, Oct. 20: MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)


Wednesday, Oct. 25: MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)

Grant Writing check-up day

Monday, Oct. 30: RCR: Collaborative research.

Wednesday, Nov. 1: MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)

Monday, Nov. 6: RCR: Data acquisition, management, ownership, and sharing. Posting papers on your website.

Wednesday, Nov. 8: MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)


Wednesday, Nov. 15: MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)

Monday, Nov. 20: RCR: Research misconduct and policies for handling research misconduct.

Wednesday, Nov. 22 and Friday, Nov. 24: Thanksgiving holiday, no class or Research Horizons

Monday, Nov. 27: RCR: Conflicts of interest.

Wednesday, Nov. 29: MANDATORY ATTENDANCE AT RESEARCH HORIZONS (12:10-1:10pm, Skiles 006)

Friday, Dec. 1: Final Project Paper Due
Some Additional Resources

Responsible Conduct of Research links

- [Georgia Tech RCR homepage](#)
- [Georgia Tech’s RCR compliance policy](#)
- [Online RCR training](#)
- [Springer Author Academy](#)
- [Retractions in math](#)
- [MAA handbook for TAs](#)

Academic employment sites and the NSF graduate fellowship site.

- [NSF Graduate Research Fellowship Program](#) (GRFP)
- [MathJobs.org](#)
- [EIMS](#)

Various AMS and ethics links.

- [AMS Author Resource Center](#)
- [AMS Site on Ethics in Mathematics](#)
- [How to Avoid Plagiarism, Provost’s office, Northwestern University](#)