

CSE 6001: Intro to the CSE PhD (Fall 2016)

Rich Vuduc, Oded Green

Georgia Institute of Technology
richie@gatech.edu, ogreen@gatech.edu

Your research will be judged not just by what you say and do, but how you say and do it. Your technical electives teach you “the what.” This course is about “the how.”

Note that “the how” includes how to frame your work, how to write about it, how to present it, and how to carry out your work in impactful, responsible, and ethical ways. These latter attributes will help you ensure that you follow Georgia Tech’s policies on Responsible Conduct of Research.¹

¹ www.rcr.gatech.edu

Date	Topic [Activity]	Reading (<i>before</i> class!)
Aug. 22	Hello and welcome! [Self-introductions]	(no assignment)
Aug. 29	How to lead a (mostly) happy and productive graduate life [Discussion]	[Guo, 2012]; [Hong, 2012]
Sep. 5	<i>Labor Day holiday — No class</i>	
Sep. 12	Innovation	[Fujimoto, 2011]
Sep. 19	Writing, part 1 [Bring an abstract to class];	[Pinker, 2012]; [Zinsser, 2010]
Sep. 26	Writing, part 2 [TBD] Authorship and publication (RCR)	[Shewchuk, 1997b]; [Ernst, 2013]
Oct. 3	Responsibilities of teachers and mentors (RCR) ; Collaborative research (RCR)	
Oct. 10	<i>Fall Break — No class</i>	
Oct. 17	CSE Distinguished Lecture: Tandy Warnow (TSRB Auditorium)	
Oct. 24	Conveying your ideas [Talks, part 1];	[Heath and Heath, 2007]; [Shewchuk, 1997a]; [Might, 2011]
Oct. 31	Plots & charts	[Doumont, 2009]; [Püschel, 2008]
Nov. 7	Science and engineering in society (RCR)	—
Nov. 14	<i>Vuduc & Green away at SC’16; no class</i>	
Nov. 21	How to convey your ideas [Talks, part 2]	(in-class presentations)
Nov. 28	Research ethics (RCR) [Practice scenarios; guest?]: conflicts of interest; data management; human subjects research; research misconduct	[Dhavamany and Mohandas, 2013]
Dec. 5	How to review papers and deal with rejection [Critique reviews]; Peer review (RCR)	[Smith, 1990]; [Gilbert, 2013]

Table 1: What we plan to cover, what activities we will do for each, when, and with what readings (if applicable).

Who should take this class? If you are a Computational Science and Engineering (CSE) PhD student, you *must* pass this course once, and you must take it in your first semester unless extenuating circum-

stances prevent you from doing so. (Please consult with the instructor in such cases.)

Logistics. The class meets Mondays 11 am–noon in the College of Computing Building, Room 53 (“CCB” or “CoC” 53).²

² <https://goo.gl/maps/dANhxGkLktv>

Books. There are no required books for the class. However, if you are serious about science and how to convey it effectively, then I would highly recommend Josh Schimel’s *Writing Science*, Doumont’s *Trees, Maps, and Theorems*, and Heath & Heath’s *Made to Stick* (in that order if you must prioritize).³ Aside from those, we will rely primarily on readings available online.

³ Schimel 2012, Doumont 2009, Heath and Heath 2007

Philosophy and approach. The basic philosophy of this course is that you learn best by a combination of reading, thinking, and most importantly, *actively doing*. Therefore, there will be few formal lectures. Rather, we will all do *actual stuff* together in class. This approach only works if you prepare *before* each class, so please do so.

Your grade in the class is based entirely on participating in *all* the exercises. If you really need to miss a class, you should advise the instructors as far in advance as possible.

References

Napoleon Dhavamany and Praneesh Mohandas. *Research ethics in computer science*. LAP Lambert Academic Publishing, 2013. ISBN 978-3659344220. URL <http://www.amazon.com/Research-Computer-Science-Napoleon-Dhavamany/dp/3659344222>.

Jean-luc Doumont. *Trees, maps, and theorems: Effective communication for rational minds*. Principiae byba, 2nd edition, 2009. ISBN 978 90 813677 07. URL <http://treesmapsandtheorems.com>.

Michael D. Ernst. Writing a technical paper, 2013. URL <http://homes.cs.washington.edu/~mernst/advice/write-technical-paper.html>. (Created Apr. 2005; updated Aug. 15, 2013).

Richard M. Fujimoto. On innovation, and building and sustaining a successful career in research. In *Proceedings of the 2011 Winter Simulation Conference (WSC)*, Phoenix, AZ, USA, December 2011. DOI: 10.1109/WSC.2011.6147015.

Eric E. Gilbert. Dealing with academic rejection, August 2013. URL <http://eegilbert.org/rejection.html>.

Philip Guo. *The Ph.D. grind*. (electronically self-published), 2012. URL <http://pgbovine.net/PhD-memoir.htm>.

Chip Heath and Dan Heath. *Made to stick: Why some ideas survive and others die*. Random House, 1st edition, 2007. ISBN 978-1400064281. URL <http://heathbrothers.com/books/made-to-stick/>.

Jason Hong. PhDs from the faculty perspective. *Communications of the ACM (blog)*, 2012. URL <http://cacm.acm.org/blogs/blog-cacm/157012-phds-from-the-facultys-perspective/fulltext>.

Matt Might. 10 tips for academic talks, 2011. URL <http://matt.might.net/articles/academic-presentation-tips>.

Steven Pinker. The sense of style: Scientific communication for the 21st century, September 12 2012. URL https://www.youtube.com/watch?v=VL-YNAb_uXo. Video lecture delivered at MIT.

Markus Püschel. Small guide to giving presentations, 2008. URL <https://www.inf.ethz.ch/personal/markusp/teaching/guides/guide-presentations.pdf>. (Year is approximate).

Joshua Schimel. *Writing Science: How to write papers that get cited and proposals that get funded*. Oxford University Press, 2012. ISBN 978-0199760244.

Jonathan Richard Shewchuk. Giving an academic talk, 1997a. URL <http://www.cs.berkeley.edu/~jrs/speaking.html>.

Jonathan Richard Shewchuk. Three sins of authors in computer science and math, 1997b. URL <http://www.cs.cmu.edu/~jrs/sins.html>.

Alan Jay Smith. The task of the referee. *IEEE Computer*, 23(4), April 1990. DOI: 10.1109/2.55470.

William Zinsser. Writing English as a second language. *The American Scholar*, 2010. URL <http://theamericanscholar.org/writing-english-as-a-second-language>.