

# CSE 6001: Intro to the CSE PhD (Fall 2021)

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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.<sup>1</sup>

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<sup>1</sup> [www.rcr.gatech.edu](http://www.rcr.gatech.edu)

Date	Topic [Activity]	Reading ( <i>before class!</i> )
Aug. 25	Hello and welcome! [Self-introductions]	
Sep. 1	Innovation and the “Graduate Mentality”	[Fujimoto, 2011]; [Hong, 2012]
Sep. 8	What is CSE?	[Rüde et al., 2016]
Sep. 15	Responsibilities of teachers and mentors ( <b>RCR</b> ) [In-class written response]	
Sep. 22	<i>No class (Vuduc away)</i>	
Sep. 29	Writing and talk tips	[Pinker, 2015]; [Shewchuk, 1997]; [Zinsser, 2010]; [Might, 2011]
Oct. 6	Plots charts; Data management; research misconduct ( <b>RCR</b> ) [ <b>Tweet a paper</b> ]	[Doumont, 2009]; [Püschel, 2008]
Oct. 13	<i>(class canceled due to Rich’s jury duty)</i> – Authorship and publication ( <b>RCR</b> ); discuss submitted tweets	
Oct. 20	Collaborative research, research ethics; conflicts of interest; human subjects research ( <b>RCR</b> ) [ <b>Redo a chart</b> ]	
Oct. 27	Guest: Sheila Cranman on conflict resolution ( <b>RCR</b> ) and listening skills, Part 1	
Nov. 3	Guest: Sheila Cranman on conflict resolution ( <b>RCR</b> ) and listening skills, Part 2	
Nov. 10	[ <b>Your talks (live!)</b> ]	
Nov. 17	<i>No class (Vuduc away)</i>	
Nov. 24	[ <b>Your talks (recorded)</b> ] <i>No class (Thanksgiving)</i>	
Dec. 1	Discuss recorded talks	

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

*Logistics.* The class meets Wednesdays from 11:00–11:50 pm in Architecture (West), Room 258.<sup>2</sup>

<sup>2</sup> <https://goo.gl/maps/E6peiEwf1TufNMLY9>

*Books.* There are no required books for the class. Instead, we will rely primarily on readings available online.

*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

- Jean-luc Doumont. Effective graphical displays (summary from the book, “Trees, maps, and theorems: Effective communication for rational minds”), 2009. URL <http://www.principiae.be/book/pdfs/TM&Th-4.0-summary.pdf>.
- 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.
- 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, October 2015. URL <https://www.youtube.com/watch?v=0V5J6BfToSw>. Video Lecture at the Royal Institution.
- Markus Püschel. Small guide to giving presentations, 2008. URL <https://www.inf.ethz.ch/personal/markusp/teaching/guides/guide-presentations.pdf>. (Year is approximate).
- Ulrich Rüde, Karen Willcox, Lois Curfman McInnes, Hans De Sterck, George Biros, Hans-Joachim Bungartz, James Corones, Evin Cramer, James Crowley, Omar Ghattas, Max Gunzburger, Michael Hanke, Robert J. Harrison, Michael A. Heroux, Jan Hesthaven, Peter K. Jimack, Chris Johnson, Kirk E. Jordan, David E. Keyes, Rolf H. Krause, Vipin Kumar, Stefan Mayer, Juan Meza, Knut Martin Mørken, J. Tinsley Oden, Linda R. Petzold, Padma Raghavan, Suzanne M. Shontz, Anne E. Trefethen, Peter R. Turner, Vladimir Voevodin, Barbara I. Wohlmuth, and Carol S. Woodward. Research and education in computational science and engineering. *CoRR*, abs/1610.02608, 2016. URL <http://arxiv.org/abs/1610.02608>.
- Jonathan Richard Shewchuk. Giving an academic talk, 1997. URL <http://www.cs.berkeley.edu/~jrs/speaking.html>.
- William Zinsser. Writing English as a second language. *The American Scholar*, 2010. URL <http://theamericanscholar.org/writing-english-as-a-second-language>.