

Stat Chat for Thurs 8 March 2012

Location: Room 205, Olin-Rice Science Center, Macalester College

Special Guest Speaker:

[Rob Gould](#) from UCLA

Agenda

- 6:00 - 6:20, Pot-Luck Dinner. Sign up [here](#).
- 6:20 - 6:35, Dessert Activity. **Milo Schield** *The Omnipresence of Coincidence*
Coincidence is much more likely than expected, leading many people to conclude that there is something more going on than "mere" coincidence. Educators often see this differently, and ponder how to lead students to a more accurate idea of "expected." I'll describe some spreadsheets to make the unseen more visible and help students challenge and develop their notion of "expected". The spreadsheets demonstrate runs with coins, linear and non-linear clusters in a two-dimensional grid, and the Birthday problem.
- 6:35-7:00, Journal Club: **UMN Catalst Groups** presents P. Arnold, M. Pfannkuch, C. Wild, M. Regan, S. Budgett (2011) [Enhancing Students' Inferential Reasoning: From Hands-On to "Movies"](#) JSE 19(2).

Abstract: Computer simulations and animations for developing statistical concepts are often not understood by beginners. Hands-on physical simulations that morph into computer simulations are teaching approaches that can build students' concepts. In this paper we review the literature on visual and verbal cognitive processing and on the efficacy of animations in promoting learning. We describe an instructional sequence, from hands-on to animations, developed for 14 year-old students. The instruction focused on developing students' understanding of sampling variability and using samples to make inferences about populations. The learning trajectory from hands-on to animations is analyzed from the perspective of multimedia learning theories while the learning outcomes of about 100 students are explored, including images and reasoning processes used when comparing two box plots. The findings suggest that carefully designed learning trajectories can stimulate students to gain access to inferential concepts and reasoning processes. The role of verbal, visual, and sensory cues in developing students' reasoning is discussed and important questions for further research on these elements are identified.

- 7:00 - 8:00, Main Event: **Rob Gould** *Educating Citizen Statisticians*.

What do we want our students to learn in an introductory statistics course? Historically, the answers have ranged from "How to compute ..." to "How to read the newspaper" to "How to analyze data" to "It depends on who the students are." Most of these discussions took place in a context in which data were hard to come by and statistical analysis tools were expensive. But today we live in a world where data are ubiquitous and anyone with an internet connection can analyze data. In this new data-driven world, I will argue that there is a core curriculum needed by all students, regardless of major and that the purpose of this core is to teach them to be Citizen Statisticians. We'll discuss how the new textbook I wrote with Colleen Ryan, *Introductory Statistics: Exploring The World Through Data*, was written to provide a core statistics education to all students regardless of background or mathematical preparation.

PLEASE RSVP to [Danny Kaplan](#) so that we can plan sensibly for dinner. As always, last-minute deciders and guests are welcome.