

TEACHING of STATISTICS in the HEALTH SCIENCES

Steven Grambow

From the Section Chair



Welcome to the TSHS Fall Newsletter! Thanksgiving is upon us and brings with it a welcome small break from teaching; just enough time to recharge for the final few weeks until the end of the term. It's around this time each year that the frantic pace of class begins to have its impact on me – there remains a small, renegade group of midterm exams that refuse to be graded and students are starting to ask if they can take the final exam (that hasn't been written yet) early.

The coming of the holidays also provides a time for reflection. In thinking about this column and reflecting back on the year, I am struck by the personal and professional rewards my involvement with TSHS has brought. I have forged new friendships, particularly with my fellow executive committee members and fellow TSHS portal developers. Through my role as Chair and also as a presenter at JSM, I have met and exchanged ideas with so many dedicated, innovative, and outstanding teachers from our section. It's exposed me to new ideas for innovation in the classroom, new teaching resources, and revitalized my enthusiasm for tackling some of the educational projects I have been thinking about for some time.

"I am struck by the personal and professional rewards my involvement with TSHS has brought. I have forged new friendships... I have met and exchanged ideas with so many dedicated, innovative, and outstanding teachers from our section."

Suffice it to say that it has been a very rewarding experience to serve as Chair and I look forward to my continued role as Past-Chair next year. I want to express my sincere thanks to the members of the executive committee for their support and guidance throughout the year. I also want to acknowledge the outstanding work of our Program Chair, Felicity Enders, and all of the section members that made the TSHS program at JSM in Montreal this year so successful, well attended, and well received.

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As you will see further down in the newsletter our 2014 Program Chair, Jose-Miguel Yamal, is putting together an outstanding program for JSM 2014 in Boston. I am also delighted to welcome our 2014 Section Chair, Constantine Daskalakis, a past Secretary/Treasurer of the section and our current Webmaster. Constantine continues to be the primary architect of revisions/improvements to our section Handbook, a document that I have used extensively over the last year. I know that the interests of our section will be well served under his leadership.

*"...our **2014 Program Chair**, Jose-Miguel Yamal, is putting together an outstanding program for JSM 2014 in Boston. I am also delighted to welcome our **2014 Section Chair**, Constantine Daskalakis.."*

Lastly, I want to provide a brief update on portal development activities related to the TSHS member initiative proposal (led by our current past-chair, Carol Bigelow) that was funded this year. The development team had a conference call recently that led to the submission of several small grant proposals to fund particular aspects of portal development. Work continues on development of the first cluster of dataset resources for the portal and we have also established a TSHS Portal Development Team Site within the ASA Community Website to help coordinate our development activities. If you would like to get involved with the development of the TSHS Resources Portal, please contact Ann Brearley, University of Minnesota, co-chair of the outreach committee, at brea0022@umn.edu.

Best wishes for the holiday season.

JSM 2013 Summary Felicity Enders



TSHS had an outstanding representation at JSM 2013. We sponsored 11 sessions at which over 40 speakers presented, and we cosponsored an additional 10 sessions. At the sessions we sponsored there were over 300 attendees. Audiences were enthusiastic about the choice of topics, the expertise of the presenters, and the take-away messages. Feedback from the sessions was very positive.

Because of the large number of sessions, we were able to include topics such as:

- **Course Content**
 - o What TSHS students need to know, and what they *don't* really need to know
 - o Teaching students how to notice and cope with missing data
 - o Ideas for how to teach clinical trials effectively, both in person and online
 - o Admitting to our own mistakes as a teaching tool
- **Course Development Tools**
 - o A new website through Cleveland Clinic of rich datasets available for education (for more info, see <http://www.amstat.org/publications/jse/v21n1/nowacki.pdf>)
- **Learners**
 - o Teaching as a component of statistical consulting
 - o How to engage physicians who are not taking formal coursework but who need TSHS content anyway
 - o Working with students in clinical and translational science

We view our JSM TSHS offerings as an opportunity to reach out to new members.

Do you know someone who teaches in the health sciences but is not yet a TSHS member?

Encourage them to join for access to member-only materials and email discussions through the ASA Community Portal!

We hope that participants will use what they learned in their daily lives, whether they be statistical consultants, statistical educators, or leaders within the statistics community. With an influx of 60 Clinical and Translational Science Awards from the National Institutes of Health since 2006, all of which now teach biostatistics to clinicians and other health professionals, **it's a great time to be a teacher of statistics in the health sciences!**

Award for Best Speaker at JSM

It is with great pleasure that we announce that the 2013 TSHS best speaker prize has been awarded to **Steve Grambow, PhD**.

Steve is an Assistant Professor in the Department of Biostatistics and Bioinformatics at Duke University. He earned his PhD from the University of Kentucky at Lexington in 1998. At Duke, Steve teaches a wide range of courses including introductory statistics, statistical programming, and research. He also teaches on controversies in clinical research, which he likely drew upon for his talk at JSM this year.

There were many outstanding TSHS talks at JSM this year. Steve spoke in the Wednesday session on “Biostatistical Literacy: What Medical and Public Health Professionals Need to Know about Statistics,” where he gave a talk titled “**Doctors and Data Analysis: A Dangerous Mix?**”



This session was jam packed, with many attendees squeezing in to stand or to sit on the floor. On a scale of one (poor) to five (excellent), Steve had an average score of 4.7 and was rated as either good or excellent by 100% of the respondents.

Comments from attendees included the following:

- “Best session on education I’ve been to thus far”
- “This was a fantastic and incredibly useful session!”
- “Important topics – organize panel or short course”

We agree - hopefully we will be able to include more content like this at JSM in the future!

Call for submissions for a contributed talk

Jose-Miguel Yamal, 2014 Program Chair

The TSHS section had an increased presence at JSM 2013 this past year with 1 invited session, 7 contributed sessions, 1 poster, and 2 roundtable discussions thanks to the hard work of our past Program Chair Felicity Enders as well as the excellent talks and panels from our Section members. We are on track to have another successful series of talks in Boston this coming year with 2 invited sessions already approved.

Do you have an idea for a talk related to teaching statistics in the health sciences? I especially encourage you to consider organizing or presenting in a topic-contributed paper session. These sessions include five participants and are organized around a common theme. Several formats are available: 1) five papers; 2) four papers with discussant; and 3) three papers with two discussants. The organizer would select a theme, invite speakers, and secure commitments. Alternatively, you can submit a title and abstract for a contributed paper.

Online submissions of abstracts opens December 3, 2013. The deadline for topic-contributed sessions is January 15, 2014 and the deadline for regular contributed papers is February 3, 2014.

Additionally, are you attending the 2014 JSM and are willing to serve as a Contributed session chair? If so, please contact me (Jose-Miguel.Yamal@uth.tmc.edu). I hope to see you in Boston.

Jose-Miguel Yamal



Check out our next JSM site: <http://www.cityofboston.gov/>

BOOK REVIEW[Back to list](#)

Robert Alan Greevy, Jr, PhD
 Associate Professor of Biostatistics
 Vanderbilt University School of Medicine



Title: *The Theory That Would Not Die: How Bayes' Rule Cracked the Enigma Code, Hunted Down Russian Submarines, and Emerged Triumphant from Two Centuries of Controversy*

Author: Sharon Bertsch McGrayne

Publisher: Yale University Press 2012

Number of Pages: 360

ISBN-10: 0300188226

ISBN-13: 978-0300188226

Price: \$27.50 (hardback list price)

Formats: Hardcover, paperback, Kindle, audiobook

"... each was doing what was best for the types of problems he was working on, but neither side made any attempt to understand what the other was doing. A popular in-house riddle described the situation. 'What's the collective noun for a group of statisticians? ... A quarrel.'"

-- from *The Theory* describing the dynamic between R.A. Fisher's and J. Neyman's camps while they worked one floor apart at the University College London

It is difficult to understand the state of Statistics today without understanding its history. *The Theory That Would Not Die* by Sharon Bertsch McGrayne focuses on arguably the most contentious battle in the field's history, but as the quote regarding two giants of frequentist inference above helps show, contention has never been in short supply in statistics. If I were to use this book to teach one thing, it would be to disavow students of the notion that the history of statistics has been the steady discovery of unarguable mathematical facts and the ready acceptance of useful methods. Certainly graduate-level students, who need to understand where disagreements and confusion exist in statistics today, will benefit from understanding the long trail from which they have come.

The Theory has been accurately described as a pop history of statistics, which gives a nod to its readability and helps clarify what it is and is not. *The Theory* gives a great feel for the people in the book. It does not give a great feel for the problems. It has lots of wonderful examples of Bayesian analysis solving important problems, but the book does not offer as much clarity on how or why this alternative statistical paradigm was so advantageous. It does offer some insight, but does so at a cursory level generally focusing on how the use of sometimes subjective prior information proved useful in numerous practical applications. It is a fairly long, dense book, and what it sets out to do, it does well. I do not fault the book for not doing something it clearly does not intend to do. But in terms of determining how this text could be useful in teaching statistics, it is important to be clear on what it does and does not do.

In terms of aiding teaching, *The Theory* is a nice resource for a statistical history class. I could easily see assigning it as part of the core readings for such a class. *The Theory* is not dry reading, remarkably so, and I imagine that would be appreciated by students. Some of the book's jokes fall flat, e.g. when referring to a religious pamphlet written by Thomas Bayes, it defines pamphlet as "a kind of blog". However, the inclusion of several jokes only statisticians could love adds nice spice. The text is also useful in mining interesting examples of Bayesian analysis in action; however, it will only provide a lead on these examples. Additional research would be needed to include any of the examples in a class. The book is well referenced and the bibliography nicely organized by chapter, so the leads provided will point to numerous interesting primary sources.

CALL FOR NOMINATIONS: THE 2014 ASA SECTION ON TEACHING STATISTICS IN THE HEALTH SCIENCES YOUNG INVESTIGATOR AWARD COMPETITION

Are you, or do you know, a colleague who is a “young investigator”?

Please encourage “young investigators” (defined as a current graduate student or having received a terminal degree no more than 5 years ago, being in a position with rank below associate professor, and not holding tenure or its equivalent) who have submitted abstracts to the 2014 JSM in the Section on Teaching Statistics in the Health Sciences to apply for this award.

Abstracts submitted should be related to the use of effective methods in statistics education in the health sciences. Topics such as teaching in courses, consulting settings, or mentoring sessions are appropriate.

For the award competition, a nominee should submit to the TSHS Section a full paper based on the abstract submitted for the 2014 JSM. Review criteria include the organization and clarity of the paper, the use of innovative or creative methods to effectively teach statistical concepts and methods, and the potential utility by others for teaching statistics in the health sciences.

The nominee must be the first author of the abstract and the paper.

The award recipient will be recognized during the 2014 JSM at the Teaching Statistics in the Health Sciences business meeting and mixer. There is an award certificate and a \$500 cash award.

Materials required for nomination for the Young Investigator Award include:

- Cover letter certifying that the nominee meets eligibility criteria (include title and author(s) of abstract). Self-nominations are allowed.
- Copy of abstract (include title but not author(s)).
- Copy of paper (maximum 4-8 single-spaced pages [maximum of 2,000 words]; include title but not author(s)).
- Statement of the nominee’s philosophy of teaching (maximum of one single-spaced page [maximum of 500 words]; do not include nominee’s name).

Nominations are due by email to Steve Grambow, Award Committee Chair, Section on Teaching Statistics in the Health Sciences, (steven.grambow@duke.edu) by March 7, 2014. The award recipient will be notified in April 2014.

CALL FOR NOMINATIONS: THE 2014 ASA SECTION ON TEACHING STATISTICS IN THE HEALTH SCIENCES OUTSTANDING TEACHING AWARD

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Do you know a colleague who is an outstanding teacher of statistics in the health sciences?

Please nominate such outstanding teachers for the 2014 ASA Section on Teaching Statistics in the Health Sciences Outstanding Teaching Award. Self-nominations are welcome.

The award recipient will be recognized during the 2014 JSM at the Teaching Statistics in the Health Sciences (TSHS) business meeting and mixer. There is an award certificate and a \$500 cash award.

All nominations must be made with the approval and support of the nominee.

Previous winners of the TSHS Distinguished Achievement Award are ineligible to be nominated for the Outstanding Teaching Award.

Materials required for nomination for the Outstanding Teaching Award include:

- Nominating letter summarizing the nominee's teaching/training accomplishments (maximum of 500 words).
- Copy of the nominee's curriculum vitae, with particular emphasis on activities related to teaching/training (maximum of 7 pages).
- Statement of the nominee's philosophy of teaching (maximum of one single-space page [maximum of 500 words]; do not include nominee's name.
- Three letters of reference submitted by colleagues summarizing the nominee's teaching/training abilities (maximum of 500 words).

Nominations are due by email to Steve Grambow, Award Committee Chair, Section on Teaching Statistics in the Health Sciences, (steven.grambow@duke.edu) by March 7, 2014. The award recipient will be notified in April 2014.

JSM 2013 Pictures!



The TSHS mixer just getting started! Thanks to Steve Grambow for this picture. His annotated slide show from the mixer is [here](#). Click and enjoy!

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Palais des
Congress --
AKA the
Convention
Center





Mixer picture: Steve Grambow
-- "No pictures from the
paparazzi, please!"



A French city - Welcome!

Lots of little city parks in
Montreal.



Rue de Catherine (near where I
lodged) was closed to traffic and
decorated with overhead pink
balls for many blocks.

The Botanical Gardens were very nice -- even the free parts. Lots more to see with paid entry, but I arrived in the evening.



Some long, steep walks to ride the Metro!



Look! It's me, at the old Olympic Park.



Contributed Session Speakers, from the left: Catherine Starnes, Philip Sedgewick, Heather Bush, Charlie Goldsmith, Phillippe Fines, and Amy Nowicki

Minutes of the Business Committee Meeting
Section on the Teaching of Statistics in the Health Sciences
Monday, August 5, 2013, 5:30 – 7:00 p.m.

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The meeting commenced with a welcome by the Section Chair, Steve Grambow, who asked section officers to introduce themselves. Following introductions, summaries of ongoing activities were presented.

Carol Bigelow, Past Section Chair, provided an update on the TSHS Resources Portal, which will be designed for use by teachers of statistics to students in the health sciences. This initiative is currently supported by a modest one-year member initiative grant from ASA, with the intention that it will become sustained by the TSHS membership over time. TSHS is partnering with the United States Conference On Teaching Statistics (USCOTS) in this endeavor. Formative steps taken at the May, 2013 USCOTS meeting in Research Triangle Park, resulted in adoption of a governance structure and appointment of subcommittees. Three primary goals have been set for this first year of activity: (1) Piloting of the first of several planned clusters of resources, which will be focused on data sets for educational use with accompanying materials for teachers. (2) Development of a solicitation plan, preferably in terms of a submitted grant for obtaining the next three years of support. (3) Development of a plan for showcasing the portal at JSM 2014. The report on the first year of activities is due in to ASA April 1, 2014. Carol announced that a dinner meeting would be held following the mixer for anyone interested in more information. Anyone who would like to participate was cordially invited to contact Carol for more details.

Jodi Lapidus, Council of Sections representative, summarized the COS meeting. Points mentioned included attendance figures (just over 5700 JSM attendees), the declining revenue associated with ASA journals, a modest contemplated increase in ASA dues, and the upcoming 175th anniversary year of the ASA, which is the second oldest professional society in North America. A summary of ASA presidential initiatives was also given, which will include establishment of several portals and an update of the GAISE guidelines for statistical education issued ten years ago. Also mentioned were the possible interactions of the ASA with the Big Data Movement, and how these might inform computer science and informatics additions to the statistics curriculum.

Two awards were announced at the TSHS business meeting: the TSHS Outstanding Teacher Award to Roger D. Vaughan (Columbia University) and the TSHS Distinguished Achievement Award to Cynthia R. Long (Palmer College of Chiropractic).

TSHS-sponsored sessions at JSM were highlighted, and attendees were reminded that preparations for next year's program were already in progress, and their input would be welcome.

The treasurer's report, and membership report were summarized by Deborah Dawson. Details, as well as the full Executive Committee minutes are provided online ([here](#)). The Treasurer's report is in the same document, at the end.

The meeting concluded at 6:20 p.m. and was followed by the section mixer.

Respectfully submitted,

Deborah V. Dawson, Ph.D.
Secretary-Treasurer, TSHS

FROM THE PUBLICATIONS OFFICER

Robert A. Oster, Ph.D., University of Alabama at Birmingham

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I truly enjoyed participating in JSM 2013 in Montreal. The general and technical sessions were informative, interesting, and well-attended. Each day of the JSM offered its own unique experience! This was the first time that I had ever visited Montreal, and so enjoyed the outdoor sights, restaurants, and interesting people. The time passed very quickly. I enjoyed seeing several of you at our sessions and during our business meeting and mixer. In my opinion, the TSHS program was well received. This is partly evidenced by the excellent attendance at and participation in the TSHS activities. Thanks to Felicity Enders, our Program Chair, for putting together such an outstanding program.

"In my opinion, the TSHS program (at JSM) was well received. ... evidenced by the excellent attendance at and participation in the TSHS activities."

We have an article planned for publication in the January issue of *Amstat News*. In this article, we will recognize our award winners for 2013, and will announce our major section awards (see below). Our Distinguished Achievement Award winner, Cyndy Long, and our Outstanding Teaching Award winner, Roger Vaughan, were already recognized in the summer issue of the TSHS newsletter, and our Best Contributed Paper Award winner, Steve Grambow, who was not selected until the conclusion of the JSM, is recognized elsewhere in this issue ([here](#)).

"TSHS will offer up to three awards during 2014. ... the Young Investigator Award ... the Outstanding Teaching Award, and the Best Contributed Paper Award."

TSHS will offer up to three awards during 2014. These include the Young Investigator Award, the Outstanding Teaching Award, and the Best Contributed Paper Award. The announcements for the first two awards appear elsewhere in this newsletter ([here](#) and [here](#)). These announcements are also posted on the TSHS website (<http://community.amstat.org/TSHS/Home/>). In addition, you will receive these announcements via e-mail (from the ASA Community -

<http://community.amstat.org>).

Your Executive Committee is always searching for relevant and up-to-date materials, such as documents and links to other webpages, to post on our website. Please send me or any member of the Executive Committee ideas for content that you would like to see posted on the website.

It is not too soon to begin making plans to attend JSM 2014 in Boston. This JSM will also be a celebration of ASA's 175th anniversary! Our 2014 TSHS Program Chair, Jose-Miguel Yamal, is already hard at work on our TSHS program. He will be delighted to answer any questions that you may have about the TSHS JSM program.

My next column will appear in the spring 2014 issue of this newsletter. This will contain an update on TSHS publications during 2013. Until then, enjoy the nice autumn weather and have a wonderful holiday season.

Section Officers and Officers-Elect for TSHS (as of Dec 31, 2013)

Past Chair	Carol Bigelow	(413) 545-1319	cbigelow@schoolph.umass.edu
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From the editor;

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I thought I might share with you some tips and ideas I picked up at various talks in JSM 2013. For example, Heather Bush noted that students often don't notice major glitches in their data (like values outside the range of their scales). To overcome this, they must be explicitly taught to question their data. They must ask themselves, "How do I know this data is in good shape? What checks did I run?"

Charlie Goldsmith emphasized that even fairly beginning students need to know something about missing data handling. The best approach is to minimize it, since nothing else is ideal! But the jargon of methods may need to be covered even for early students, since this issue is so widespread.

Lots of good stuff. JSM is always enlightening!

Ed

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