Rochelle E. Tractenberg, PhD, MA, MPH

Associate professor in the Department of Neurology, with secondary appointments in Biostatistics, Bioinformatics & Biomathematics and Psychiatry

Short Bio:
Rochelle Tractenberg is a tenured associate professor at Georgetown University. Her primary appointment is in the Department of Neurology, and she has secondary appointments in the Departments of Biostatistics, Bioinformatics & Biomathematics and Rehabilitation Medicine. A professional biostatistician since 1997 and psychometrician since 2009, she earned a PhD in cognitive sciences/psychology from the University of California, Irvine (1997), a MPH emphasizing biostatistics and biometry from the California State University at San Diego (2002), and a PhD in Measurement, Statistics and Evaluation from the University of Maryland, College Park (2009). Her biomedical research interests are in measurement and outcomes in challenging biomedical contexts (e.g., estimating change in "cognitive function"; testing measurement invariance for complex neuropsychological constructs) and clinical trial design that features these challenging outcomes. She is also an active scholar of teaching and learning, focusing on cognitive theoretic contributions to learning in graduate and postgraduate education, and instruction in statistics and research ethics in particular. She is the Vice-Chair of the Committee on Professional Practice of the American Statistical Association.

MONDAY 25th 2015, 10:00
room "Z. Iagnov"
doctoral students focus, meeting with faculty and students

Title: **Professional ethics can promote professional identity development throughout the research curriculum**

The development of professional codes of conduct and/or ethics are fundamental in the process of professionalization and discipline formation; however in the vast majority of doctoral training programs, it is the students' observation of "successful" professionals in the discipline – i.e., faculty – that constitutes much (if not all) of the "professional identity" development that these programs provide. The disciplines of statistics and computer sciences each have professional codes of conduct (as do most others), but the current research climate may support or suggest "cross-disciplinary" or "multi-disciplinary" work to an extent that prevents new PhD holders from identifying with any single discipline sufficiently to promote the adoption of any single code of conduct.Therefore the PhD training climate internationally does not explicitly support ongoing reflection on professional obligations, which can arise – and conflict- in a wide range of ethical, legal, and social implications (ELSI) of our work, including those that have not yet been identified.

This talk will discuss how an emphasis on the development of professional identity for students at all stages of the research (PhD) curriculum can be incorporated to meet institutional obligations to provide training in responsible conduct of research or research ethics while also promoting professionalism and a sense of professional identity that can be harnessed by individual students to engage in the expected "continuing professional development" that virtually all disciplines encourage. Rather than setting aside time or effort for "training in ethics", the integration of professional codes of conduct into a PhD curriculum leverages and promotes the decision-making that is ultimately inherent to the practitioner's work in any scientific domain. A model for achieving this focus on professionalism throughout doctoral training will be described.

MONDAY 25th 2015, 13.30
room "Z. Iagnov"
doctoral students focus, meeting with faculty and students

Title: **Leveraging your "introduction to biostatistics" to address unforeseen complexity in health sciences research.**

Most doctoral and medical programs require one course in "statistics" or "introduction to biostatistics". Some programs have integrated "all you need to know about biostatistics" into other courses –so that there is not even one course in biostatistics or experimental design that is available.

This presentation will compare typical problems encountered in introductory courses with more realistic problems in health sciences, describing some of the"advanced modeling" techniques that may be required. Dr. Tractenberg (a biostatistician and consultant who also taught and developed courses in "introductory biostatistics") will discuss the conceptualization of multidisciplinary research questions. We will discuss how incorrect or too-simplistic conceptualization of a research problem can actually interfere with both the planning and the execution of analysis. Additionally, the way scientists think about the outcome or endpoint needs to be accurately reflected in the way these outcomes/endpoints are *measured*. Further complicating this research is that the evaluation of change is an absolutely critical, and weakly (if at all) documented, property of research outcomes. Knowing this does help to design a project or analysis with full enumeration the limitations (or assumptions) of the analysis, and also consideration ofadditional dimensions to triangulate results to increase interpretability and reproducibility.Modern health sciences research is multi-dimensional and multi-disciplinary, and basic biostatistics (and even some "advanced" biostatistics) just isn't compatible with that (realistic) level of complexity. Whether you plan to take or have already completed your required course in introductory biostatistics, this presentation may help the audience to leverage their training to engage in health sciences research that is as multi-disciplinary as it needs to be.

TUESDAY 26th 2015, 11:00
room "Z. Iagnov"
sustainability focus, meeting with faculty and students

Title: **Optimizing the chances that your one course, in a wider curriculum, will have a lasting effect.**

Across many professional contexts, new information appears daily; learning it all becomes increasingly unlikely, so a shift from the promotion of ongoing memorization (i.e., "lifelong learning" as continuing to be aware of new information in the field) towards the promotion of increasing sophistication in reasoning may be warranted. The promotion of increasing sophistication is more than the simple definition of lifelong learning: because of the ongoing, developmental feature, it is actually "continuing professional development". "Sustainable learning" has been defined as learning that continues after teaching ends and extends beyond the course content. This definition explicitly incorporates metacognition, which is the knowledge of, and ability to regulate, one's thinking.

This presentation will focus on metacognition, how it can be taught, practiced, reinforced, and grown within your own course (e.g., on ethics, bioinformatics, or statistics), to optimize the chances that your students will both retain the information from your course *and* continue to improve their reasoning around that information –even as they go on after your course to study other topics. Metacognition facilitates that most difficult of all teaching goals, to teach critical thinking. Each course within a curriculum can teach, and provide opportunities to improve, critical thinking –in addition to transmitting the course core content.This fact can support faculty in making changes to their individual courses so that metacognition and critical thinking are developed in all students. Incorporating metacognition into each course can also promote the *sustainability* of the learning from each course, and the application of these learned skills or knowledge from the learned-in context to other contexts.

TUESDAY 26th 2015, 14:30
WORKSHOP: Medical Informatics and Biostatistics/ building "Medicina 2" (Spl. T. Vladimirescu 14)
sustainability focus, meeting with faculty/ local team of medical informatics and biostatistics

Title: **Sustainable learning in informatics and biostatistics: Can a focus on metacognition improve student learning, application, or attitudes in these singleton courses?**

This workshop follows the larger-group introduction of the concept of sustainability: learning that continues after teaching ends and extends beyond the course content. Informatics and biostatistics faculty are often tasked with teaching the one course (a "singleton course") that students will ever have in these highly complex domains within a larger curriculum. These singleton courses are clearly intended to have lasting effects on students – who in some cases will be using either discipline (sometimes both) throughout their research careers. The theory is that designing the singleton courses (in informatics, biostatistics, and possibly research ethics) that many doctoral and medical students are required to take according to metacognitive principles will make those courses more sustainable. To test this theory, faculty need to learn, practice, and develop their own metacognitive abilities so that they can integrate these into their courses, and diagnose and remediate their students in the development of these abilities.

Therefore, this workshop will describe a research project that will involve interested UMFT faculty in two activities. First, we will be testing the efficacy of a short-term faculty development training initiative (to be described and discussed) to learn how to teach and assess metacognitive skills. The second activity is to develop or revise (and possibly pilot test) singleton courses in medical informatics and biostatistics that employ these metacognitive abilities – using published curriculum and competency recommendations for full degree programs in informatics and biostatistics. Interested faculty may choose to participate in either the first or both of these activities (but not solely the second!), collaborating on peer-reviewed manuscripts that are planned to describe each activity for the wider higher education community.