

The International Association for Statistical Education (IASE) is organizing the 2012 Roundtable Conference on Technology in Statistics Education: Virtualities and Realities, which will be held July 2-6, 2012 in Cebu City, Philippines.

The Roundtable will bring together a group of experts, scholars, practitioners, and researchers, representing as many different countries as possible, to discuss views and approaches concerning the role of technology in statistics education. The Roundtable Conference will provide opportunities for developing better mutual understanding of common problems and for making recommendations concerning the statistics curriculum. A main outcome of the Roundtable will be a monograph containing a set of high-standard reviewed papers, which have been prepared for, and discussed during, the conference. The monograph will present a global overview of the conference that can serve as a starting point for further research on issues related to the role of technology in statistics education.

Data are fundamental to statistics, and how we use and teach technology affects how our students perceive and interact with data, and on their learning of statistics. Statistics educators are challenged not only to improve their use of technology, but also to develop and implement educational technology effectively, which can have an important effect on the curriculum and classroom practice that they develop. Researchers of statistics education are motivated to understand how technology mediates students and teachers' understanding of fundamental statistical concepts, and to use this understanding to design improved educational technology and resources that will improve the curriculum

The 2012 IASE Roundtable Scientific Program Committee will prepare the program and schedule for the Roundtable. The Committee has agreed on a list of topics that will form the basis of the discussions and invites those interested to send in a three-page summary of their proposed paper. The major topics (summarized below) to be addressed at any educational level (primary, secondary, tertiary, university or workplace) are:

1. Creating Data Scientists
2. The Role of Technology in Statistics Education in Developing Countries
3. Students' Access to Data
4. Teaching and Learning with Large Data Sets
5. The Development, Implementation, and Assessment of Classroom Technology

Theoretical papers should include: a) the statement of the problem and its importance, b) background or appropriate previous work, c) discussion of main arguments, d) implications for curricular development, teaching, or learning e) references.

Descriptions of empirical research should include: a) the statement of the problem and its importance, b) background or appropriate previous work; c) methodology; d) data analysis and discussion of main results; e) implications for curricular development or teaching; f) references.

Descriptions of curriculum, pedagogy and/or technology innovations should include a) statement of the problem addressed and its importance; b) description of the innovation; c) background, focus and philosophy of the curriculum, pedagogy or new technology, d) development process, e) pilot and implementation results, f) discussion and implications; g) sources and references.

The Program Committee will review the summaries. Authors of papers that seem promising in terms of the overall Roundtable program will be encouraged to submit full papers. The final selection will be made on the basis of the contribution of the paper to the thinking of the field and to ensure representation from diverse communities around the world.

#### Descriptions of Topics

**1. Creating Data Scientists:** What skills, knowledge, habits of mind, and dispositions do students need to handle the complex data structures that students routinely encounter via the internet and in their research (or future research)? When should they be introduced to/ explore/ develop expertise in these skills? How should these concepts, habits and skills be taught? What fundamental statistical concepts are required to interpret and analyze such data? What fundamental statistical concepts should students know to guide their handling of these complex data structures?

**2. The Role of Technology in Statistics Education in Developing Countries:** As statistics becomes more computer-centric (and less mathematics-centric), what particular challenges face developing countries? How can curricula and pedagogy be designed to address or overcome these challenges? Do emerging technologies (i.e. smart phones, one-laptop-per-child) offer solutions or create even greater gaps? In the face of limited resources, what technologies can be used to enhance the teaching of statistics at the different levels of the educational system? What institutional and teacher support systems may be needed / provided for more practical and effective use of technology in statistics classrooms?

**3. Students' Access to Data: How can complex data structures be brought into the classroom?** How does the accessibility of such data (for example, streaming data, longitudinal data, relational databases) affect the curriculum? What technological tools have been/ should be developed to increase this accessibility? What technical and other skills do students at different ages need to access these data? To what extent does being statistically literate now require knowledge of the many large, publicly available data bases, and some understanding of how to access and query them?

**4. Teaching and Learning with Large Data Sets:** What can students learn from Large Data Sets that they cannot learn from traditional data? How can technological tools, curricula, or pedagogical approaches support this learning? What logistical, technical or conceptual problems must instructors overcome to make these data accessible to students? What new statistical concepts arise as students explore data with, for example, large  $n$  and/or large  $p$ ?

**5. The Development, Implementation, and Assessment of Classroom Technology:** How can technology be used to improve statistics education? What tools are needed to prepare students for making statistical inference? How can technology help students focus on central concepts? What is the future of the textbook, given the slow and gradual shift towards on-line assessment, applets, and e-books?

**Manuscript Submission:** Papers may be submitted for any educational level within each of the topics according to the following process. Authors must submit a three-page summary of a proposed paper for review by the Program Committee. Authors of

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2012 IASE Technology Roundtable  
General Call for Papers

summaries that are in line with the goals of the overall Roundtable program will be asked to submit full papers. The final selection of papers to be presented at the Roundtable will be made on the basis of their contribution to curricular, technological and pedagogical development in statistics, with attention given to balance across topics and across diverse communities from around the world.

Summaries should be submitted electronically as a Word or pdf file. Pictures and graphs should be embedded within the text. Margins should be 2.54cm (1 inch) all around in Times, 12-point font or equivalent.

Important deadlines: October 1, 2011 for submission of summaries of papers to the Chair of the 2012 Roundtable Scientific Program Committee, Rob Gould at [rgould@stat.ucla.edu](mailto:rgould@stat.ucla.edu).

November 1, 2011 for provisional acceptance of summaries

January 2012 for first draft of papers

March 2012 for acceptance of papers for the Roundtable

July 2012 presentation of papers at Roundtable

October 2012 for final version of revised papers

Venue: The likely venue is the Montebello Villa Hotel

<http://www.montebellovillahotel.com/>

2012 IASE Roundtable Scientific Program Committee

Robert Gould, (Chair), University of California, Los Angeles

Erniel Barrios, University of the Philippines

Ana Serradã³ BayÃ©s, La Salle-Buen Consejo

Adrian Bowman, University of Glasgow

Jim Hammerman, TERC, Cambridge, Massachusetts

Deborah Nolan, University of California, Berkeley

Enriqueta Reston, University of the Philippines (Chair, Local Organizing Committee)