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Causality in Statistics Education Prize Winners Announced

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Prize Committee Members

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Judea Pearl (UCLA, co-chair)

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Last month, the American Statistical Association announced the first [Causality in Statistics Education Prize](#), which was established to “encourage the teaching of basic causal inference methods in introductory statistics courses.”

The prize this year goes to **Felix Elwert** of the department of sociology at the University of Wisconsin-Madison for his innovative two-day course, Causal Inference with Directed Acyclic Graphs. Elwert received \$5,000 and a plaque at the 2013 Joint Statistical Meetings in Montréal, Québec, Canada.

Honorary mentions went to **Tyler VanderWeele** of the Harvard School of Public Health for his class notes on Methods for Mediation and Interaction and to Richard Schienes and (the late) **Steven Klepper** of Carnegie Mellon University for their course, Empirical Research Methods for the Social Sciences.

Judea Pearl, who donated the prize and has served as co-chair of the prize selection committee, said the prize is aiming to close a growing gap between research and education in this field. “While researchers are swept in an unprecedented excitement over new causal inference tools that are unveiled before us almost daily, the excitement is hardly seen among statistics educators, and is totally absent from statistics textbooks.”

In a recent [interview](#), Pearl said to ASA Executive Director Ron Wasserstein, “I hope this prize will stimulate the generation of effective course material. ... And would convince every statistics instructor that causation is easy (It is!) and that he/she too can teach it for fun and profit. The fun comes from showing students how simple mathematical tools can answer

questions that Pearson-Fisher-Neyman could not begin to address (e.g., control of confounding, model diagnosis, Simpson's paradox, mediation analysis), and the profit comes because most customers of statistics ask causal, not associational, questions."

The following prize criteria set by the selection committee were pragmatic:

- The extent to which the material submitted equips students with skills needed for effective causal reasoning
- The extent to which the submitted material assists statistics instructors gain an understanding of the basics of causal inference and prepares them to teach these basics in undergraduate and lower-division graduate classes in statistics

The skills listed were, likewise, problem oriented, and included the following:

- Ability to take a given causal problem and articulate in some mathematical language (e.g., counterfactuals, equations, or graphs) both the target causal quantity to be estimated and the assumptions one is prepared to make (and defend) to facilitate a solution
- Ability to determine, in simple cases, how the target causal quantity can be estimated using the observed data
- Ability to take a simple scenario (or a model), determine whether it has statistically testable implications, then apply data to test the assumed scenario

This year, the committee received 11 nominations. The selection was difficult, considering that a fine balance had to be struck between three competing objectives: mathematical rigor, breadth of topics, and accessibility to a large audience of students and instructors.

The course material submitted by the winner, Elwert, was deemed successful in meeting all three objectives. The course is aimed at graduate students and applied quantitative researchers in the behavioral and biomedical sciences. It covers a review of causal and counterfactual concepts; principles of directed acyclic graphs; nonparametric identification by conditioning; conceptual differences between confounding, over-control, and selection bias; examples; and exercises.

Slides covering about eight lecture hours of this short course and accompanying publications are available on Elwert's [web page](#).

The committee is happy to announce that a gift from Microsoft Research will enable the prize to double next year. A \$10,000 award will be split between an advanced graduate-level course and elementary material geared toward undergraduate classes.



One Comment »

★★★★★ (No Ratings Yet)

- [Causal Analysis in Theory and Practice » Spring Greetings from UCLA Causality Blog](#) said:

[...] 1. Nominations are invited for the 2nd ASA "Causality in Statistical Education" Award. The deadline is April 15, and the background information can be viewed here: <http://magazine.amstat.org/blog/2012/11/01/pearl/> <http://magazine.amstat.org/blog/2013/08/01/causality-in-stat-edu/>. [...]

1 April 2014 at 8:00 pm