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Using GAISE and NCTM standards as frameworks for teaching probability and statistics to pre-service elementary and middle school mathematics teachers.

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Summary: Statistics education has become an increasingly important component of the mathematics education of today's citizens. In part to address the call for a more statistically literate citizenship, The "Guidelines for Assessment and Instruction in Statistics Education (GAISE)" were developed in 2005 by the American Statistical Association. These guidelines provide a framework for statistics education towards the end of enabling students to achieve statistical literacy, both for their personal lives and in their careers. In order to achieve statistical literacy by adulthood, statistics education must begin at the elementary school level. However, many elementary school teachers have not had the opportunity to become statistically literate themselves. In addition, they are not equipped pedagogically to provide effective instruction in statistics. This article will discuss statistical concepts that have been identified as necessary for statistical literacy and describe how an undergraduate course in Probability and Statistics for pre-service elementary and middle school teachers was revised and implemented using the "GAISE" framework, in conjunction with the NCTM Standards for Data Analysis and Probability. The aims of the revised course were to deepen pre-service elementary and middle school teachers' conceptual knowledge of statistics; to provide them with opportunities to engage in, design, and implement pedagogical strategies for teaching statistics concepts to children; and, to help them make connections between the statistical concepts they are learning and the statistical concepts they will someday teach to elementary and middle school students. (Contains 12 figures, 2 footnotes and 2 tables.) (ERIC)

Classification: B50

Keywords: statistics; probability; teacher education programs; preservice teacher education; national standards; pedagogical content knowledge; knowledge base for teaching; educational needs; course content; course descriptions; curriculum development; alignment

<http://www.amstat.org/publications/jse/v18n3/metz.pdf>