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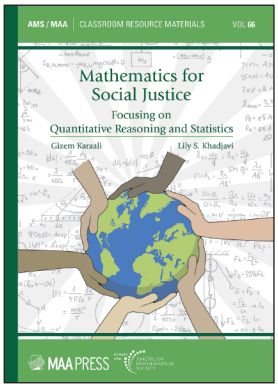

Mathematics for Social Justice: Focusing on Quantitative Reasoning and Statistics

by Gizem Karaali and Lily S. Khadjavi

This is the second volume by these editors of classroom-tested modules that focus on the uses of mathematics in issues of social justice. This volume comprises seventeen modules designed to be used, primarily, in courses on elementary statistics, quantitative reasoning, and liberal arts mathematics. The social justice issues discussed include income distribution, gentrification, poverty, racial justice, and environmental justice.

Each module presents an activity or assignment that could be immediately implemented in a class. In addition to the activity, the chapters contain information on the relevant social justice issue including extensive references for background reading by faculty and students. There are also detailed practical teaching notes and instructions for faculty new to these pedagogical practices. As an example, one of the modules on income inequality begins by providing links to Internal Revenue Service data on tax-filer income. Since that data is reported categorically in eighteen bins of different width, students are immediately confronted with questions about reporting descriptive statistics and computing summary statistics for such data. These data are also, of course, not normally distributed and, at least in theory, unbounded above. Students are introduced to log-transformations of the data and the computation of the Gini index as technical tools. The pedagogical notes suggest beginning the module by asking students to decide what a "fair" income distribution would look like and to draw a histogram of what they think income distribution should be before presenting them with the actual data. One can imagine the lively classroom discussion that must result.

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Count Me In: Community and Belonging in Mathematics

by Della Dumbaugh and Deanna Haunsperger

MAA Classroom Resource Materials

Oswald Veblen in his role as President of the 1950 ICM said to the assembled mathematicians: "Every human being feels the need of belonging to some sort of a group of people with whom he has common interests. Otherwise he becomes lonely, irresolute, and ineffective." Social science research has since verified Veblen's intuition, feeling a sense of belonging diminishes the effects of stress, increases motivation and persistence, and leads to measurable improvements on IQ tests. Unfortunately, Veblen's instincts were not infallible; he continued, "The more one is a mathematician the more one tends to be unfit or unwilling to play a part in normal social groups." In this, he was absolutely wrong, and he supported myths that have damaged, and continue to damage, our profession. The truth is that mathematicians are humans and humans flourish in social groups.

The authors of the 26 essays in this volume deeply understand the value of community and belonging and each has worked to create a community of mathematicians. They have valuable lessons to teach us about strategies we can use to make our personal mathematical communities more welcoming. Many of the communities described in this book were founded to address the problem of the lack of diversity in mathematics and many of them report impressive progress on that problem. But there are additional, often unforeseen, benefits of making your department, your program, your profession more open. Federico Ardila, in his essay in the volume on ECCO (Encuentro Colombiano de Combinatoria), draws an illuminating parallel with universal design. When cities, in response to the Americans with Disabilities Act, added curb cuts it wasn't just wheelchair users who benefited—bicyclists, parents with strollers, delivery people with heavy loads were all helped. A similar phenomenon is visible in these essays. When we welcome and encourage people into mathematics, they come joyfully and they advance and enrich our community in ways that we cannot, and did not, anticipate.