

Preface

This volume is an outcome of the NSF-funded conference, “Rethinking the Preparation for Calculus,” which took place in Washington, DC, in October 2001. Approximately 50 mathematicians were invited to attend the conference, which was organized by Jack Narayan (SUNY Oswego), with support from members of the steering committee: Steven Dunbar (University of Nebraska-Lincoln), Sheldon Gordon (Farmingdale State University of New York), Christopher Hirsch (Western Michigan University), Jo Ann Lutz (North Carolina School of Science and Mathematics) and myself, Nancy Baxter Hastings (Dickinson College).

As the name of the conference implies, the purpose was to rethink the preparation for calculus. All of us were aware, as Jack Narayan writes in his paper describing the conference, “in general, only a small percentage of students who take precalculus courses ever go on to take calculus and many of them who do are not particularly well-prepared for calculus and never complete the course.” As organizers of the conference, we hoped to establish some principles for changing the precalculus offerings, provide guidance to the mathematics community, and focus attention on the problems and needs in the area of precalculus. In preparation for the conference, we invited participants to submit discussion papers organized around the following themes: Precalculus Reform, Student Learning and Research, Changes in College Algebra, Transition from High School to College, Needs of Other Disciplines, Technology, Implementation, and Influencing the Mathematics Community. Our plan was to collect these papers in a proposed volume for the *MAA Notes Series*. These papers provided a framework for the discussions that took place at the conference and form the core of this volume.

Following the conference, it became apparent that our intention to focus on precalculus courses that are not terminal—that is, to focus on courses that serve as a prerequisite for calculus—was too narrow. We do need to rethink how we prepare students for calculus, but we also need to rethink the mathematical experiences of students in courses *below* calculus. For the vast majority of college and university-level students, the courses below calculus are the last mathematics courses that they take. These are the courses that students need for use in other disciplines. These are the courses that supposedly prepare students to be informed citizens. As a result, we expanded our vision to include courses in quantitative literacy and college algebra, and we encouraged colleagues to contribute papers in these areas. And we changed the name of the proposed volume. Actually we changed it several times from *Rethinking the Preparation for Calculus*, to *Rethinking the Road to Calculus*, and finally to *A Fresh Start for Collegiate Mathematics: Rethinking the Courses below Calculus*.

Although the papers in the volume are organized around the general themes that formed the basis for discussion at the conference, we added a new section: “Ideas and Projects that Work.” A number of people have rethought their precalculus and college algebra courses and have developed materials reflecting those new visions. We invited some of them to write short papers describing their visions and how they developed them into text materials for inclusion in this section. This new section was developed in response to participants who attended the conference. Participants, who for the most part were members of the choir, wanted specific suggestions about how to refocus traditional, computational-based courses. They wanted to know what was being done, and they wanted to see examples. (Sounds like our students, doesn't it?)

Although I have served as the primary editor, this was certainly not a one-person project. Whenever I

was perplexed by a particular situation or needed some help guiding a prospective author, Shelly Gordon was always there to assist me. He was the idea man and the problem solver. He solicited additional authors to help provide a balance to the volume and suggested the final catchy title. Flo Gordon solicited the short papers for the section “Ideas and Projects that Work.” She worked closely with the authors, helping them write informative descriptions of their projects, which express their enthusiasm for what they are doing (without sounding too self-promotional) and include supportive examples. Jack Narayan kept us organized and focused. Andrea Marsh (SUNY Oswego, class ‘04) made a first pass at converting the papers to LaTeX.

I would like to thank the members of the MAA Notes Committee, especially members of the review team, Jack Bookman, Paul Fishback, Barbara Reynolds and Sharon Ross, for their helpful suggestions, for their support and for their guidance. Because of their efforts, the papers are better written, more informative, and organized in a more coherent fashion. As I mentioned earlier this was a dynamic project—the table of contents kept changing. Papers were added. Papers were eliminated. Papers were moved around. The review team received the papers in batches and never saw the complete picture until the very end. Yet, they kept encouraging us.

Finally, I want to thank the most important people of all—the authors of the 49 papers that appear in this volume. I really enjoyed working with you and getting to know you. I am proud of what you have done and appreciate all your hard work. Together, we can provide improved learning experiences for our students. Together, we can help things change. And we will.

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