

The Curriculum Foundations Project: Phase II

Susan L. Ganter

The MAA Committee on the Undergraduate Program in Mathematics (CUPM) initiated a major analysis of the undergraduate mathematics curriculum in 1999. As the subcommittee of CUPM concerned with the first two years of the college mathematics program, CRAFTY (Curriculum Renewal Across the First Two Years) has had a major role in analyzing and formulating recommendations concerning the foundational years in mathematics instruction. Moreover, given the growing impact of mathematics instruction on the sciences, social sciences, and humanities — especially instruction during the first two years — there is a need for significant input from these partner disciplines regarding the current mathematical needs of their students.

CRAFTY gathered much of this necessary information for the “mathematics intensive” disciplines (e.g., physics, chemistry, engineering) from 1999–2001 through a series of 17 disciplinary workshops, culminating in a curriculum conference to analyze and synthesize the workshop findings. These findings were published by MAA in the report *Voices of the Partner Disciplines* (Ganter and Barker, 2004) and contributed to MAA’s report on the undergraduate program in mathematics, *CUPM Curriculum Guide 2004* (CUPM, 2004). CRAFTY and CUPM’s subcommittee on Mathematics Across the Disciplines (MAD) are now conducting a second series of disciplinary workshops, focused on the social sciences and humanities. Results from these workshops will be published in a second *Voices* volume and will inform continuing revisions of the *CUPM Curriculum Guide*.

The major purpose of the Curriculum Foundations (CF) Project is to generate foundational materials, based heavily on the needs of partner disciplines, from which appropriate curricula for the first two years of college mathematics can be constructed. The foundational materials primarily describe expectations about the nature and desired outcomes of the first two years of undergraduate mathematics instruction. They include expectations regarding the *skills* to be attained at the end of the first two years; lists of *problems* that can be solved at the end of the first two years; the nature

of *technology and assessment tools* that should be employed; and, the *learning environments* in which students should work. Examples of how these expectations can be met, primarily in the form of possible courses and course sequences, also are being developed.

The workshops for the second phase of the Curriculum Foundations Project (CF II) each have 20 to 30 invited participants, the majority chosen from the discipline under consideration, with the remainder chosen from mathematics. At least some members of CRAFTY, MAD, or the CF planning committee are among the workshop participants. Each workshop results in a report, addressing a series of common questions specified at the outset of the workshop and developed by the CF II planning committee. Although the basic set of questions provided to each workshop is the same, some discipline-specific questions usually are added for each meeting.

There are, of course, differences between the workshops, reflecting the specific needs of the disciplines involved and the desires of the workshop organizers. The local workshop organizers, in consultation with the CF II planning committee, determine which disciplinary participant(s) write the final report for each workshop. Each report is widely circulated within the specific discipline, in order to solicit a wide range of comments.

Although the CF II Planning Committee has secured a small grant from the Calculus Consortium for Higher Education to provide partial funding for some of the workshops, a unique (and amazing) part of the CF Project is that the workshops are funded primarily by the host institutions. Such commitment from the higher education community illustrates the importance and need for such discussions across disciplines.

To date, there have been five national disciplinary workshops during CF II, including economics, the arts, meteorology, agriculture, and social science. CRAFTY and MAD are interested in hosting additional workshops over the next year, with possible disciplines including history and political science, psychology and sociology, English and literature, languages, journalism and communications, and education and teacher preparation. If you are interested in hosting a CF II workshop at your institution, please contact the author.

The article that follows is the first in a series of brief reports from each of the CF II workshops to be published by *MAA FOCUS* in 2009. The CF II planning committee welcomes your comments and input. 🍷

References

Committee for the Undergraduate Program in Mathematics (CUPM), *Undergraduate Programs and Courses in the Mathematical Sciences: A CUPM Curriculum Guide*, MAA Reports, Mathematical Association of America, Washington, DC (2004).

Ganter, S.L. and Barker, W. (Eds.), *Curriculum Foundations Project: Voices of the Partner Disciplines*, MAA Reports, Mathematical Association of America, Washington, DC (2004).

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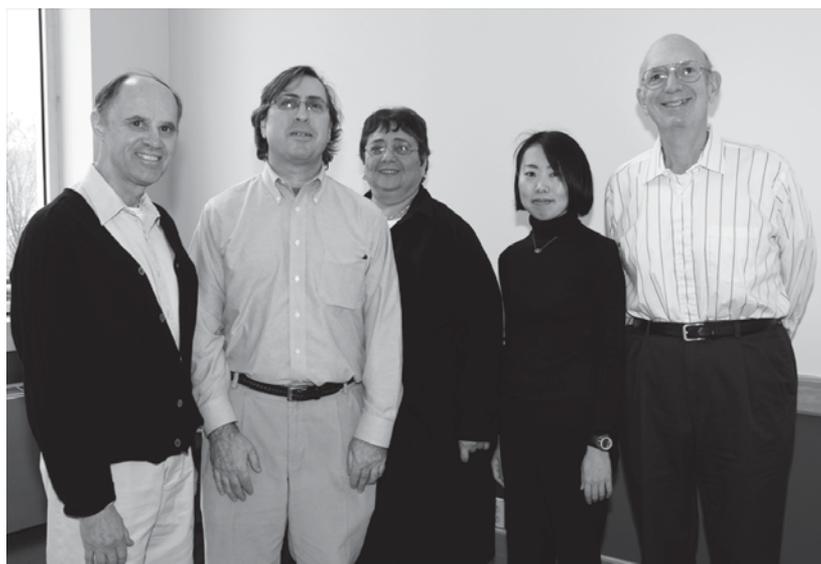
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The Curriculum Foundations Workshop on Economics

Sheldon P. Gordon and Richard Vogel

Farmingdale State College recently organized and hosted the Curriculum Foundations II workshop on mathematics and economics. This invitational workshop brought together 15 leading economics educators from around the country to develop a set of recommendations to the national mathematics community on the current mathematical needs of the one million undergraduate students nationally who take economics and related courses each year. The results of these discussions will be used to promote the development of new courses and programs that will better serve the needs of economics students in an increasingly quantitative world.

Economics, finance, and business-related professions are becoming increasingly mathematical, and both the undergraduates majoring in these disciplines and the vast numbers of students who take the introductory courses in these fields need



Participants at the Curriculum Foundations Workshop: Jack Winn (Math), Richard Vogel (Econ), Eleanor Fapohunda (Econ), Natsuko Iwasaki (Econ), and Sheldon Gordon (Math).