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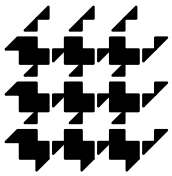
Center for Discrete Mathematics &
Theoretical Computer Science



DIMACS EDUCATIONAL MODULE SERIES

MODULE 04-3

IN DISCRETE MATHEMATICS:
Using Discrete Mathematics in the Classroom

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Module Description Information

- **Title:**

  IN DISCRETE MATHEMATICS: Using Discrete Mathematics in the Classroom

- **Editors:**

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- **Abstract:**

  This module consists of the ten issues of a newsletter for K-12 teachers (with the same name) published by DIMACS between 1991 and 1999. Each issue contains a number of articles by and for teachers at various grade levels dealing with a variety of topics and from a variety of perspectives. A typical issue might have one article that features a particular area of discrete mathematics, several teaching briefs that give examples of how teachers have used discrete mathematics in their classrooms, an article that describes various resource materials dealing with a particular topic, an article that discusses mathematics in the news, and perhaps a cartoon or a puzzle.

- **Informal Description:**

  By posting these newsletters as a DIMACS Module, we are making them available to a wider audience and providing all K-12 teachers with this valuable resource.

- **Target Audience:**

  This module is intended for all K-12 teachers who are using, or who are interested in using, discrete mathematics in their classrooms.

- **Prerequisites:**

  Many articles in the newsletters have no prerequisites. In some cases, the reader will need to have had some prior exposure to the topics of the articles.

- **Mathematical Field:**

  The articles in the newsletters address a variety of topics of discrete mathematics.

- **Applications Areas:**

  The articles in the newsletters address a variety of applications of discrete mathematics.

- **Mathematics Subject Classification:**

  Primary 00A05, 00A35

- **Contact Information:**

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- **Other DIMACS modules related to this module:**

  None

MODULE 04-3

IN DISCRETE MATHEMATICS:
Using Discrete Mathematics in the Classroom

This module consists of the ten issues of a newsletter published by DIMACS between 1991 and 1999 for K-12 teachers. The newsletter was originated and coordinated by Joseph G. Rosenstein, DIMACS Associate Director for Education, who also edited the first three issues. DIMACS Education Coordinator Deborah S. Franzblau edited issues #4-7 and DIMACS Education Coordinator Robert Hochberg edited issues #8-10. Each issue consists of 12 pages.

Each issue contains a number of articles by and for teachers at various grade levels dealing with a variety of topics and from a variety of perspectives. A typical issue might have one article that features a particular area of discrete mathematics, several "teaching briefs" that give examples of how teachers have used discrete mathematics in their classrooms, an article that describes various resource materials dealing with a particular topic, an article that discusses mathematics in the news, and perhaps a cartoon or a puzzle.

In the *Premiere Issue*, Rosenstein noted that "we hope to serve as a forum where teachers across the country can share their ideas, their classroom activities and experiences, their successes and failures, and their questions about implementing discrete mathematics in the schools." Other stated goals of the series were "to inform teachers about resources on which they could draw," to help form "a national network of teachers who have had similar experiences," and "to advocate using discrete mathematics to implement the NCTM Standards."

The newsletter was also intended to provide an opportunity for teachers to publish articles related to the teaching of mathematics; indeed, a total of 50 teachers from 17 different states contributed articles to the ten issues of the newsletter.

The newsletter was distributed at no cost to all participants in DIMACS programs for K-12 teachers, and indeed to anyone who requested copies. However, those who have participated in DIMACS programs in recent years have not received copies of the newsletter. Nevertheless, as a result of word of mouth, many teachers have requested back issues of the newsletter. We have decided to make the material in the newsletter available to the public, and to republish the newsletters as a DIMACS module.

These notes and the indexes below were developed by Joseph G. Rosenstein, with the assistance of Valerie A. DeBellis.

Historical Notes

The newsletter grew out of the Leadership Program (LP) in Discrete Mathematics, an NSF-funded program co-sponsored by DIMACS and the Rutgers Center for Mathematics, Science, and Computer Education, and directed by Joseph G. Rosenstein. NSF funding of the LP extended over the period from 1990 to 2001, and was preceded by a pilot program for high school teachers in the summer of 1989. LP teachers typically participated in two summer institutes (the first at least two weeks and the second at least one week) and follow-up sessions in between. Participants in Phase I of the program (1990-1992) were high school teachers, those in Phase II (1992-1994) were both high school and middle schools teachers, and those in Phase III (1995-2001) were K-8 teachers. A total of 1031 teachers participated in these programs, including 732 participants in 25 institutes for K-8 teachers. Since 2001, the LP has sponsored an additional 13 institutes, involving 280 K-8 teachers, with funding from state agencies in Alabama, Indiana, Massachusetts, Ohio, Pennsylvania, and South Dakota and the Educational Foundation of America. The LP has also sponsored an annual "crash course" for high school teachers each summer since 1997, in which 277 teachers have participated. Altogether 1588 teachers have participated in the institutes of the LP. Key people in the success of the LP have been Associate Director Valerie A. DeBellis, who played a major role in the development of the LP program and the materials used in the LP, and Assistant Director Janice Kowalczyk, who oversaw the dissemination of the LP to other sites. Details about the LP can be found in the article entitled "The Leadership Program in Discrete Mathematics" that appears in Volume 36 of the AMS-DIMACS series entitled "Discrete Mathematics in the Schools" (dimacs.rutgers.edu/volumes/vol36).

Overview of Newsletter Contents

The initial issues are focused on high school teachers, subsequent issues also have articles of interest to middle school teachers, and the final issues also have articles written by and addressed to elementary school teachers, following the history of the Leadership Program in Discrete Mathematics (see Historical Notes).

The front page of each issue features an article entitled "Speaking Discretely …" by its editor describing the issue's focus (or focuses) and (typically) an article on discrete mathematics in the news, often by Joseph Malkevitch (professor of mathematics at York College of the City University of New York). Issues usually have several "teaching briefs" by K-12 teachers, an article on resources, and occasionally a cartoon.

(The following are all “clickable”.)

Note: If you have any problem viewing any of these issues, please download the issue and view it locally instead of on the internet.

Issues of “IN DISCRETE MATHEMATICS”

- **Issue 1 – November 1991**
- **Issue 2 – October 1992 (focus: apportionment, elections)**
- **Issue 3 – August 1993 (focus: codes, fair division)**
- **Issue 4 – June 1994**
- **Issue 5 – November 1994 (focus: scheduling problems)**
- **Issue 6 – Spring/Summer 1995 (focus: graph coloring, games)**
- **Issue 7 – Fall/Winter 1995**
- **Issue 8 – Fall/Winter 1996 (focus: voting)**
- **Issue 9 – Fall/Winter 1998**
- **Issue 10 – Winter 1999 (focus: games)**

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Index by Topic

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Index by Contributor

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