



## Online Delivery and Results of MDTP Tests

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In addition to its long-established service providing test booklets and printed test result reports at no cost to California teachers, MDTP is now offering an alternative. Teachers, schools, and districts can now administer some MDTP tests online and immediately view student, class, and school results.

This online MDTP testing and reporting is available through the Daskala software platform. The test delivery and reporting system is easy to use. The online reporting screens include all of the information in MDTP's printed reports in formats that are based on those reports; in addition, it is now easy to re-sort the data presented in many ways and to drill down to access information not available in MDTP's printed reports. These electronic reports facilitate individual and collaborative analysis of diagnostic test results to identify students' strengths and weaknesses. Electronic reporting both reduces the time to get test results back to teachers and schools, and may reduce the time teachers and administrators need to review the diagnostic reports.

The online presentation of the test results is modeled after MDTP printed reports. Teachers can immediately access more detailed data from almost any screen. Here are some examples.

- The Topic Scores Report is a column chart that displays student results for each topic. Clicking the column for a specific topic displays a bar chart showing the performance of the students on the questions for that topic ordered by % correct. Clicking the bar for a specific question displays the question and the distribution of student responses for each option.
- When a question is displayed, hovering over an option displays tags indicating possible ways a student might have been led to select that option. This feature is currently being developed and may not be available for all questions.

- The Individual Student Results is a columnar report listing the Percent Correct, Total Correct, Number of Items Correct for each topic, Number of Items Marked, and the Last Item Marked for each student. This report may be sorted by any of the columns. In addition, the report uses color to easily distinguish students at or above MDTP's critical level for each topic. Clicking on a student name displays the student's response to and time spent answering each question. Clicking on a question displays the question, the distribution of class responses for each option, the option tags, the correct option, and the option selected by that student.

- The Item Analysis Report lists for each question its Topic and the Average Time spent on the question, Number or % Correct, Number or % who selected each option, Number or % who did not enter a response, and the Number or % who did not view the question. The report can be sorted by any of its columns. Clicking on the number of students who selected an option or did not respond displays a list of those students. This can facilitate grouping students to identify shared misunderstandings and address them.

In addition to its long-established service providing test booklets and printed test result reports at no cost to California teachers, MDTP is now offering an alternative.

The online presentation of MDTP's reports provides versatility both in the information provided and the ways to access that information.

- The online reports make it easier for a teacher to compare the results of his or her classes with aggregated results for the school if more than two teachers in the school give the test;

**CSU**  
 California State University

**UC**  
 University of California

**CAPP**  
 California Academic Partnership Program

## Online MDTP Testing Now Available

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these comparisons can be at a test, topic, question, or option level.

- There is a new report that shows the average amount of time students looked at each question; teachers have found considering how much time students spent on questions they answered correctly—as well as on questions they missed—helpful.
- Data can be downloaded to csv files, and reports, including the individual student letter, can be printed.

The online presentation of the test results is modeled after MDTP printed reports. Teachers can immediately access more detailed data from almost any screen.

MDTP's online test result reports facilitate the diagnostic use of test results not only by teachers working individually but also by teachers collaborating to help each other address some of the important mathematical needs of their students. For example, each teacher might be viewing the results for his or her classes while a facilitator presents the aggregated results for a school; the teachers could then compare their approaches to teaching the concepts and skills that are needed to understand and solve a problem well. This kind of collaboration based on current student work exemplifies the data-driven decision making that lies at the heart of formative assessment to improve student learning.

MDTP site directors are looking forward to working with teachers to help them make effective use of this new tool; as always, they are available to visit schools and districts to look at the test results. Daskala and MDTP worked closely together to develop the online presentation of MDTP tests and test results reports.

- Daskala has made the tests and the reports available to California precollegiate schools and teachers through MDTP at the price of \$1 per test administered up to a maximum of \$3 per student tested per year. This is a fee for the added technology and service provided by Daskala to present the tests and results online.
- When California schools administer MDTP tests online, MDTP will provide its printed test result reports with individual student letters to teachers.
- Currently, the most recently released PR, AR, EA, GR, SR, MR, CR, and BC tests are available.

For more information about this new way of accessing MDTP tests and test results or to request online testing and reporting, see <http://mdtp.ucsd.edu/daskala.shtml>. If you have any questions, please contact your regional site director.

## Status of New AR and CR Tests

This summer, the MDTP workgroup continued the development of a new Algebra Readiness Test that began four years ago. We analyzed the results of the field test conducted last year to determine how well the new questions work and to show us how to refine some of them. This year, we prepared a test form that should be very similar to the new form we hope to release next Fall. The data gathered from this field test is essential for us to develop a new Algebra Readiness test for release. The new test will include many new items and reflect current ways of teaching and assessing mathematics. MDTP has included more conceptual and less formulaic data analysis questions concerning the interpretation and representation of data.

The workgroup has continued its development of a new Calculus Readiness (CR) Test. Two years ago the workgroup began working on a consistent set of specifications for this test. Last summer we identified items to be modified or replaced based upon the test specifications and item analyses from previous years. This summer we developed a revised version of the CR test that will be field-tested this fall. It includes several new trigonometry items addressing more trigonometry content; these items were developed in response to many requests from current CR users. We anticipate two or three more years of field-testing will lead to the release of a revised CR test. As with all MDTP tests, the data collected from these field tests is necessary for us to create tests meeting our high quality standards.

Regional site directors are in the process of contacting local teachers to assist MDTP in field-testing both the Algebra Readiness and Calculus Readiness revised tests. Since the number of students taking AP Calculus is relatively small, if you are teaching AP Calculus and able to administer the CR field test for us, please contact your regional MDTP site director.

MDTP wants to publicly thank all the teachers who helped us in field-testing various test forms from 2005-2008. In the development of every MDTP test, field-testing provides data that are critical in creating high quality, reliable, and valid tests.



This newsletter has been provided with the support of the Regents of the University of California, the Trustees of the California State University, and the California Academic Partnership Program.

## New MR Test

Last summer, the MDTP Workgroup completed its revision of the Mathematical Analysis Readiness (MR) test and released the new test as the MR45A08 last fall. The MR45A08 assesses some concepts and skills needed for success in a pre-calculus or mathematical analysis course after completing Algebra II. The MR45A08 replaces the older MR45A92 and is currently available for ordering by California secondary mathematics teachers at <http://mdtp.ucsd.edu/> or through their regional MDTP sites.

What are the major differences between the old and new tests?

- ⇒ The new test reflects changes in curricular emphasis, e.g., graphing of functions. The topic areas have been renamed to reflect these changes.
- ⇒ Compared to the older MR45A92, the new MR test has 31 new items and two revised items.
- ⇒ While developing the new test, MDTP considered the California standards, which were written after the older test was developed. Each question addresses at least one standard, but, like all MDTP tests, the new test is not a comprehensive assessment of all the prerequisite topics for a pre-calculus course. Also, like all MDTP tests, the standards addressed are not limited to one course.
- ⇒ The MR45A08 differs from the older MR45A92 in that the use of a calculator is not recommended. MDTP will continue to provide the current (scientific) calculator required test (MR45X94) as long as there is sufficient demand for it.

If you still have copies of the MR45A92 test, your regional MDTP site will continue to score your tests; however, MDTP has stopped printing that test, so local MDTP site inventories of MR45A92 may be limited. It is not possible to score both old and new forms of any test in the same class set. Teachers need to be careful to administer only one form in each class. Teachers are encouraged to order the new MR45A08 test to replace their MR45A92 stock.

## MDTP Scoring Available in Datawise MEASURES

Datawise MEASURES provides a web-based data management system, offering easy-to-use tools that access powerful views of assessment data. Datawise and MDTP recently reached an agreement that allows districts that subscribe to Datawise to score MDTP tests and view MDTP test results reports through the Datawise MEASURES system. If your district already is a Datawise subscriber, you may request the MDTP answer keys

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## MDTP Scoring Available in Datawise MEASURES

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from Datawise. MDTP test booklets must still be used and may be ordered through MDTP regional sites.

You can then use MEASURES to administer MDTP tests. MEASURES reports will be immediately available, and the data for each class will automatically be sent to MDTP so that MDTP can mail its diagnostic reports to teachers.

For more information on Datawise, go to: <http://www.datawise-ed.com>.

## MDTP Use for Edusoft & DataDirector Clients

Last year, representatives of the Riverside Publishing Company and MDTP worked to find a way to include additional MDTP tests in the Edusoft® Assessment Management System and to add MDTP testing to Riverside's DataDirector™ assessment and data management system. Unfortunately, due to established policies of the Riverside Publishing Company and the University of California, we were unable to reach an agreement to provide this service. As a result, we are not able to add more MDTP tests to Edusoft and MDTP tests may not be scored via DataDirector.

Edusoft subscribers may continue using Edusoft to score some MDTP tests. Edusoft answer sheets for MDTP tests for California K-12 schools remain available except for the MR45A08 test form. You may find the answer sheets under the Benchmark Exam tab. To access the answer sheets, click on that tab, then on the Assessments button. The folder named "Mathematics Diagnostic Testing Project" is where these answer sheets are housed. If the answer sheets for the desired test are not listed in this folder, you may have a second folder in the list. Please search that folder for your test answer sheets. If you are not able to find them in either location, please call the Edusoft help desk at 1-800-323-9540, select option 4, and ask the support representative to refresh the list for your district.

Once the MDTP test answer sheets are scanned using Edusoft's grading software, you will be able to view the results online. In addition, Edusoft will send a file to MDTP so MDTP can print the student letters and test result reports and send them to the students' teachers.

For those using the MR45A08 tests or future released tests, you will need to use the green Scantron MDTP answer forms and return them to a MDTP regional office for scoring. Once the MDTP answer sheets are scored, you may request that MDTP provide the data generated in a comma-separated text file that can be used to upload/import the data into Edusoft, DataDirector, or other systems such as those used for student assessment and grade books.

## REVISED TEST RESULTS FORMAT

In response to many user requests, MDTP revised its test results report. MDTP has been distributing the revised format of the report since July 2008. We hope the new format improves readability while retaining all of the previous data. Specific changes are listed below.

Cover Letter. The content here has been reduced to improve readability and emphasize the definition of “Critical Level.” The Critical Level is defined as “what MDTP considers the minimum number of correct responses for a student to show adequate preparation in that topic.” Note that Critical Level is only reported for individual topics since MDTP does not have a Critical Level for the total score.

Class Results. This page now includes a chart that reports the Class Average Topic Scores. The vertical axis is used to measure the percent correct. The height of each topic’s bar indicates the average percent correct. The topic abbreviation is reported below the bar and the average number correct is printed on its column. The total number of items in the topic is printed above the topic’s column. This graphical display can be used to determine which topics the class does well or poorly in by comparing the heights of the bars. Below the chart is a table reporting the number and percent of students at or above the critical level for each topic.

Graphic Display of Class Results. We now use bars instead of asterisks to indicate the percentage of correct responses for each item. The horizontal axis is used to measure the percent correct. The items are now grouped by topic and ordered by percent correct within each topic (ranked from highest to lowest) to facilitate a visual comparison of items within a topic as well as between topics.

Item Analysis by Percentage of Students and by Number of Students. Horizontal and vertical rules have been added to facilitate reading. The “KEY” column has been deleted. For each item, the column entry that is the key is underscored. We have also defined what “OMITTED” is and noted that it includes two possibilities: where no response was bubbled in and where there were multiple responses.

Individual Student Results. The class Average Score is now reported below the header along with the total number of students. The labels on “# Items Attempted” and “Last Item Attempted” have been revised to read “Items Marked” and “Last Item Marked.” The term “marked” refers to a bubble for an item being filled in and read by the scanner. A horizontal rule was added to help separate the headers from the data.

Student Letters. We have tried to set a friendlier tone to

this letter by using “First name Last name” sequencing in place of “Last name, First name.” The leading paragraph provides more information about the report, with the total score and percent moved to the bottom of the page in order to place more emphasis on the diagnostic information in the topic scores. The spacing has been closed up between the header for each performance section and its topics. This should help make clearer that the congratulatory message refers to the topics immediately following that message and not the test as a whole.

File Number. The MDTP file number is printed at the bottom of each page. This may be helpful when pages are separated and when requesting rescoring or aggregated reports.

### Revised MR and CR Tests On MDTP Website

During the last two summers, the MDTP workgroup revised both web-based tests, replacing several questions and ordering others. These revised Online Mathematical Analysis Readiness (MR) and Online Calculus Readiness (CR) tests will replace the previous versions sometime this fall.

The online tests are available to help students prepare for Precalculus and Calculus level mathematics courses, whether taken in high school or college. The MR test (<http://mdtp.ucsd.edu/test/>) should be taken prior to trigonometry, precalculus, or math analysis. courses. The CR test (<http://mdtp.ucsd.edu/crtest/>) should be taken prior to a beginning Calculus course. These 40 question multiple-choice tests should be taken without a calculator. The recommended time needed for taking each test is approximately one hour, but there is no enforced time limit.

The online tests provide immediate diagnostic feedback to the test-taker, helping them understand what topics need review before taking the courses. Many students use these online tests to prepare for mathematical placement tests used by some California colleges and universities.

- There is no fee for taking these tests.
- There is no fee for the diagnostic scoring report.
- Nothing is downloaded to your computer.
- No log-ins or passwords required.
- The tests can be taken more than once.

## MDTP REGIONAL SITE INFORMATION

<p><b>Berkeley</b> Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Sonoma, and Stanislaus counties.</p>	<p><b>UC Berkeley</b> Director: Emiliano Gomez (510) 642-0752 Asst.: Jacqueline Bonds (510) 642-0846 Fax: (510) 642-8204 mdtp@math.berkeley.edu</p>
<p><b>Chico</b> Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Tehama, Trinity, and Yuba counties.</p>	<p><b>CSU Chico</b> Director: Jack Ladwig (530) 898-6367 Asst.: (530) 898-4103 Fax: (530) 898-4363 mdtp@csuchico.edu</p>
<p><b>Davis</b> Alpine, Amador, Calaveras, El Dorado, Placer, Sacramento, San Joaquin, Solano, Sutter, and Yolo counties.</p>	<p><b>UC Davis</b> Director: Phil Knox (530) 752-2021 Asst.: Trish Ramos (530) 752-2015 Fax: (530) 752-7706 plramos@ucdavis.edu</p>
<p><b>Fresno</b> Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, southern San Benito, Tulare, and Tuolumne counties.</p>	<p><b>CSU Fresno</b> Director: Maria Nogin (559) 278-4908 Asst.: Devonna Butler (559) 278-2992 Fax: (559) 278-2872 mnogin@csufresno.edu</p>
<p><b>Fullerton</b> Orange county, and parts of Los Angeles and Riverside counties.</p>	<p><b>CSU Fullerton</b> Director: David Pagni (657) 278-2671 Assts Michelle Merino &amp; Crista Jansson (657) 278-2691 Fax : (657) 278-3972 mdtp@fullerton.edu</p>
<p><b>Los Angeles</b> Los Angeles and Ventura counties except for schools near Fullerton.</p>	<p><b>UC Los Angeles</b> Director: Mary Sirody (310) 825-9477 Fax: (310) 825-8914 mdtp@ucla.edu Shipping &amp; Scoring Annex: Office Manager: Jana Hoover (310) 825-2495 Fax: (310) 206-7261</p>
<p><b>San Bernardino</b> Inyo, Mono, and San Bernardino counties and part of Riverside county.</p>	<p><b>CSU San Bernardino</b> Director: John Sarli (909) 537-5374 Asst.: Leeanne Richardson (909) 537-7670 Fax : (909) 537-7119 mdtp@csusb.edu</p>
<p><b>San Diego</b> Imperial and San Diego counties and part of Riverside county.</p>	<p><b>UC San Diego</b> Director: Bruce Arnold (858) 534-3298 Asst.: Monnie Barker (858) 534-3373 Fax : (858) 534-1011 mdtpsandiego@ucsd.edu</p>
<p><b>San Luis Obispo</b> San Luis Obispo, Santa Barbara, and southern Monterey counties.</p>	<p><b>Cal Poly San Luis Obispo</b> Director: Steve Agronsky (805) 756-1683 Asst.: Dale Wilbur (805) 756-2206 Fax: (805) 756-6537 dwilbur@calpoly.edu</p>
<p><b>Santa Cruz</b> Northern Monterey, northern San Benito, Santa Clara, and Santa Cruz counties.</p>	<p><b>UC Santa Cruz</b> Director: Bruce Cooperstein (831) 459-2150 Central Coast Coord. Ed Migliore (831) 459-1240 Asst.: Dana Mathers (831) 459-2400 Fax: (831) 459-3260 dmathers@ucsc.edu</p>

## AVAILABLE MDTP DIAGNOSTIC TESTS

Test Name	Description	Calculator Prohibited	Calculator Optional*	Calculator Required
<b>PR</b> Prealgebra Readiness	Assesses some concepts needed for success in a course immediately preceding a first-year algebra course and subsequent success in that first-year algebra course. This test is often given near the beginning of a course immediately preceding a first-year algebra course. Spanish version available.	PR40A04 0814004		
<b>AR</b> Algebra Readiness	Assesses some concepts needed for success in a first course in algebra. Calculator prohibited and calculator required versions available. 45 question and 50 question versions available. Spanish versions available.	AR50/90 0715090 AR45A00 0714500		AR50X92 0775092
<b>EA</b> Elementary Algebra Diagnostic	Assesses some concepts needed for success in a second course in algebra. Appropriate when the second course follows immediately after a first-year algebra course and students have not studied a year of geometry. Spanish versions available.		EA50A90 0315090	<i>Scientific</i> EA45X91 0374591
<b>GR</b> Geometry Readiness	Assesses some concepts needed for success in geometry after completing Algebra I or II. Includes some informal geometry students should have encountered prior to and during algebra. Spanish versions available. [GR45A93 available while in stock.]		GR45A93 0414593 GR45A06 0414506	GR45X94 0474594
<b>SR</b> Second Year Algebra Readiness	Assesses some concepts needed from first-year algebra and geometry for success in intermediate algebra following a course in geometry. Spanish versions available. [SR45A93 available while in stock.]		SR45A93 0314593 SR45A06 0314506	<i>Scientific</i> SR45X94 0374594
<b>IS</b> Integrated Second Year Readiness	Assesses some concepts needed for success in the second year of an integrated mathematics curriculum. This test was based on the common content of two of the integrated curricula in use in California.		IS45A00 0414500	
<b>IT</b> Integrated Third Year Readiness	Assesses some concepts needed for success in the third year of an integrated mathematics curriculum. This test was based on the common content of two of the integrated curricula in use in California.		IT45A00 0314500	
<b>MR</b> Mathematical Analysis Readiness	Assesses some concepts needed for success in a course following two algebra courses and a geometry course. This course is often called trigonometry, precalculus, or mathematical analysis. [MR45A92 available while in stock.]		MR45A92 0214592 MR45A08 0214508	<i>Scientific</i> MR45X94 0274594
<b>CR</b> Calculus Readiness	Assesses some concepts needed for success in a first calculus course. 40 question and 55 question versions available, with suggested times of approximately 60 and 90 minutes respectively.		CR40A97 0114097 CR55A97 0115597	<i>Scientific</i> CR40X96 0174096 CR55X96 0175596
<b>BC</b> Beginning Calculus Readiness	Assesses some concepts and facility with graphing calculators needed for success in a first calculus course requiring graphing calculators. Some questions require the use of a graphing calculator.			<i>Graphing</i> BC30X97 0173097

\*Calculators are not recommended on GR45A06, SR45A06, and MR45A08.

MDTP tests were developed to provide students and teachers with diagnostic information. This information can help students identify specific areas where additional study is needed, and help teachers identify topics and skills that need more attention in courses. MDTP tests are diagnostic, not comprehensive, and should not be used as final exams or the sole measure for placement. MDTP provides written response materials to supplement most of its diagnostic tests.

## Upcoming Events

**E**ach year, MDTP sites hold regional conferences to discuss current issues in mathematics education in California and effective uses of MDTP in the classroom. The conferences provide an opportunity for conversations among elementary, middle, and high school mathematics teachers and administrators as well as college and university mathematics faculty. MDTP also presents and host booths at some regional California Mathematics Council conferences, this year at both the Palm Springs and Asilomar conferences.

Conference brochures, flyers, and registration forms will be posted online as they become available. Go to <http://mdtp.ucsd.edu/NewsEvents.shtml>. You may also contact the regional site office for additional information.

Please consider attending some of these events!

5-7 November 2009: CMC-South (Palm Springs Conf. For more information: <http://www.cmc-math.org/PS>

- Session 359. Bruce Arnold will show how the Daskala software enables experienced MDTP users to maximize their analysis of test results.
- Session 462. John Sarli will introduce new users to MDTP, its diagnostics tests and extensive support services.

18 November 2009: UC Davis, MDTP Users' Conference

4-6 December 2009: CMC-North (Asilomar) Conference For more information: <http://www.cmc-math.org/ASIL>

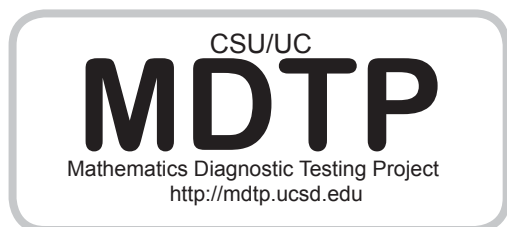
- Session 411. Emiliano Gomez will share data from MDTP that confirms the high correlation between understanding fractions and success in math.

January 2010: CSU Fullerton Users' MDTP Conference

10 March 2010: UC Berkeley, MDTP Users' Conference with CeMee, the Center for Mathematics Excellence and Equity. Theme will be "Geometrical Reasoning".

17 March 2010: UC Davis, Math Teachers Workshop

25 March 2010: UC San Diego, MDTP Users' Conference. Theme will be "Understanding Effective Ways to Use Current Mathematics Textbooks".



## Problem Corner

### The Scoring Title Problem

**I**n April 1998, Michael Jordan and Shaquille (Shaq) O'Neal were vying for the National Basketball Association (NBA) season individual scoring title until the last game of the season. The scoring title is won by the player with the highest average number of points per game, calculated by dividing the total number of points by the number of games the player has played. Before the last game, Jordan had scored 2313 points in 81 games and Shaq had scored 1666 points in 59 games.

Given the above information, with what numbers of points in their final games does Shaquille (Shaq) O'Neal win the scoring title over Michael Jordan? (With permission from the authors of *Mathematics for High School Teachers: An Advanced Perspective*. Usiskin, Peressini, Marchisotto, and Stanley. Prentice Hall. 2003)

Submit your solution to  
Bruce Arnold,  
University of California, San Diego,  
Mathematics Department,  
6311 AP&M, 9500 Gilman Drive #0112,  
La Jolla, CA 92093-0112  
or [barnold@ucsd.edu](mailto:barnold@ucsd.edu).

*Readers, whose solutions are posted in the next newsletter or on MDTP's web site will receive a grant from MDTP to purchase Daskala for one of their classes (up to a \$40 value)!*

## In Transition

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**Carol Cronk**, who is a mathematics coordinator at the San Bernardino County Superintendent of Schools, joined the MDTP Workgroup in 2009 as a liaison from the California Mathematics Project. Carol is currently the Assistant Director of the Inland Counties Mathematics Project.

**Laura Wallace**, who is an Associate Professor of Mathematics at CSU San Bernardino, joined the MDTP Workgroup in 2009 as a liaison from the CSU Entry Level Mathematics Examination Committee. Laura has research interests in commutative algebra and has co-authored a text on mathematics for educators.

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## IN TRANSITION

### New MDTP Co-Director

[Bruce Arnold](#) has assumed the position of MDTP Co-Director in addition to his position as the San Diego site director. He will be working closely with Alfred Manaster this year and become the MDTP Director when Alfred retires next year. Bruce has been a site director since 2003 and will continue to serve in that capacity. He is also the Director for the Mathematics Testing and Placement Program at UCSD. After completing his 20-year career in the United States Navy, Bruce became a high school mathematics teacher, teaching at Torrey Pines High School for nine years. Most recently, Bruce was a part-time lecturer in the UCSD Mathematics Department for six years. He is currently serving as the President of the Greater San Diego Mathematics Council.

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### New Fresno Site Director

[Maria Nogin](#) has replaced Peter Tannenbaum as the Fresno site director. Maria is an Assistant Professor of Mathematics at CSU Fresno. Her research interests include cohomology of groups, group extensions, algebraic topology and modal logic. She has worked with the Fresno Unified School Districts and other local districts since 2004. She has taught summer institutes for teachers. Peter retired this summer after serving as the Fresno site director for over a decade. We wish him well!

### UCSC Central Coast Coordinator

[Ed Migliore](#) has agreed to serve in a newly created position, Central Coast Coordinator, for the Santa Cruz site. Ed has been a member of the MDTP Workgroup since 2005. He is a full-time Mathematics Instructor at Monterey Peninsula College and is also a lecturer in the Mathematics Department at UC Santa Cruz. In his role as Central Coast Coordinator, he will be working directly with middle and high school mathematics teachers helping them find the best ways to use MDTP in their classrooms.

### Retirements from the MDTP Workgroup:

[Wade Ellis](#), who retired from his faculty position at West Valley College in 2007, retired from the MDTP Workgroup at the conclusion of his twenty-first summer with the group in 2008.

[Art Wayman](#), Professor Emeritus at CSU Long Beach, concluded his three-year term as ELM liaison to MDTP in 2008.

### Additions to the MDTP Workgroup:

[Laura Stevens](#), who is a Lecturer in the Mathematics Department at UCSD, joined the MDTP Workgroup in 2008. Laura's area of mathematics research is combinatorics. She is a faculty member of the UCSD Cal Teach program.

[Francois Primeau](#), who is an Associate Professor in the Earth System Science Department at UC Irvine, also joined the MDTP Workgroup in 2008. His current research interests center on the ocean's role in the earth's climate and include applications of advanced computational and mathematical techniques.

[Steven McCauley](#), who is a Professor in the Physics Department at CSU Pomona, also joined the MDTP Workgroup in 2008. His current research interests are the physics of photosynthesis, the history of physics, and physics education.

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