



UCLA Department of Mathematics  
Math Content Program for Teachers  
[www.math.ucla.edu/mcpt](http://www.math.ucla.edu/mcpt)  
310-794-6588

Dear Educator:

Thank you for your continued interest and support of the UCLA Math Content Program for Teachers (MCPT). MCPT is proud to be a comprehensive subject matter authorization program approved by the California Commission on Teacher Credentialing.

**Please note that we have implemented a new enrollment process.** We ask that all participants complete and submit the Participant Enrollment Form (see last page of this document) to us before the registration deadline. We are also requesting participants to mail tuition checks (\$530 payable to UC Regents) to our office **prior to the start of class**. This new policy applies to all participants paying with personal funds (checks may be post-dated to the first day of classes and will not be cashed until then.) School districts subsidizing costs for their teachers will receive an invoice from our office after the start of classes. Please contact our office if you have any questions.

For participants who are looking for funding sources to subsidize the cost of tuition, MCPT has recently learned of a professional development grant source from the Delta Kappa Gamma Society International. The Society established the Lucile Cornet Award for Professional Development to assist educators in their participation in professional development opportunities. Application deadlines for Individual Awards are February 1, May 1 and September 1 depending on the date of the activity. The professional development activities must be completed within six (6) months after the application deadline and may not have been completed before the deadline. For more information to or apply, visit <http://tinyurl.com/443h8y5>.

Finally, please register for Winter quarter classes by **January 9, 2012**. This will help us better predict the sets of materials needed for each course, or to notify participants if a class is canceled due to low enrollment. MCPT values your support more than ever during these challenging circumstances, and we hope that this worthwhile program for educators can continue for many years to come. Please visit our website at [www.math.ucla.edu/mcpt](http://www.math.ucla.edu/mcpt) for the latest updates.

Sincerely,

Michelle Sidwell, Director  
[michellesidwell@math.ucla.edu](mailto:michellesidwell@math.ucla.edu)  
310-794-6588

## CORE COURSES

*All MCPT core courses are approved by the California Commission on Teacher Credentialing for Subject Matter Authorization in Mathematics*

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**Math X462A – NUMBER POWER 1** (4 units): This course focuses primarily on whole-number concepts and operations, including sense-making strategies for single-digit and multidigit addition, subtraction, multiplication, and division. Other topics include various number systems (Babylonian, Egyptian, Mayan) and base-5 arithmetic, which are used to help diagnose difficulties children face as they learn our Hindu-Arabic number system. The course follows a problem-solving approach, in which participants learn to express solutions to problems in multiple ways: visually, algebraically, numerically, and verbally (the fourfold way). Prerequisite: Intermediate Algebra

**Math X462B – NUMBER POWER 2** (4 units): This course focuses primarily on fraction concepts and operations. Area, set, and linear models are used to explore equivalence, ordering, and procedures for the basic arithmetic operations on fractions. Other topics include the decimal expansions of fractions; basic probability concepts; and integer concepts and operations. The course follows a problem-solving approach, in which participants learn to express solutions to problems in multiple ways: visually, algebraically, numerically, and verbally (the fourfold way). Prerequisite: Intermediate Algebra

**Math X468A – PERSPECTIVES ON ALGEBRA** (4 units): This course examines ideas associated with algebraic thinking and algebra. Topics include functions, variables, graphs, equations, linear equations, and systems of linear equations. Emphasis is placed on the interpretation of graphs. The course follows a problem-solving approach, in which participants learn to express the solution to a problem in multiple ways: visually, algebraically, numerically, and verbally (the fourfold way). Prerequisite: Intermediate Algebra

**Math X468B – TOPICS IN ALGEBRA AND GEOMETRY** (4 units): This course focuses on several topics that cut across algebra and geometry. Emphasis is placed on using models to gain insight into concepts and using the graphing calculator as a problem-solving tool. Topics include the function concept, linear and quadratic functions and relations, systems of equations, Pythagorean theorem, the distance formula, and right-triangle trigonometry. Prerequisite: Math X468A

**Math X467 – PERSPECTIVES ON GEOMETRY** (4 units): This course examines ideas associated with two- and three-dimensional geometric figures, including polygons, polyhedra, circles, cylinders, and spheres. Topics include the vocabulary of geometric figures; spatial visualization, representation by nets and isometric drawings; basic notions and constructions of Euclidean geometry; isometric transformations, congruence, and similarity; length, area, and volume; and perimeter and surface area. Prerequisite: Intermediate Algebra

**Math X465 – DEALING WITH DATA** (4 units): This course focuses on the gathering, description, and analysis of data. Each lesson is developed around questions generated from published or collected data sets, and a recurring theme of the course is to “let the data tell a story.” Techniques for one-variable and bivariate data analysis are included. Participants also explore randomness and sampling through probability experiments and data collection. Basic concepts of probability, such as techniques for determining the sample space, independence, and mathematical expectation, are included. Prerequisites: Math X462B and X468A

**Math X464A – PERSPECTIVES ON FUNCTIONS 1** (4 units): This course examines the families of linear, quadratic, power, polynomial, exponential, and trigonometric functions. Emphasis is placed on studying functions as bridges between the mathematics and the situations they model. Graphing calculator skills are reinforced and expanded. Prerequisite: Math X468B

**Math X464B – PERSPECTIVES ON FUNCTIONS 2** (4 units): This course examines the families of polynomial, exponential, inverse, logarithmic, rational, and periodic functions. Emphasis is placed on studying functions as bridges between the mathematics and the situations they model. Graphing calculator skills are reinforced and expanded. Prerequisite: Math X464A

## **CORE COURSES (continued)**

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**Math X461 – MORE (ADVANCED) TOPICS IN DATA** (4 units): This course will review descriptive data techniques and focus on statistical inference. Participants will apply techniques to analyze data and prepare a project that illustrates sound statistical reasoning. Access to a computer and the Internet is required. A laptop computer is required. Prerequisites: Math X465 and Math X464A

**Math X469 – MORE (ADVANCED) TOPICS IN ALGEBRA** (4 units): Participants will study topics in high school mathematics from a mature perspective. Topics include algebraic structures, vectors, complex numbers, and trigonometry. Connections to classroom practice will be included. Prerequisite: Math X464B

**Math X470 – MORE (ADVANCED) TOPICS IN GEOMETRY** (4 units): Participants will study topics in high school mathematics from a mature perspective. Topics include Euclidean and non-Euclidean geometries, coordinate geometry, conic sections, proof. Connections to classroom practice will be included. Prerequisites: Math X467 and Math X464A

**Math X472 – MATH AND TECHNOLOGY** (4 units): Participants will learn to use commonly available technology tools and applications to improve the quality and efficiency of their professional work and increase student understanding of important mathematical concepts. Some of the applications planned for exploration include creating professional documents using POWERPOINT, MATHTYPE, and graphics from MSWORD, exploring algebraic relationships with EXCEL, downloading internet data and analyzing it using FATHOM, exploring geometric relationships with GEOMETER SKETCHPAD, and analysis of rates of motion using a the TI calculator-based ranger. A laptop computer with Microsoft Office is required. Prerequisite: Math X468B

## **NEW! CSET CONTENT COURSES!**

*Units from the CSET content courses may be applied toward salary advancement.*

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### **Math X461A – TOPICS FROM HS MATHEMATICS 1A: ADVANCED ALGEBRA**

Participants study topics tested on the California Subject Examination for Teachers (CSET Mathematics Subtest 1: Algebra; Number Theory) that are related to algebra and functions from an advanced perspective. Topics include: analysis of polynomial, rational, and exponential functions; and computation with complex numbers. Prerequisite: Intermediate Algebra and Math X464A (recommended)

### **Math X461B – TOPICS FROM HS MATHEMATICS 1B: LINEAR ALGEBRA AND NUMBER THEORY**

Participants study topics tested on the California Subject Examination for Teachers (CSET Mathematics Subtest 1: Algebra; Number Theory) that are related to algebraic structures, linear algebra, and number theory from an advanced perspective. Topics include: rings and fields, properties of real and complex numbers, vectors and matrices, properties of natural numbers, and Mathematical Induction. Prerequisite: Intermediate Algebra and Math X461A (recommended)

*MCPT is looking for new funding sources to develop two additional courses for the topics on the CSET Mathematics, Subtest 2.*

## WINTER 2012 SCHEDULE OF CLASSES

*Please register for the winter classes by January 9, 2012. Classes with less than 15 pre-registered participants may be canceled.*

Section	Course	Address	Day	Start Date	Time	Instructor
FU1-DO	Functions 1	Downey USD Rio Hondo Elementary School Room 24	Wed	1/18/12	4:15–7:45	Canham

*Class locations and dates are subject to change. Please check our website ([www.math.ucla.edu/mcpt](http://www.math.ucla.edu/mcpt)) for the most up-to-date information.*

### HOW TO REGISTER FOR MCPT CLASSES

1. **By Mail**  
Mail the Participant Enrollment Form on the following page to:  
  
UCLA Math Content Program for Teachers  
520 Portola Plaza  
Los Angeles, CA 90095-1555
2. **By Fax**  
Fax the registration form to 310-267-4451. No cover page necessary.
3. **By Phone**  
Call Julia Carafelli at 310-794-6588 to register.
4. **By Email**  
Email the information requested on the following page to Julia Carafelli at [juliac@math.ucla.edu](mailto:juliac@math.ucla.edu).



**Please mail your check for \$530 (payable to UC Regents) prior to the first class session.**



# UCLA MATH CONTENT PROGRAM FOR TEACHERS PARTICIPANT ENROLLMENT FORM

**PLEASE PRINT**

Today's Date \_\_\_\_\_

First Name \_\_\_\_\_ Last Name \_\_\_\_\_

E-Mail \_\_\_\_\_ Date of Birth \_\_\_\_\_ Gender M / F

*For continuing students, please complete the section below if you have recently moved:*

Home Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

Home Phone \_\_\_\_\_ Cell Phone \_\_\_\_\_

School \_\_\_\_\_ School District \_\_\_\_\_ School Phone \_\_\_\_\_

Type of Credential Or Permit: \_\_\_\_\_ Multiple Subject (Preliminary or Clear)  
 \_\_\_\_\_ Single Subject (Preliminary or Clear)  
 \_\_\_\_\_ Other: \_\_\_\_\_

Course Number	Course Name	Check to Enroll Now
Math X462A	Number Power 1	
Math X462B	Number Power 2	
Math X468A	Perspectives On Algebra	
Math X468B	Topics in Algebra and Geometry	
Math X467	Perspectives On Geometry	
Math X465	Dealing With Data	
Math X464A	Perspectives On Functions 1	
Math X464B	Perspectives On Functions 2	
Math X468	More Topics in Data	
Math X470	More Topics In Geometry	
Math X469	More Topics In Algebra	
Math X482	Mathematics and Technology	
Math X461A	Topics from HS Math 1A: Advanced Algebra	
Math X461B	Topics from HS Math 1B: Linear Algebra and Number Theory	

Do you want UCLA extension units? YES / NO

Payment:

\_\_\_\_\_ Attached is my check for \$\_\_\_\_\_ Date of check \_\_\_\_\_ Check # \_\_\_\_\_

Please mail this enrollment form, along with your check for \$530 payable to **UC Regents** to:

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 520 Portola Plaza  
 Los Angeles, CA 90095-1555