1. Desired Term: Summer 2009

2a. Course abbreviation and Number: EDUC 1081_EX

2b. Abbreviated Title: (No more than 25 characters, including spaces) Math for America

3. Year of implementation: 2009

4. Number of Units: 4

5. Billing Units: 4 ($80)

6. Allowed Student Levels: UG X GR X EE X (Default is to check all three levels)

7. Grading Method:
   - N Normal (N) (Default is Letter Grade +/-, Students may request Credit/No Credit)
   - Normal Plus Report-in-Progress (NP) (As for Normal; also allows Report-in-Progress)
   - Credit/No Credit Only (C)
   - Credit/No Credit or Report-in-Progress Only (CP)

8. Mode of Instruction:
   (See pages 17-23 at http://www.calstate.edu/clin/data-element/APDB-Transaction-DED-Section5.pdf for definitions of the Course Classification Numbers)

<table>
<thead>
<tr>
<th>Type of Instruction</th>
<th>Number of Credit Units</th>
<th>Instructional Mode (Course Classification Number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>4</td>
<td>C-02</td>
</tr>
<tr>
<td>Activity</td>
<td></td>
<td></td>
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<tr>
<td>Lab</td>
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</tbody>
</table>

9. Attributes: Course Requires Consent for Enrollment? Yes X No
   - Faculty
   - Credential Analyst
   - Dean
   - Program/Department - Director/Chair

Prerequisites:  Co-requisites:  

10. Does this course impact other discipline(s)? (If there is any uncertainty as to whether a particular discipline is affected, check "yes" and obtain signature.) Yes X No
    If yes, obtain signature(s). Any objections should be stated in writing and attached to this form.

Math see att. email 7/15/09 Support Oppose

Discipline Signature Date

Support Oppose

Discipline Signature Date

Important: Please Complete

1. Instructor: Dr. Guershon Harel

2. Extension Course Proposal Form (attached)

SIGNATURES: (COLLEGE LEVEL)

1. Program Director/Chair  7/15/09

2. College Dean (or Designee)  7/15/09

Patricia Prado-Caines  7/15/09

SIGNATURES: (UNIVERSITY LEVEL)

3. Dean of Extended Studies (or Designee)  7/15/09

4. Vice President for Academic Affairs (or Designee)  7/15/09
June 4, 2009

California State University San Marcos
Office of Extended Studies
Extension Course Proposal

Course Title: Math for America San Diego Summer Institute 2009

Course Description: Math for America San Diego's Summer Institute 2009 provides a forum for focusing on the learning process involved in mathematics instruction. The Institute is a mathematics retreat, in which participants "do mathematics" and observe the pedagogical lessons which emerge from the math process. The course is based on the methodology of UCSD Mathematics Professor Dr Guershon Harel’s DNR principles – duality, necessity, and repeated reasoning. Following Dr. Harel’s observation that solving puzzles is inherent in human nature, the Institute participants will explore ways in which students can become genuinely motivated to solve math “puzzles” and achieve a higher understanding of math concepts.

Course Objectives: The program will model Dr. Harel’s mathematics teaching practices that aim at provoking students’ intellectual needs, helping them gain new ways of thinking and understanding, while assuring that they internalize and retain what they have learned.

Course Length: August 3-14, from 9:00 a.m. until 3:00 p.m. each day, a total of 10 meetings and 60 contact hours. No follow-up work at night will be assigned.

Location: California State University San Marcos, Kellogg Library, Room 5102

Instructor: Dr. Guershon Harel

Comments: The Summer Institute is open to Math for America San Diego (MfA SD) Fellows, CSUSM, SDSU and UCSD and San Diego County school district faculty, MfA Fellows, including those from other cohorts and/or regions of the country, school-site MfA Mentors and departmental colleagues of the MfA SD Fellows.
Guershon Harel, PI

a. Professional Preparation
PhD 1985  Mathematics Department, Ben-Gurion University, Israel
MS  1980  Mathematics Department, Ben-Gurion University, Israel
BS  1978  Mathematics Department, Ben-Gurion University, Israel

b. Appointments
Professor  2000-  University of California, San Diego
Professor  1993-2000  Purdue University
Associate Professor  1989-1993  Purdue University
Assistant Professor  1985-1989  Northern Illinois University

c. Recent Publications

d. Synergistic Aculities
(i) Recent Plenary addresses
1. What is mathematics? A pedagogical answer to a philosophical question; European Society for Research in Mathematics Education (ERME), Summer School for Graduate Studies; University of Jyväskylä, Jyväskylä, Finland; August 06.
2. DNR’s definition of mathematics: Some Pedagogical Consequences; The Mathematical Association of America, New Jersey Section; Seton Hall University, South Orange, New Jersey; October 06.
3. Transitions between proof schemes; Annual Conference of Research in Undergraduate Mathematics Education (RUME); San Diego, California; February 07.
4. Thinking in terms of ways of thinking; Annual Conference of Mathematics Diagnostic Testing Project, University of California, San Diego; San Diego, California; March 07.
5. What Is Mathematics? A Pedagogical Answer with a Particular Reference to Proving; Asian Pacific Economic Cooperation (APEC)-Tsukuba International Conference III: Innovation of Mathematics Teaching through Lesson Study; Tokyo, Japan; December 07.
6. DNR-Based Instruction in Mathematics: Focus on Teacher’s Knowledge Base; The 1st Conference on Preparing the Next Generation of Secondary Mathematics Teachers: How Pedagogy Emerges from Learning Mathematics; University of California, San Diego; San Diego, California; May 08.

(ii) Contributions

Guershon Harel (PI) is a professor at the Mathematics Department at UCSD. He joined UCSD in July 2000 after eleven year as a faculty member at Purdue University. He is the author of over numerous research papers in mathematics education, including the editing of two books. He has served as an associate editor of The American Mathematical Monthly, chair of the editorial board of the Journal for Research in Mathematics Education, and co-editor of Research in Collegiate Mathematics Education. He has given over 100 research presentations in national and international forums, including plenary addresses, and has been awarded extensive research funds from NSF and other resources. He has research interest in cognition and epistemology of mathematics and their application in mathematics curricula and the education of mathematics teachers. His research has focused on the concept of mathematical proof, the learning and teaching and linear algebra, and the development of proportional reasoning. (http://www.math.ucsd.edu/~harel).

e. Collaborators and Other Affiliations

(i) Collaborators

Professor David Carlson, Department of Mathematical Sciences, San Diego State University
Professor Brian Greer, Department of Mathematical Sciences, San Diego State University
Professor Richard Lesh, School of Education, Purdue University
Professor Larry Sowder, Department of Mathematical Sciences, San Diego State University
Professor Ron Evans, Department of Mathematics, University of California, San Diego
Professor Jeff Rabin, Department of Mathematics, University of California, San Diego
Professor Alfred Manaster, Department of Mathematics, University of California, San Diego

(ii) Graduate and Postdoctoral Advisors

Professor Ted Eisenberg, Department of Mathematics, Ben-Gurion University

(iii) Thesis Advisor for

Dr. Sonia Hristovitch, Purdue University, IN
Dr. Jack Tedeski, Purdue University, IN
Dr. James Petty, Purdue University, IN
Dr. Elisabetta Ferrando, Purdue University, IN
Dr. April Maskiewicz, University of California, San Diego, CA
Dr. Kien Lim, University of California, San Diego, CA
Hi Virginia,
This course does not seem to pose any conflicts, and seems like an interesting learning opportunity for its participants.
--Rick

Ricardo D. Fierro, Ph.D.
Professor & Chair
Department of Mathematics
California State University, San Marcos
San Marcos, CA 92096

ph: 760 750-4158

From: Virginia Mann  
Sent: Tuesday, July 07, 2009 4:13 PM  
To: Ricardo Fierro  
Cc: Jo Anne Moran  
Subject: Math for America - EL Course

Hi Rick,

Attached is an Extended Learning course proposed for non-degree credit: Math for America. They are planning to offer this course in August. Please let me know if the Math Department has any comments or concerns regarding this proposal.

Thanks,
Virginia

Virginia Peters Mann  
Curriculum Specialist  
Academic Programs  
CSU San Marcos  
Tel: (760) 750-8887

Please consider the environment before printing this e-mail

From: cra5201can@csusm.edu  
Sent: Tuesday, July 07, 2009 4:11 PM  
To: Virginia Mann  
Subject: Attached Image