<div align="center">

California Sate University Channel Islands
NEW COURSE PROPOSAL
Courses must be submitted by November 9, 2007, to make the next catalog production

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DATE (*Change if modified*)	10/10/2007 REV 12.14.07
PROGRAM AREA(S)	LIBERAL STUDIES: INTEGRATED PROGRAM OPTION

1. **Catalog Description of the Course.** *[Follow accepted catalog format.]*

   Prefix(es) (Add additional prefixes if cross-listed) **EDAP Course No. 428**
   Title: TEACHING DATA ANALYSIS, PROBABILITY AND MATHEMATICAL REASONING IN ELEMENTARY SCHOOLS   Units: 3
   ☒ Prerequisites MATH 208 or consent of the program coordinator. Admission to the Accelerated Program.
   ☒ Corequisites EDAP 467 or EDAP 469
   ☒ Consent of Instructor Required for Enrollment
   Description (Do not use any symbols):   **The emphasis in this course is on combining the Probability and Statistics content knowledge with appropriate teaching methods.**

Grading Scheme:	Repeatability:	Lab Fee Required: ☐
☒ A-F Grades	☐ Repeatable for a maximum of units	
☐ Credit/No Credit	Total Completions Allowed	
☐ Optional (Student Choice)	☐ Multiple Enrollment in Same Semester	

   Mode of Instruction/Components (*Hours per Unit are defaulted*).

	Units	Hours per Unit	Benchmark Enrollment	Graded Component	CS & HEGIS # (Filled in by the Dean)
Lecture	3	1	25	☒	
Seminar				☐	
Laboratory				☐	
Activity				☐	
Field				☐	
Studies					
Indep Study				☐	
Other Blank				☐	

   The following two lines will be filled out internally based on the Mode of Instruction data directly above.
   3 hours lecture per week (*Use 2nd line only if necessary*)
   　　hours blank per week

Course Attributes:

☐ **General Education Categories**:   All courses with GE categories notations (including deletions) must be processed at the GE website: http://summit.csuci.edu/geapproval. Upon completion, the GE Committee will forward your documents to the Curriculum Committee for further processing.

A (English Language, Communication, Critical Thinking)
   A-1 Oral Communication   ☐
   A-2 English Writing   ☐
   A-3 Critical Thinking   ☐
B (Mathematics, Sciences & Technology)
   B-1 Physical Sciences   ☐
   B-2 Life Sciences – Biology   ☐
   B-3 Mathematics – Mathematics and Applications   ☐
   B-4 Computers and Information Technology   ☐
C (Fine Arts, Literature, Languages & Cultures)
   C-1 Art   ☐
   C-2 Literature Courses   ☐
   C-3a Language   ☐
   C-3b Multicultural   ☐
D (Social Perspectives)   ☐

E (Human Psychological and Physiological Perspectives) ☐

UDIGE/INTD Interdisciplinary ☐
Meets University Writing Requirement ☐
Meets University Language Requirement ☐

☐ American Institutions, Title V Section 40404: ☐Government ☐US Constitution ☐US History
Refer to website, Exec Order 405, for more information: http://senate.csuci.edu/comm/curriculum/resources.htm
☐ Service Learning Course

3. **Justification and Requirements for the Course.** (Make a brief statement to justify the need for the course)
   A. Justification: This course is a required course in the Integrated Program and meets the standards set by the California Commission on Teacher Credentialing (CCTC). This course integrates mathematics content with teaching methods.

   B. Degree Requirement: ☒ Requirement for the Major/Minor   **Note: Submit Program Modification if**
   ☐ Elective for the Major/Minor   **this course changes your program**.

4. **Learning Objectives.** (B*ullets, will occur upon carriage return*)
   Upon completion of the course, the student will be able to:
   - Identify important issues of modern elementary mathematics curriculum
   - Apply skills in statistical measures, data collection, analysis and interpretation, methods of displaying data, design of probability experiments and logical reasoning.
   - Use effective, invented and conventional, problem solving approaches and strategies.
   - Express, in oral and written form, ideas related to content and content pedagogy for elementary school mathematics.
   - Design standards-based, learner-centered units of study meeting the standards outlined in the California Mathematics Framework for K-12 Schools.
   - Use current research findings to inform curriculum planning, design and implementation.
   - Create instructional activities which promote universal access to mathematics content covered in data analysis, probabilty and mathematical reasoning.
   - Devise and apply scoring rubrics and other appropriate tools to assess students' understandings, skills and needs.
   - Apply effective teaching techniques to instruction that develops conceptual understanding and enhances skills in statistics, probability and logical reasoning.
   - Integrate the use of manipulatives and a variety of appropriate technologies and mathematical software to bridge the stages of conceptual development.

5. **Course Content in Outline Form.** *[Be as brief as possible, but use as much space as necessary]*

A. Statistical measures, data collection, analysis and interpretation and data display
B. Theoretical and experimental probability experiments and simulations
C. Elementary logical and mathematical reasoning
D. California State Academic Content Standards for Mathematics in K-12 Schools for number and operations, geometry and measurement strands
E. Modern math curriculum and content pedagogy including modeling, abstract thinking and problem solving approaches to teaching and learning
F. Characteristics of effective mathematics learning environments
G. Traits of effective mathematics teachers
H. Assessing and reporting learners' mathematics skills and needs and using data to drive appropriate learning opportunities
I. Teaching diverse learners including English learners and children with special needs
J. Designing mathematics units of study and teaching lessons that incorporate learner centered instructional strategies
K. Infusing a variety of instructional technologies into teaching

Does this course overlap a course offered in your academic program? YES ☐ NO ☒
If YES, what course(s) and provide a justification of the overlap?

Does this course overlap a course offered in another academic area? YES ☒ NO ☐
If YES, what course(s) and provide a justification of the overlap? This course overlaps with part of the content of Math 308: Modern Mathematics for Elementary School Teaching II – Geometry, Probability and Statistics. EDAP 428 will be populated by students simultaneously pursuing a Liberal Studies and Multiple Subject Teaching Credential while Math 308 will continue to draw students majoring in Liberal Studies who choose to pursue a teaching credential as a fifth year option.
Signature of Academic Chair(s) of the other academic area(s) is required on the signature sheet below.

6. **Cross-listed Courses** (*Please fill out separate description in item 1 above, for each PREFIX)*
    A. List Cross-listed Courses (Signature of Academic Chair(s) of the other academic area(s) is required).
    Prefix for cross-listed discipline(s):

    B. Department responsible for staffing: Education / Liberal Studies

7. **References.** *[Provide 3 - 5 references on which this course is based and/or support it.]*

    - California Department of Education, (1999). Mathematics Framework for California Public Schools, http://www.cde.ca.gov/cdepress/math.pdf
    - The National Council of Teachers of Mathematics, (2000) Principles and Standards for School Mathematics.   http://standard
    - Bennett, A. and T. Nelson, (2007). Mathematics for Elementary Teachers: A Conceptual Approach, Seventh Edition. New York, NY. McGraw Hill.
    - Burns, M. (2000). About teaching Mathematics: A K-8 Resource. Saucilito, CA. Math Solutions Publications.
    - Ma, Liping. (1999). Knowing and Teaching Elementary Mathematics. New Jersey. Lawrence Erlbaum Associates.
    - Van de Walle, J. (2007). Elementary and Middle School Mathematics: Teaching Developmentally, Sixth Edition. Boston, MA. Allyn and Bacon s.nctm.org

8. **List Faculty Qualified to Teach This Course.**

    - Merilyn Buchanan
    - Ivona Grzegorczyk
    - Cindy Wyels

9. **Effective Date**
   A. First semester offered: Fall 2008

10. **New Resources Required. YES ☐ NO ☒**
   If YES, list the resources needed and obtain signatures from the appropriate programs/units on the sheet below.

   A. Computer (data processing), audio visual, broadcasting needs, other equipment)

   B. Library needs

   C. Facility/space needs

11. **Will this new course alter any degree, credential, certificate, or minor in your program? YES ☐ NO ☒**
   If, YES attach a program modification form for all programs affected.
   Catalog deadline for New Minors and Programs (including modifications): October 15, 2007, preceding year.
   Catalog deadline for Course Proposals and Modifications: November 9, 2007, of preceding year.
   Last day to submit any work to be considered for the academic year: April 15th.

   | Merilyn Buchanan | 10/20/2007 |
   Proposer of Course   Date

Approval Sheet
Program/Course:

_____

Program Chair(s)   Date

_____

Program Chair(s)   Date

_____

General Education Chair(s)   Date

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Curriculum Committee Chair(s)   Date

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Dean of Faculty   Date