SACRAMENTO STATE

Course Change Proposal
Form A

Academic Group (*College*): Natural Science and Mathematics	**Academic Organization** (*Department*): Mathematics and Statistics	**Date:** 28 Mar 2007
Type of Course Proposal: **New** _X__ **Change** ___ **Deletion** ___	**Department Chair:** Roger Leezer	**Submitted by:** Scott Farrand, Elaine Kasimatis, Ed Shea
Does this course fulfill a requirement for single-subject or multiple subject credential students? Yes __X_ **No** ___	**For Catalog Copy: Yes** _X__ **No** ___ **CCE: Yes** ___ **No** _X__	**Semester Effective:** **Fall** _X__ **Spring** ___, **2007**___

This course replaces experimental course Subject Area *(prefix)* **and Catalog Number** *(course number)*:	
This Catalog Number *(course number)* **is being replaced:**	

Change from:

Subject Area *(prefix)* **& Catalog No.** *(course no.)*:	**Title:**	**Units:**

Change to:

Subject Area *(prefix)* **& Catalog No.** *(course no.)*: **MATH 316**	**Title: The Psychology of Mathematics Instruction**	**Units: 2**

JUSTIFICATION:
This course is designed for students enrolled in the Integrated Mathematics Major/Single Subject Credential Program (the Mathematics Blended Program). Previously, students in the Blended Program enrolled in EDTE 116 (Psychology of Instruction, 4 units) which they took with students in the Kinesiolgy Blended Program. Changes in the Kinesiology Blended Program resulted in that section of EDTE 116 no longer being offered. Placing of Mathematics Blended students into other sections of EDTE 116 poses difficulties in scheduling. In addition, Blended Programs have been mandated to have a maximum of 135 units, and the current Mathematics Blended Program is not in compliance with this mandate. This new course will reduce the total number of units in the Blended Program by two units.

NEW COURSE DESCRIPTION: (Not to exceed 80 words, and language should conform to catalog copy. See http://www.csus.edu/acaf/univmanual/crspsl.htm - Guidelines for Catalog Course Description
A survey course for students in the Blended Program in Mathematics that relates broad areas of educational psychology and theories of learning to instruction in the secondary mathematics classroom. The focus is on practical applications of theories through the design of lesson and unit plans. Students will design learning activities for diverse classes of learners, including English Language Learners, and build and refine assessment plans that include formative assessments. Prerequisite: Admission to the Mathematics Blended Program.
Note: 2 hours lecture

Prerequisite:
Enforced at Registration: Yes ___ **No** _X__
Corequisite:
Enforced at Registration: Yes ___ **No** _X__
CAN (California Articulation Number):

Graded: Letter __X___ **Credit/No Credit**____	**Instructor Approval Required? Yes**___ **No**_X__
Course Classification *(e.g., lecture, lab, seminar, discussion)*: Lecture	**Title for SIS+/CMS (not more than 30 characters)** Psych of Math Instruction
Cross Listed? Yes ___ **No**__X_	**If yes, do they meet together and fulfill the same requirement, and what is the other course.**

How Many Times Can This Course be Taken for Credit? ____1__
Can the course be taken for Credit more than once during the same term? Yes ___ **No** _X__

FOR NEW COURSE PROPOSALS OR SUBSTANTIVE CHANGES ONLY:

Description of the Expected Learning Outcomes: Describe outcomes using the following format: "Students will be able to: 1), 2), etc." See the example at http://www.csus.edu/acaf/example.htm

Students will be able to:

1. Examine and apply theories of learning, especially as they relate to mathematics instruction.
2. Understand the cycle of lesson development: identifying the goals of the lesson, developing a lesson plan that includes assessment, teaching the lesson, reflecting on the effectiveness of the lesson, and refining the lesson plan.
3. Demonstrate an understanding of the cognitive processes in adolescents by developing lesson plans that provide necessary elements (engagement, accommodation for variations in perception, opportunities for success, variation of tasks, social learning, meta-cognition, practice, and retrieval).
4. Develop standards-based lesson plans and unit plans that provide connections among mathematical skills and conceptual knowledge to accompany those skills.
5. Develop and refine secondary mathematics lessons that provide access to English Language Learners and to other students with special needs.
6. Develop and refine lesson plans that include formative assessments in order to identify students in need of differentiated instruction and provide that within the lesson.
7. Use standardized test data and results of other assessments to make specific refinements to unit plans and lesson plans.
8. Understand the approaches recommended by the California Mathematics Framework for instruction to achieve procedural and conceptual understanding while employing mathematical reasoning.
9. Understand the process of assessing student knowledge and developing instruction that provides reasonable steps to build on this knowledge to the desired learning goals of a lesson and unit.
10. Develop lesson plans for intervention and assessments to recognize students in need of intervention.

**Attach a list of the required/recommended course readings and activities [Note: it is understood that these are updated and modified as needed by the instructor(s).] This attachment should be forwarded only to your Dean's office, not Academic Affairs.

Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above:

Students must attend and actively participate in each of the following five facets of the class:

1. Four regular class meetings (6 hours), during which students will participate in discussions that clarify the class readings.
2. Three Saturday meetings (15 hours), at which students will participate with classroom teachers as students in problem-solving lessons and reflections on the teaching strategies used in those lessons, and will participate in discussions that clarify the class readings with the instructor and classmates. Students will submit written reflections on these experiences.
3. Three Lesson Study group meetings (6 hours), during which students will work with classroom teachers to develop and polish a single secondary mathematics lesson.
4. One Observation of the delivery of the lesson developed by the Lesson Study group, along with the subsequent reflection by the group on the lesson (3 hours). Students will also submit written reflections on their Lesson Study experiences.
5. Students will prepare a Signature Assignment for the course.

Signature Assignment
There are two parts to the signature assignment for this course.

Part 1: Students design a teaching and learning plan (a unit plan) that uses appropriate principles from the psychology of mathematics education, that incorporates formative assessment, and that provides a variety of learning experiences for students. It will include:

1. Context that affects the unit, including academic development, language development, social development, socio-economic issues, and cultural issues.
2. Goals and objectives, skill and concept development, specific expectations for progress (e.g., benchmarks, end-of-course exams), and cross-reference to progress on California Standards and CSU Entry Level Math requirements.
3. A unit calendar that describes activities for the entire unit, along with assessments, due dates, etc.
4. Four lesson plans that are a part of the unit that include standards addressed by the lesson, objectives, planned activities, assessment, and plans for differentiated instruction.

Part 2: Students write a critical analysis of the unit plan that focuses on how aspects of the psychology of mathematics education learned in the course were reflected in the plan. The students will analyze:

1. learning models used as the foundations for plans
2. accommodations for English Language Learners and students with special needs
3. how developmental learning theories informed their creation of unit and lesson plans
4. how theories of motivation and cognition informed their planning and development
5. the use of assessment and evaluation concepts and strategies for a particular learning objective, explaining why the plan is appropriate
6. the interpretation of standardized test data to gain insight into students in their contexts

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For whom is this course being developed?
Majors in the Dept ___ Majors of other Depts ___ Minors in the Dept ___ General Education ___ Other _X__
Is this course required in a degree program (major, minor, graduate degree, certificate? Yes _X_ No ___

If yes, identify program(s): Integrated Mathematics Major/Single Subject Credential Program.

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer facilities, faculty, etc.)? Yes _X__ No ____
If yes, attach a description of resources needed and verify that resources are available.

Minor increase in costs are absorbed within the department budget in conjunction with the College of Education.

Indicate which department or programs will be affected by the proposed course (if any). Teacher Education

The Department Chair's signature below indicates that affected programs have been sent a copy of this proposal form.

Approvals: If proposed change, new course or deletion is approved, sign and date below. If not approved, forward without signing to the next reviewing authority, and attach an explanatory memorandum to the original copy.

Signatures:		**Date**
Department Chair:	Roger N. Day	4/18/07
College Dean or Associate Dean:	Laurie Heffernan	4/19/07
CPSP *(for school personnel courses ONLY)*		
Associate Vice President and Dean for Academic Programs	CONDITIONAL APPROVAL	4/20/07

Distribution: Academic Affairs (original), Department Chair and College Dean. Dean's office to send original after approval to Academic Affairs, at mail zip 6016. An electronic copy must also be sent.