

Request to Develop a Site Pilot Course

Updated 2/6/07

1. *Proposed Title: **Mathematics Extensions***
Department: Mathematics Credits: 5 per semester (10 total)
Do you plan to apply for UC "a-g" status for this course? N/A

2. *Purpose of Course:*

The purpose of this course is to strengthen and advance students' mathematical background by studying and doing mathematics within the context of student-developed math activities and interdisciplinary projects. Students will complete projects that review concepts from earlier math courses, explore concepts and applications beyond traditional curriculum, and lead into future math studies. The course includes a community service component where students will create and share activities for other students and teachers. Technology will be incorporated throughout the course as students use a variety of software programs and calculator tools to do mathematics and share their work.

3. *Content Standards: (Bracketed topics indicate curricular areas within CA content standards.)*

- Functions
- Graphing and coordinate systems in two dimensions
- Working with three-dimensional graphics
- Solving equations and systems of equations
- Using equations and expressions to model real world situations
- Problem solving and developing proofs

4. *Do these content standards match state and department standards? YES. The topics address many standards for Grade 7, Algebra I, Geometry, and other advanced topics.*

5. *Performance Standards: What multiple forms of student assessment will be used?*

- a. Students will create a portfolio of their work and will publish exemplary work on a web site. Projects will illustrate conceptual understanding and applications of topics learned. Projects will cover the topics listed above as well as review material learned in previous courses.
- b. Students will present their work to the class orally using interactive demonstrations.
- c. Students will engage in peer assessment and practical assessment as they share their work with each other and with the outside community (students not in the class, other teachers, and professionals) through personal interaction and web publishing.
- d. Students will keep a journal of their progress in which they will reflect on what they have learned, what they are struggling with, and what they want to explore in the future.
- e. Some traditional tests and quizzes may also be included for assessment.

6. *List or describe cross curricular/interdisciplinary strands or connections.*

Students will have the opportunity to complete projects that use math in areas such as science, art, and music. Students in the class will connect with high school students doing similar work.

7. *How will this course strengthen your site's curriculum?*

Students will explore mathematical concepts and their applications beyond those in the traditional curriculum. Through this course and web publishing, the school will have the opportunity to connect with other educators and professionals. Students and teachers will have access to state-of-the art technology and web resources to collaborate and share learning. The projects that students create will be shared with other students and teachers at our site as well as other schools in the district with the intent to provide multimedia learning experiences for students at all levels.

8. *How will you evaluate the effectiveness of this course?*

Teachers, administrators, and students will evaluate the quality and usefulness of the work done by students. We will also review the content standards outlined above to see that our goals have been met. Students will reflect on how their work in this class helps them with their work in other math classes. We will also assess students' progress by comparing work done at the end of the course to that done at the beginning.

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