

California State University Channel Islands
New Course Proposal

Program Areas: Math and Computer Science

1. Catalog Description of the Course.

Math 510 PROBABILISTIC METHODS AND MEASURE THEORY. (3)

Three hours lecture per week

Prerequisite: Admission to the Computer Science or Mathematics Graduate Program

Introduction to probabilistic methods. Topic include: sigma algebras, measures, integrals, Lebesgue measure, main convergence results and the change of variable results for integrals. Probabilistic methods in computational sciences are studied .

2. Mode of Instruction.

	<u>Units</u>	<u>Hours per Unit</u>		<u>Benchmark Enrollment</u>
Lecture	3	1	30	
Seminar	*	*	*	
Laboratory	*	*	*	
Activity	*	*	*	

3. Justification and Learning Objectives.

Justification: This class is a core class for students in Computational Sciences program. This is a prerequisite for Stochastic Analysis and Markov Processes.

Learning Objectives:

Through this course, students will be able to

- Understand the essential concepts of probability and measure theory.
- Apply probability theory and mathematical statistics in various situations
- Demonstrate the knowledge of measure theory
- Construct appropriate mathematical models
- Formulate statistics and probability problems in the language of math.

4. Is this a General Education Course?

No.

5. Course Content in Outline Form.

Topics:

- a) sigma algebras,
- b) measures, integrals,
- c) Lebesgue measure,
- d) convergence results for integrals,
- e) change of variable results for integrals,

f) probabilistic methods in computational sciences.

6. References.

1. *Probability Theory and Examples* R. Durrett, Duxbury (1996) 0534243185

7. Faculty Qualified to Teach This Course.

Qualified Faculty: Mathematics faculty

8. Frequency.

Projected semesters to be offered: Fall X

9. New Resources Required.

- a. Computer (data processing), audio visual, broadcasting needs, other equipment
none
- b. Library needs
none
- c. Facility/space needs
none

10. Consultation.

Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

Jorge Garcia 10/31/03

Proposer of Course

Date

Approvals

Program Coordinator	Date
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GE Committee Chair (If applicable)	Date
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Curriculum Committee Chair	Date
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Dean	Date
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Effective Semester: _____

California State University Channel Islands
New Course Proposal Consultation Sheet

1. Course prefix, number, title, and units: _____ **Math 510**

2. Program Area: _____ MATH _____

Recommend Approval

Program Area/Unit	Program/Unit Coordinator	YES	NO (attach objections)	Date
Art				
Business & Economics				
Education				
ESRM				
Humanities				
Liberal Studies				
Mathematics & CS				
Sciences				
Library*				
Information Technology*				

* If needed

