CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

1. Catalog Description of the Course. [Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]

Math 587 MARKOV CHAINS AND MARKOV PROCESSES (3)
Three hours lecture per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
Topics include: Central Limit Theorem, Law of Large Numbers, Convergence Theorems, Markov Chains and Markov Processes. Applications in other fields, such as bioinformatics and computer science.

2. Mode of Instruction.

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<th>Units</th>
<th>Hours per Unit</th>
<th>Benchmark Enrollment</th>
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<tr>
<td>Lecture</td>
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<td>Seminar</td>
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<td>Laboratory</td>
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<td>Activity</td>
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3. Justification and Learning Objectives for the Course. (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) [Use as much space as necessary]

This course is an elective for MS in Applied Mathematics.

Through this course, students will be able to

- Discuss the consequences of Central Limit Theorem and applications.
- Apply Law of Large Numbers and Convergence Theorems
- Discuss and apply Markov Chains and Markov Processes
- Demonstrate the possible applications in various contexts, such as bioinformatics and computer science

4. Is this a General Education Course

NO

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

a) Central Limit Theorem,
b) Law of Large Numbers,
c) Convergence Theorems,
d) Markov Chains and Markov Processes,
e) Statistical/information techniques for pattern recognition
f) Genetic algorithms
g) Further applications in bioinformatics and computer science

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


NEWCRSFR 9/30/02
7. List Faculty Qualified to Teach This Course.
   All Mathematics faculty

8. Frequency.
   a. Projected semesters to be offered: Fall __X__  Spring __X__  Summer __

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.

_____________________________  10/31/03________________________
Proposer of Course            Date

_______Jorge Garcia____________
Approvals

Program Coordinator    Date

GE Committee Chair    Date
(If applicable)

Curriculum Committee Chair    Date

Dean    Date

Effective Semester: ________________________________

NEWCRSFR 9/30/02
California State University Channel Islands
New Course Proposal Consultation Sheet

1. Course prefix, number, title, and units: _________ Math 587
2. Program Area: _______MATH__________________________

**Recommend Approval**

<table>
<thead>
<tr>
<th>Program Area/Unit</th>
<th>Program/Unit Coordinator</th>
<th>YES</th>
<th>NO (attach objections)</th>
<th>Date</th>
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* If needed