California State University Channel Islands

New Course Proposal

Program Area

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 555 Actuarial Sciences (3)

Three hours lecture per week
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program
The course provides a sound grounding in the mathematical, statistical and financial concepts needed for actuarial work, including technical and communication skills. Topics include: probability, statistics, data analysis, mathematical modeling, risk analysis, pension plans, financial economics, and time series. Various software packages are used.

2. Mode of Instruction.

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<tr>
<th>Units</th>
<th>Hours per Unit</th>
<th>Benchmark Enrollment</th>
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<tr>
<td>3</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 majors

Students will be able to

- discuss the application of advanced mathematical methods in business and economics.
- discuss the nature of statistical inference and time series, and apply them
- analyze data in statistical and graphical terms.
- use a computer-based actuarial software package.
- demonstrate a variety of commonly used techniques and the models underlying them.
- express a generally posed scientific question as a statistical question in a written and oral form.

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) Mathematical Modelling;
b) Financial Mathematics;
c) Survival Models;
d) Life Insurance Mathematics;
e) Stochastic Processes;
f) Risk Theory;
g) Pension Funds;
h) Financial Economics;
i) Time Series;

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
      Access to computer labs to use statistical packages
   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.

___J. Garcia, I. grzegorczyk___________10/31/03_____________________________________
Proposer of Course  Date
## Approvals

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<th>Role</th>
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<td>Program Coordinator</td>
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<td>GE Committee Chair (If applicable)</td>
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<td>Curriculum Committee Chair</td>
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Effective Semester: ____________________________
1. Course prefix, number, title, and units: _____ MATH 555 (3) 

2. Program Area: _______MATH_________________________________

Recommend Approval

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<tr>
<th>Program Area/Unit</th>
<th>Program/Unit Coordinator</th>
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* If needed