CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREAS BIOLOGICAL AND PHYSICAL SCIENCES, MATH AND COMPUTER SCIENCE

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.]

COMP 581. MATHEMATICAL METHODS IN ARTIFICIAL INTELLIGENCE (3)
Three hours of lecture in the lab per week.
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program


MATH 581. Mathematical Methods in Artificial Intelligence (3)
Three hours of lecture in the lab per week.
Prerequisite: Admission to the Computer Science or Mathematics Graduate Program


2. Mode of Instruction.

<table>
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<tr>
<th>Hours per Benchmark</th>
<th>Units</th>
<th>Hours per Unit</th>
<th>Benchmark Enrollment</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>3</td>
<td>1</td>
<td>24</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 graduate students in MS in Mathematics and MS in Computer Science programs. Artificial Intelligence is a conglomerate that combines many techniques and methodologies. Many of them have roots in various areas of mathematics. A software engineer needs to understand the underlying theories to properly analyze the techniques applied and the correctness of the solution.

Through this course, students will be able to

- Apply and Understand AI Mathematical methods.
- Design AI solutions.
- Employ mathematical means in evaluating solutions.
- Explore Mathematics for improvements to AI methods.

4. Is this a General Education Course YES NO

If Yes, indicate GE category:
5. Course Content in Outline Form. [Be as brief as possible, but use as much space as necessary]

1. Trees and Search.
3. The Theory of Resolution.
5. Probability Theory.
6. Bayesian Networks.
7. Fuzziness and Belief Theory.
8. Neural Networks and Minimization.

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


7. List Faculty Qualified to Teach This Course.

All Computer Science faculty.

8. Frequency.
   a. Projected semesters to be offered: Fall ___X__ Spring _____ Summer _____

9. New Resources Required.
   a. Computer (data processing), audio visual, broadcasting needs, other equipment
      Use of existing computer lab.
   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.

   _P. Smith, AJ Bieszczad_ 10/31/2003
   Proposer of Course  Date