

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREAS MATH

- 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 430 Research Design and Data analysis (3)

Four hours of lecture per week.

Prerequisite: MATH 324 or MATH 202.

Experimental design, sampling methods, sampling distributions and statistical conclusions in biomedical fields. Bayesian estimates, tests of hypotheses, nonparametric tests. Regression and correlation. Replication, experimental errors, randomization. Modern computer software applications in statistics.

2. Mode of Instruction.

	Units	Hours per Unit	Benchmark Enrollment
Lecture	<u> 3 </u>	<u> 1 </u>	<u> 24 </u>
Seminar	<u> </u>	<u> </u>	<u> </u>
Laboratory	<u> </u>	<u> </u>	<u> </u>
Activity	<u> </u>	<u> </u>	<u> </u>

- 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]*

The course is an elective for Mathematics majors.

Through this course, students will be able to

- Use several sampling methods
- Understand sampling distributions and statistical conclusions in biomedical fields.
- Make Bayesian estimates and test hypotheses
- Understand regression and correlation
- Understand replication, experimental errors and randomization
- Use computer software in statistics
- Present concepts and techniques of Research Design and Data Analysis in oral and written form.

This course is not designed to satisfy the University Writing or Language requirements.

- 4. Is this a General Education Course** **YES** **NO**

If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	B3
C (Fine Arts, Literature, Languages & Cultures)	
D (Social Perspectives)	
E (Human Psychological and Physiological Perspectives)	

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

Experimental design
 Sampling methods, sampling distributions and statistical conclusions in biomedical fields
 Bayesian estimates, tests of hypotheses, nonparametric tests
 Regression and correlation
 Replication, experimental errors, randomization.
 Modern computer software applications in statistics.

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

Zar, J. 1999. Biostatistical Analysis, 4th edition, Prentice Hall.

7. List Faculty Qualified to Teach This Course.

All Mathematics and Computer Science Faculty

8. Frequency.

a. Projected semesters to be offered: Fall ☒ Spring ☒ 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.

Proposer of Course

Date