

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

COURSE MODIFICATION PROPOSAL

Courses must be submitted by October 15, 2012, and finalized by the end of the fall semester to make the next catalog (2013-14) production

DATE (CHANGE DATE EACH TIME REVISED): 10/1/12; REV 11.7.12GE; REV 11.14.12

PROGRAM AREA(S): MATHEMATICS AND PHILOSOPHY

Directions: All of sections of this form must be completed for course modifications. Use **YELLOWED** areas to enter data. All documents are stand alone sources of course information.

1. Indicate Changes and Justification for Each. [Mark all change areas that apply and follow with justification. Be as brief as possible but, use as much space as necessary.]

- | | |
|---|--|
| ☐ Course title | ☒ Course Content |
| ☒ Prefix/suffix | ☒ Course Learning Outcomes |
| ☐ Course number | ☐ References |
| ☐ Units | ☐ GE |
| ☐ Staffing formula and enrollment limits | ☐ Other ☐ |
| ☐ Prerequisites/Corequisites | ☐ Reactivate Course |
| ☒ Catalog description | |
| ☐ Mode of Instruction | |

Justification: The course will be required for the new Philosophy minor and deserves a PHIL prefix as symbolic logic is generally taught also by philosophy programs. The course is a mathematical and philosophical logic hybrid course. The learning outcomes have been updated to be in line with SP06-06, and the course content and catalogue description have been updated slightly.

2. Course Information.

[Follow accepted catalog format.] (Add additional prefixes if cross-listed)

OLD

Prefix **MATH** Course# **230**
 Title **Logic and Mathematical Reasoning** Units **(3)**
3 hours lecture per week
☐ hours blank per week

Prerequisites: ☐
 Consent of Instructor Required for Enrollment
 Corequisites: ☐

Catalog Description (Do not use any symbols):

Introduction to modern deductive logic. Critical thinking and abstract approaches to common language. Includes abstract sets and number sets, relations, propositional logic, common language cases, and theory of quantification.

General Education Categories: **A3, B3**

Grading Scheme (Select one below):

- ☒ A – F
☐ Credit/No Credit
☐ Optional (Student's Choice)

Repeatable for up to ☐ units

Total Completions ☐

Multiple Enrollment in Same Semester Y/N **N**

Course Level:

- ☒ Undergraduate
☐ Post-Baccalaureate
☐ Graduate

NEW

Prefix **MATH/PHIL** Course# **230**
 Title **Logic and Mathematical Reasoning** Units **(3)**
3 hours lecture per week
☐ hours blank per week

Prerequisites: ☐
 Consent of Instructor Required for Enrollment
 Corequisites: ☐

Catalog Description (Do not use any symbols):

Introduction to deductive logic, logical and critical thinking, and symbolic approaches to common language. Includes abstract sets and number sets, relations, propositional logic, and the theory of quantification.

General Education Categories: **A3, B3**

Grading Scheme (Select one below):

- ☒ A – F
☐ Credit/No Credit
☐ Optional (Student's Choice)

Repeatable for up to ☐ units

Total Completions ☐

Multiple Enrollment in Same Semester Y/N **N**

Course Level:

- ☒ Undergraduate
☐ Post-Baccalaureate
☐ Graduate

3. Mode of Instruction (Hours per Unit are defaulted)

Hegis Code(s) _____
(Provided by the Dean)

Existing

Proposed

	Units	Hours Per Unit	Benchmark Enrollment	Graded		Units	Hours Per Unit	Benchmark Enrollment	Graded	CS No. (filled out by Dean)
Lecture	3	1	24	x	Lecture	3	1	24	x	
Seminar		1			Seminar		1			
Lab		3			Lab		3			
Activity		2			Activity		2			
Field Studies					Field Studies					
Indep Study					Indep Study					
Other blank					Other blank					
Online					Online					

4. Course Attributes:

General Education Categories: All courses with GE category notations (including deletions) must be submitted to the GE website: <http://summit.csuci.edu/geapproval>. Upon completion, the GE Committee will forward your documents to the Curriculum Committee for further processing.

A (English Language, Communication, Critical Thinking)

- ☐ A-1 Oral Communication
- ☐ A-2 English Writing
- ☒ A-3 Critical Thinking

B (Mathematics, Sciences & Technology)

- ☐ B-1 Physical Sciences
- ☐ B-2 Life Sciences – Biology
- ☒ B-3 Mathematics – Mathematics and Applications
- ☐ B-4 Computers and Information Technology

C (Fine Arts, Literature, Languages & Cultures)

- ☐ C-1 Art
- ☐ C-2 Literature Courses
- ☐ C-3a Language
- ☐ C-3b Multicultural

D (Social Perspectives)

E (Human Psychological and Physiological Perspectives)

UDIGE/INTD Interdisciplinary

Meets University Writing Requirement

Meets University Language Requirement

American Institutions, Title V Section 40404: ☐ Government ☐ US Constitution ☐ US History
Refer to website, Exec Order 405, for more information: <http://senate.csuci.edu/comm/curriculum/resources.htm>

Service Learning Course (Approval from the Center for Community Engagement must be received before you can request this course attribute).

Online Course (Answer YES if the course is ALWAYS delivered online).

5. Justification and Requirements for the Course. [Make a brief statement to justify the need for the course]

OLD

A3

- Analysis of statements of common language in a critical and rigorous manner.
- Introduction to inductive and deductive logic in a variety of everyday and scientific situations.
- Formal assessments of the logical soundness of statements and justifications.
- Abstracting information from common language and other forms of written, oral and symbolic communication of ideas.
- Common fallacies in inductive and deductive reasoning

B3

- Using logic to expressing and analyzing abstract mathematical ideas
- Mathematical proofs and problem solving.

☒ Requirement for the Major/Minor
☐ Elective for the Major/Minor
☐ Free Elective

NEW

A3

- Analysis of statements of common language in a critical and rigorous manner.
- Introduction to inductive and deductive logic in a variety of everyday and scientific situations.
- Formal assessments of the logical soundness of statements and justifications.
- Abstracting information from common language and other forms of written, oral and symbolic communication of ideas.
- Common fallacies in inductive and deductive reasoning

B3

- Using logic to expressing and analyzing abstract mathematical ideas
- Mathematical proofs and problem solving.

☒ Requirement for the Major/Minor
☐ Elective for the Major/Minor
☐ Free Elective

Submit Program Modification if this course changes your program.

6. Student Learning Outcomes. (List in numerical order. Please refer to the Curriculum Committee's "Learning Outcomes" guideline for measurable outcomes that reflect elements of Bloom's Taxonomy: <http://senate.csuci.edu/comm/curriculum/resources.htm>. The committee recommends 4 to 8 student learning outcomes, unless governed by an external agency (e.g., Nursing).

Upon completion of the course, the student will be able to:

OLD

This course is a required course for Mathematics majors.

Through this course students will be able to:

- Analyze statements of common language in a critical and abstract manner
- Use deductive logic in a variety of everyday and scientific situations.
- Work with sets, numbers, relations, propositional structures (both with and without quantification).
- Assess the logical soundness of statements and proofs.
- Present concepts and techniques of logic in oral and written form.

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

Upon completion of the course, the student will be able to:

NEW

This course is a required course for Mathematics majors and Philosophy minors. Through this course students will be able to:

- Analyze statements of common language in a critical and abstract manner
- Use deductive logic in a variety of everyday and scientific situations.
- Work with sets, numbers, relations, and propositional structures, both with and without quantification.
- Assess the logical soundness of statements and proofs.
- Present concepts and techniques of logic in oral and written form.
- Reason deductively (SP06-06 Outcome 2.1)
- Deliberate with others and present arguments clearly, logically, and creatively (SP06-06 Outcome 2.2)
- Solve problems using mathematical methods (SP06-06 Outcome 5.4)

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

7. Course Content in Outline Form. (Be as brief as possible, but use as much space as necessary)

OLD

Introduction to modern deductive logic.

Critical thinking and abstract approach to common language.

Abstract sets and number sets

Relations, propositional logic and theory of quantification.

NEW

Introduction to deductive logic and critical thinking.

Symbolic approaches to common language.

Abstract sets and number sets.

Relations, propositional logic, and the theory of quantification.

Techniques for assessing the logical soundness of statements and proofs.

Does this course content overlap with a course offered in your academic program? Yes ☐ No ☒

If YES, what course(s) and provide a justification of the overlap. ☐

Does this course content overlap a course offered in another academic area? Yes ☐ No ☒
If YES, what course(s) and provide a justification of the overlap. ☐

Overlapping courses require Chairs' signatures.

8. Cross-listed Courses (Please note each prefix in item No. 1)

- A. List cross-listed courses (Signature of Academic Chair(s) of the other academic area(s) is required).
- B. List each cross-listed prefix for the course: **MATH PHIL**
- C. Program responsible for staffing: **MATH**

9. References. [Provide 3-5 references]

OLD

Logic. A very short introduction, by Graham Priest Oxford University Press (2000)
Symbolic Logic, G. Hardegree, McGrawHill, (1999).

NEW

Logic. A very short introduction, by Graham Priest Oxford University Press (2000)
Symbolic Logic, G. Hardegree, McGrawHill, (1999).

10. Tenure Track Faculty qualified to teach this course.

Mathematics faculty

11. Requested Effective Date or First Semester offered: FaLL 2013

12. New Resource Requested: Yes ☐ No ☒

If YES, list the resources needed.

A. Computer Needs (data processing, audio visual, broadcasting, other equipment, etc.)

☐

B. Library Needs (streaming media, video hosting, databases, exhibit space, etc.)

☐

C. Facility/Space/Transportation Needs:

☐

D. Lab Fee Requested: Yes ☐ No ☐ (Refer to the Dean's Office for additional processing)

E. Other. ☐

13. Will this course modification alter any degree, credential, certificate, or minor in your program? Yes ☐ No ☒

If, YES attach a program update or program modification form for all programs affected.

Priority deadline for New Minors and Programs: **October 1, 2012** of preceding year.

Priority deadline for Course Proposals and Modifications: **October 15, 2012**.

Last day to submit forms to be considered during the current academic year: **April 15th**.

Jesse Elliott

10/1/12

Proposer(s) of Course Modification

Date

Type in name. Signatures will be collected after Curriculum approval.

GE Committee response to your request have MATH230: Logic and Mathematical Reasoning added to B3: Mathematics -- Mathematics and Applications

Approved by 2012-2013 Committee:

Janet Rizzoli

Geoffrey Buhl

Catherine Burriss

Claudio Paiva

Kathy Musashi

Todd Oberson

Debra Hoffmann

Gina Farrar

Rachel Danielson

Request Submitted

Course: MATH230 Logic and Mathematical Reasoning

Area: B3 Mathematics -- Mathematics and Applications

Date Submitted: 10/5/2012 8:10:11 PM

Date Approved: 11/8/2012 9:35:08 AM

1. Promote the understanding and appreciation of the methodologies of math or science as investigative tools and the limitations of mathematical or scientific endeavors

Course is already approved as GE B3.

2. Present mathematical or scientific knowledge in a historical perspective and the influences of math and science on the development of world civilizations, both past and present

Course is already approved as GE B3.

3. Apply inductive and deductive reasoning processes and explore fallacies and misconceptions in the mathematical or scientific areas

Course is already approved as GE B3.

4. Promote an understanding of mathematical ideas and problem solving skills

Course is already approved as GE B3.

GE Committee response to your request have MATH230: Logic and Mathematical Reasoning added to A3: Critical Thinking

Approved by 2012-2013 Committee:

Janet Rizzoli

Geoffrey Buhl

Catherine Burriss

Claudio Paiva

Kathy Musashi

Todd Oberson

Debra Hoffmann

Gina Farrar

Rachel Danielson

Request Submitted

Course: MATH230 Logic and Mathematical Reasoning

Area: A3 Critical Thinking

Date Submitted: 10/5/2012 8:10:00 PM

Date Approved: 11/8/2012 9:38:24 AM

1. Prepare the student to use reasoning of both inductive and deductive types

Course is already approved as GE A3.

2. Focus on the analysis of written, oral, visual and/or symbolic communication

Course is already approved as GE A3.

3. Prepare the student to assess common fallacies in reasoning

Course is already approved as GE A3.

4. Address modes of argument, rhetorical perspectives, and the relationship of language to logic

Course is already approved as GE A3.

Approval Sheet

Course: [REDACTED]

If your course has a General Education Component or involves Center affiliation, the Center will also sign off during the approval process.

Multiple Chair fields are available for cross-listed courses.

The CI program review process includes a report from the respective department/program on its progress toward accessibility requirement compliance. By signing below, I acknowledge the importance of incorporating accessibility in course design.

Program Chair		
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Signature

Date

Program Chair		
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Signature

Date

Program Chair		
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Signature

Date

General Education Chair		
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Signature

Date

Center for Intl Affairs Director		
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Signature

Date

Center for Integrative Studies Director		
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Signature

Date

Center for Multicultural Engagement Director		
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Signature

Date

Center for Civic Engagement and Service Learning Director		
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Signature

Date

Curriculum Chair		
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Signature

Date

AVP		
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Signature

Date