

Mt. San Jacinto College
Integrated Course Outline of Record

Form B

Submitted by:	Tom Donovan	Date:	12/17/2019
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Department	Subject	Course Number	Title
Philosophy	Philosophy PHIL	103	Logic

Units/Hours

- Each lecture unit requires 1 hour per week of class time, and 2 hours per week of study outside of class.
- Each laboratory unit requires 3 hours per week of class time.
- Each activity unit requires 2 hours per week of class time and 1 hour per week of study outside of class.

Lecture Units	Total Units
3.00	3.00
Lecture Contact Hours	Total Contact Hours
48.00 - 54.00	48.00 - 54.00
Lecture Homework Hours	
96.00 - 108.00	

Stand Alone:

Program Applicable

AA/AS Degree General Ed Breadth Area(s):

D2 LANGUAGE AND RATIONALITY - COMMUNICATION AND ANALYTICAL THINKING

General Education Justification:

Philosophy 103 emphasizes GELO 1-3 in Area D2 of the General Education Plan. In Philosophy 103 students will learn to identify the rational and universal claims underlining specific cultural and artistic claims of diverse people and cultures throughout the ages (GELO 2). Students will use logic to examine complex issues and discover the connections and correlations among ideas to advance toward a conclusion demonstrating depth of knowledge and insight (GELO 1). Students in logic will further learn to apply their knowledge and skills to new and varied situations through written expression and using logical notation (GELO 3). This class will also help students discover and evaluate information using logical methods and analytic tools (GELO 1).

Maximum Enrollment:	35
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Maximum Enrollment Justification:	Course requires significant individualized instruction or assessment – check all that apply: * Course relies on small group dynamics as a means
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of instruction or assessment.

* Course requires that each student be evaluated individually on a set of skills more than twice per semester.

Justification: This course requires extensive instructor to student interaction to teach the concepts and methods of formal and informal logic. Besides lecture, group learning and individual presentations and practice of critical reasoning skills is required.

Grading Method:

Letter Grade or P/NP

TOP code:

1509.00

Can be Taken

1

time(s) for credit (max 4)

- Visual or Performing Arts course that is required to meet major requirements for UC/CSU

- Intercollegiate athletics course

- Academic/vocational competition course

Catalog Description:

(Please do not refer to transferability or degree, certificate, or employment concentration applicability. Please only describe the course). (75 words or less in gray box below).

This course emphasizes the study of formal deductive logic with minor treatment of inductive and informal logic. Students will study Aristotelian Logic- Modern Deductive Logic and Quantification. The focus will be on the analysis and critique of valid and invalid argument forms, proofs of validity, soundness, rules of inference, logical puzzles, diagramming arguments and Venn diagrams. The course will stress the critical analysis of arguments and critical reasoning skills.

Schedule Description:

(Please do not refer to transferability or degree, certificate, or employment concentration applicability. Please only describe the course). (25 words or less in gray box below).

The study of the form and structure of deductive arguments with some attention paid to induction and critical reasoning.

Need for the course:

This course fulfills the General Ed Plan Option A: D2 Language and Rationality-Communication and Analytic Thinking (GELO 1-3 are addressed in this course). This course is a Required Core for the Associate in Arts in Philosophy for Transfer Degree. The course provides students with the basic logical and analytical tools for identifying valid and invalid arguments. It teaches them to reason systematically and articulate the reasoning process as well as understand and analyze the arguments of others.

Prerequisite(s):

Prerequisites go through a separate approval process. See Forms E1-E6 for details. (For further clarification, contact the Prerequisite Subcommittee)

-none-

Corequisite(s):

Corequisites go through a separate approval process. See Forms E1-E6 for details.

-none-

Recommend Preparation:

Recommended Preparation goes through a separate approval process. See Forms E1-E6 for details.

-none-

Other Enrollment Criteria:

-none-

Learning Objectives:

(please number each objective and express in behavioral terms)

Upon the completion of the course the student will be able to do the following:

1. Demonstrate analytical understanding and logical competence by identifying and analyzing the structure of arguments.

2. Appraise the validity and soundness of arguments.

3. Judge logical reasoning and analytic skills by identifying fallacious reasoning throughout a variety of arguments.

4. Compare and apply both deductive and inductive reasoning.

5. Exhibit understanding of the principles of logical propositions such as tautologies, contradictions and contingencies by comparing and contrasting their logical properties.

6. Demonstrate understanding of the conceptual and analytical significance of Logical Equivalence by comparing and contrasting truth tables

7. Deduce the uses of the formal rules of inference.

8. Illustrate skill in solving logical proofs of validity and invalidity by the critical application of the rules of inference, equivalence rules, logical refutation and counterexample.

9. Analyze, describe, and apply the rules for diagramming arguments according to premises and conclusion.

10. Know basic logical notation, including logical symbols and the connectives: conjunction, disjunction, negation, conditional and bi-conditional.

Course Content:

(please number the outline of main topics and subtopics)

- The course will study the structure of argument paying special attention to the deductive mode.

1. Logic and Language

1. Basic logical concepts

2. Propositions and statements

3. Arguments: premises, conclusions

4. Recognizing and analyzing arguments

5. Deduction: validity, soundness

6. Induction and probability

7. Validity and truth

8. Reasoning puzzles

2. The Theory of Deduction

1. Categorical propositions and classes

2. Quality, quantity, and distribution

3. The traditional square of opposition

4. Existential import and the interpretation of categorical propositions

5. Symbolism and diagrams for categorical propositions

3. Categorical syllogisms

1. Standard form categorical syllogisms

2. The formal nature of syllogistic argument

3. Venn diagram technique for testing syllogisms

4. Exposition of valid forms of the categorical syllogism

5. Deduction of the valid forms of the categorical syllogism

4. Arguments in Ordinary Language

1. Syllogistic arguments

2. Translating categorical propositions into standard form

3. Uniform translation, enthymemes, sorites, disjunctive and hypothetical syllogisms
5. Modern Symbolic Logic

1. Atomic and compound statements

2. Symbols for conjunction, disjunction, negation, condition, bi-conditional

3. Common argument forms of modus ponens, modus tollens and hypothetical syllogism

4. Refutation by logical analogy

5. Truth tables for arguments

6. Statement forms of tautology, contradiction, contingency

7. Logical equivalence
6. The method of deduction

1. Rules of inference

2. Equivalence rules

3. Formal proofs of validity

4. Proofs of invalidity

5. Inconsistency
7. Quantification theory

1. Singular propositions

2. Quantification

3. Subject-predicate propositions

4. Asyllogistic inference
8. Induction and analogy inference

1. Arguments by analogy

2. Probable inference

3. Appraisal and refutation by logical analogy

Methods of Instruction:

Methods of instruction may include, but are not limited to the following:

- **Method:** Lecture

Integration: Lectures that, for example, explain logical concepts, analyze arguments, and teach critical reasoning skills.
- **Method:** Discussion

Integration: Classroom discussion on a variety of issues as they relate to the study of deductive and inductive logic. For example, students may diagram arguments from different texts and critically evaluate the diagrams and the critiques
- **Method:** Critique

Integration: Student presentations that analyze and critique both inductive and deductive arguments. These can be individual or group activities.
- **Method:** In-class quizzes

Integration: In-class quizzes and student board work to concretely pinpoint student strengths and weaknesses in analyzing arguments. For example have students demonstrate a proof of validity on the board or through a quiz.

Methods of Evaluation:

A student's grade shall be determined by the instructor using multiple measures of performance related to the course objectives. Methods of evaluation may include but are not limited to the following:

- **Method:** Quizzes

Integration: Quizzes that test knowledge of logical concepts, definitions as well as demonstrate formal proofs of validity to determine the studentsâ€™ understanding and grasp of the course content. For example a short answer quiz that requires students to explain important logical concepts and principles or a quiz having students

present a proof of validity with justification for a valid argument.

- **Method:** Examinations
Integration: Examinations to determine the students’ ability to think critically. For example the exams could have students demonstrating formal proofs of validity, solving puzzles, analyzing logical problems, diagramming arguments and critiquing arguments.
- **Method:** Homework
Integration: Homework to determine the students’ grasp of Aristotelian, Modern and Quantification Logic. This homework could include having students constructing truth tables, Venn diagrams and demonstrating proofs of validity and invalidity.
- **Method:** Written assignments
Integration: Written assignments to evaluate the understanding of logical concepts and to demonstrate the theoretical understanding of the principles of logic.
- **Method:** In-class Participation
Integration: In-class Participation to promote empathetic skills and encourage student interaction. This participation could be assessed through answering instructor questions, short written assignments, group exercises stressing proofs of validity, oral presentations, etc
- **Method:** Final Examination
Integration: Final Examination to determine the students’ overall comprehension of logic and to test the ability of the students’ to synthesize the fundamentals of logic. The final should include formal proofs of validity with justification.

Examples of Assignments:

Students will be expected to understand and critique college level texts or the equivalent. Reading and writing, as well as out of class assignments are required. These assignments may include but are not limited to the following:

1. Students may be required throughout the semester to keep a scrapbook in which they collect examples of fallacious arguments as well as valid and sound arguments. For example they might highlight a political speech that contains ad hominem attacks, appeals to inappropriate authority, appeals to ignorance, ad populum appeals etc. Or they might analyze a military speech and distinguish the informative, directive and expressive elements as well as identify euphemisms. The scrapbook should contain arguments from a variety of sources like newspapers, books, magazines and the internet.
2. Students are asked to write an essay responding to an article chosen by the instructor. They are required to state the issue, take a stand on the issue, offer a defense of their thesis and refute counterarguments. The issues could range from philosophical issues, to moral and political controversies to issues in popular culture. An example of an appropriate essay is John Searle’s paper “Is the Brain a Digital Computer?”
3. A critical presentation that takes an argument in English (for example on gun control, affirmative action, euthanasia etc.) and translates it into modern symbolic logic. The students should be expected to create a truth table or Venn diagram testing the validity of the argument. The students should also be expected to distinguish the form from the content of the given argument.
4. Students may be put into groups and given an issue that they have to debate with another group. They will be required to develop support for their argument and respond to counterarguments. For example the issue could be on whether one should report a friend who has cheated on an exam, or stolen something etc.
5. Students may be given a series of formal proofs of validity to solve. These assignments could involve students using different rules of inference at different times.

Textbooks:

- Irving Copi and Carl Cohen (2015). *Introduction to Logic* Routledge . ISBN: 978-1292024820
- Patrick Hurley (2017). *A Concise Introduction to Logic* Cengage . ISBN: 978-1305958098
- Bergmann, Moor and Nelson (2013). *The Logic Book* McGraw Hill . ISBN: 978-0078038419

Other Resources:

- Other Reference Materials/Supplies

Minimum Qualification

- Philosophy (Masters Required)