



Logic I and II

PEIMS Code: N1290100, N1290101

Abbreviation: LOGIC1, LOGIC2

Grade Level(s): 9–10

Award of Credit: 0.5 each course

Approved Innovative Course

- Districts must have local board approval to implement innovative courses.
- In accordance with Texas Administrative Code (TAC) §74.27, school districts must provide instruction in all essential knowledge and skills identified in this innovative course.
- Innovative courses may only satisfy elective credit toward graduation requirements.
- Please refer to [TAC §74.13](#) for guidance on endorsements.

Course Description:

Logic I provides course content in informal logic which includes intensive experience with logical fallacies and an emphasis on inductive reasoning, strong versus weak and fallacious arguments, and probability. Informal logic concentrates on evaluating the content of an argument and deals almost entirely with “ordinary language arguments” in the interchange of ideas between people.

Logic II is a course in formal logic, or the logic that pertains to pure reasoning in the abstract – deductive reasoning, valid or invalid arguments, and certainty (given the premise). In Logic II, students fully engage in the world of syllogism where focus is placed on understanding the form of an argument, and arguments can be analyzed using symbols.

Essential Knowledge and Skills:

Logic I

- (a) General Requirements. This course is recommended for students in grades 9 and 10. Students shall be awarded one-half credit for successful completion of this course.
- (b) Introduction.
 - (1) Logic I complements thinking, writing, and speaking skill-building that is at the center of language arts and social studies curricula. Logic also complements Latin knowledge; it aims at precision of language and Latin is a very precise language, and many of the names of logical fallacies are derived from Latin.
 - (2) Logic I provides course content in informal logic which includes experience with logical fallacies and an emphasis on inductive reasoning, strong versus

weak arguments, and probability. Informal logic concentrates on evaluating the content of an argument and deals almost entirely with “ordinary language arguments” in the interchange of ideas between people.

(c) Knowledge and Skills.

- (1) Logic. The student understands the historical development of logic and the differences between informal and formal logic. The student is expected to:
 - (A) define logic and argument; and
 - (B) describe the differences between informal and formal logic.
- (2) Ad Fontem Arguments. The student uses knowledge about an audience to employ ad fontem arguments that produce desired reactions. The student is expected to:
 - (A) identify and analyze fallacious arguments including ad hominem abusive, ad hominem circumstantial, tu quoque, and genetic fallacy;
 - (B) analyze the purposes and power of using ad fontem arguments; and
 - (C) create and apply ad fontem arguments in speech and in writing.
- (3) Appeals to Emotion. The student uses knowledge about an audience to employ an appeal that produces a desired reaction. The student is expected to:
 - (A) identify fallacious arguments including appeal to fear (argumentum ad baculum), appeal to pity (argumentum ad misericordiam), mob appeal (argumentum ad populum), snob appeal, appeal to illegitimate authority (argumentum ad verecundiam), and chronological snobbery;
 - (B) analyze the purposes and power of using appeals to emotion; and
 - (C) create and apply appeals to emotion in speech in writing.
- (4) Red Herrings. The student uses knowledge about an audience to employ red herrings that produces desired reactions. The student is expected to:
 - (A) identify and analyze fallacious arguments including appeal to ignorance, irrelevant goals or functions, irrelevant thesis, and straw man fallacy;
 - (B) analyze the purposes and power of using red herrings; and
 - (C) create and apply red herrings in speech and in writing.
- (5) Fallacies of Presumption. The student uses knowledge about an audience to employ fallacies of presumption that produce desired reactions. The student is expected to:
 - (A) identify and analyze fallacious arguments including begging the question (petitio principii), bifurcation (false dilemma), fallacy of moderation, is-ought fallacy, fallacy of composition, and fallacy of division;
 - (B) analyze the purposes and power of using presumption; and
 - (C) create and apply fallacies of presumption in speech and in writing.

- (6) Fallacies of Induction. The student uses knowledge about an audience to employ fallacies of induction that produces desired reactions. The student is expected to:
 - (A) identify and analyze fallacious arguments including sweeping generalization (accident), hasty generalization (converse accident), false analogy, false cause, and fake precision;
 - (B) analyze the purposes and power of fallacies of induction; and
 - (C) create and apply fallacies of induction in speech and in writing.
 - (7) Fallacies of Clarity. The student uses knowledge about an audience to employ fallacies of clarity that produces desired reactions. The student is expected to:
 - (A) identify and analyze fallacious arguments including equivocation, accent, and distinction without a difference;
 - (B) analyze the purposes and power of fallacies of clarity; and
 - (C) create and apply fallacies of clarity in speech and in writing.
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Logic II

- (a) General Requirements. This course is recommended for students in grades 9 and 10. Recommended prerequisite: Logic I. Students shall be awarded one-half credit for successful completion of this course.
- (b) Introduction.
 - (1) Logic II complements thinking, writing, and speaking skill-building that is at the center of language arts and social studies curricula. It also complements Latin in its precision of language, and it relates to logic inherent in mathematics courses, in particular proofs and deductive reasoning.
 - (2) Logic II is a course in formal logic, or the logic that pertains to pure reasoning in the abstract – deductive reasoning, valid or invalid arguments, and certainty (give the premise). In Logic II, students fully engage in the world of syllogism where focus is placed on understanding the form of an argument and that arguments can be analyzed using symbols.
- (c) Knowledge and Skills.
 - (1) Introduction to Formal Logic. The student understands the various categories of logic and its historical development. The student is expected to:
 - (A) describe the differences between informal and formal logic, discuss the differences between deductive and inductive reasoning, and explain categorical and propositional logic; and
 - (B) explain the classical origins and medieval recovery of logic and summarize the development of logic from Aristotle to modern times.
 - (2) Formal Logic and Three Acts of the Mind. The student understands the nature of formal logic and the acts of the mind. The student is expected to:

- (A) analyze the nature of formal logic; and
 - (B) describe the three acts of the mind, including apprehension, judging, and reasoning.
- (3) Translating Propositions into Categorical Form. The student understands propositions and translates arguments. The student is expected to:
- (A) define argument translation, categorical forms, and propositions; and
 - (B) translate arguments into categorical form by finding the subject term and the predicate term, identifying quantity and quality, and supplying the proper quantifier.
- (4) Relationships of Opposition. The student identifies relationships of opposition. The student is expected to:
- (A) identify the following: square of opposition, contradiction, contrariety and subcontrariety, subimplication and superimplication, and the square of opposition and inference analysis.
- (5) Relationships of Equivalence. The student recognizes logical equations and relationships of equivalence. The student is expected to:
- (A) perform logical equations; and
 - (B) analyze the following relationships: the obverse relationship, the converse relationship, and the relationship of contraposition.
- (6) Syllogism and Validity. The student understands syllogisms and validity. The student is expected to:
- (A) arrange syllogisms;
 - (B) explain categorical syllogisms;
 - (C) analyze enthymemes; and
 - (D) discuss moods and figures.
- (7) Determining the Validity of Syllogisms. The student understands how to determine whether any given syllogism is valid or invalid.
- (A) describe and apply the validity and counterexample model; and
 - (B) evaluate validity by following the terminological and the qualitative rules - and by establishing validity.
- (8) Definitions and Disagreements. The student uses logic to make statements of truth. The student is expected to:
- (A) identify types of disagreements and definitions;
 - (B) describe the difference between extension and intention;
 - (C) explain modes of definition;
 - (D) discuss presuppositional disputes; and
 - (E) determine truth via logic.

Recommended Resources and Materials:

- Larsen, A., Hodge, J., & Perrin, C. A. (2010). *The art of argument: an introduction to the informal fallacies*. Classical Academic Press.
- Larsen, A., Hodge, J., & Perrin, C. A. (2010). *The discovery of deduction, an introduction to formal logic*. Classical Academic Press.
- Cothran, M. (2017). *Traditional logic I*. Memoria Press.
- Cothran, M. (2017). *Traditional logic II*. Memoria Press.
- Kreeft, P., & Dougherty, T. A. (2014). *Socratic logic: a logic text using socratic method, platonic questions, et aristotelian principles*. St. Augustines Press.
- Adler, M. J. (1996). *Ten philosophical mistakes*. A Touchstone Book Published by Simon & Schuster.

Recommended Course Activities:

Students will engage in class discussions, debates, reading and analysis of philosophical works, speeches, editorials, and other print media and marketing campaigns, and expository writing activities.

Suggested methods for evaluating student outcomes:

Formative and summative assessments will be used to evaluate student performance. Assessment will include short written responses, extended essays, multiple-choice items, oral assessment (student interview), debate, and research papers. Rubrics will be used to score essays, papers and projects.

Teacher qualifications:

An assignment for Logic I or Logic II is allowed with one of the following certificates:

- English Language Arts and Reading: Grades 7-12
- English Language Arts and Reading: Grades 8-12
- Grades 6-12 or Grades 9-12--English
- Grades 6-12 or Grades 9-12--English Language Arts, Composite
- Secondary English (Grades 6-12)
- Secondary English Language Arts, Composite (Grades 6-12)
- Grades 6-12 or Grades 9-12--History
- Grades 6-12 or Grades 9-12--Social Studies
- Grades 6-12 or Grades 9-12--Social Studies, Composite
- History: Grades 7-12
- History: Grades 8-12
- Secondary History (Grades 6-12)
- Secondary Social Studies (Grades 6-12)
- Secondary Social Studies, Composite (Grades 6-12)
- Social Studies: Grades 7-12
- Social Studies: Grades 8-12
- Grades 6-12 or Grades 9-12—Psychology

Logic I and II

- Grades 6-12 or Grades 9-12--Mathematics
- Legacy Master Mathematics Teacher (Grades 8-12)
- Mathematics: Grades 7-12
- Mathematics: Grades 8-12
- Secondary Mathematics (Grades 6-12)

Additional information: