

LOGIC, INFORMATION AND COMPUTATION (LGIC)

LGIC 010 Formal Logic I

This course provides an introduction to some of the fundamental ideas of logic. Topics will include truth functional logic, quantificational logic, and logical decision problems.

Taught by: Singer

One-term course offered either term

Also Offered As: PHIL 005, PHIL 505

Activity: Lecture

1.0 Course Unit

Notes: This is a Formal Reasoning course.

LGIC 210 Discrete Mathematics I

Topics will be drawn from some subjects in combinatorial analysis with applications to many other branches of math and science: graphs and networks, generating functions, permutations, posets, asymptotics.

Course not offered every year

Also Offered As: MATH 340

Prerequisite: MATH 114 OR MATH 115 OR MATH 116

Activity: Lecture

1.0 Course Unit

LGIC 220 Discrete Mathematics II

Topics will be drawn from some subjects useful in the analysis of information and computation: logic, set theory, theory of computation, number theory, probability, and basic cryptography.

Also Offered As: MATH 341

Prerequisite: MATH 340 OR LGIC 210

Activity: Lecture

1.0 Course Unit

LGIC 310 Logic I

Propositional logic: semantics, formal deductions, resolution method. First order logic: validity, models, formal deductions; Godel's completeness theorem, Lowenheim-Skolem theorem: cut-elimination, Herbrand's theorem, resolution method. Computability: finite automata, Turing machines, Godel's incompleteness theorems. Algorithmically unsolvable problems in mathematics.

Taught by: Scedrov, Towsner, Weinstein

Course not offered every year

Also Offered As: MATH 570, PHIL 410

Prerequisite: MATH 371 OR MATH 503

Activity: Lecture

1.0 Course Unit

LGIC 320 Logic II

The second semester of a two-semester course on the fundamental results and techniques of mathematical logic. Topics will be drawn from model theory, proof theory, recursion theory, and set theory. Connections between logic and algebra, analysis, combinatorics, computer science, and the foundations of mathematics will be emphasized.

Taught by: Scedrov, Towsner, Weinstein

Course not offered every year

Also Offered As: MATH 571, PHIL 413

Prerequisite: PHIL 410 OR MATH 570

Activity: Seminar

1.0 Course Unit

LGIC 496 Topics in Logic

The course focuses topics drawn from the central areas of mathematical logic: model theory, proof theory, set theory, and computability theory.

Taught by: Weinstein

Course not offered every year

Also Offered As: MATH 671, PHIL 412

Activity: Seminar

1.0 Course Unit