Information Processing Studies Courses

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Information processing studies courses may be taken for credit, but are not a part of a specific degree program.

Courses

IPS 101. Elements of the Theory of Computation. 3 Hours. NM / N.
An introduction to the theoretical areas of computer science and their applications. Emphasis will be placed on the methods and standards by which computer science makes judgments and on what computers can and cannot accomplish. Among major topics covered are: how to read and to implement algorithms; what is memory and how much of it is required for various tasks; why computers cannot multiply; how finite-state machines compute; applications of finite-state machines to programming; recognizing languages; formal grammars. "Can machines think?" and other contemporary topics in the philosophy of computer science will be covered as time permits. Prerequisite: MATH 101 or MATH 104. LEC.

IPS 302. Journey Through Genius, Honors. 3 Hours. N.
The course explores some of the most significant and enduring ideas in mathematics: the great theorems, discoveries of beauty and insight that stand today as monuments to the human intellect. Emphasis will be placed on the methods and standards by which mathematics makes judgments. Among the major topics covered are: Euclid and the infinitude of primes, Archimedes determination of circular area, Cardano and the solution of the cubic, the Bernoullis and the harmonic series, a sample of Euler's number theory, Cantor and the transfinite realm. Along with the essential mathematics, the humanity of these great mathematicians is captured. Prerequisite: Membership in the University Honors Program, high school algebra and geometry, and permission of the instructor. LEC.

IPS 400. Topics in the Theory of Computing. 1-3 Hours.
This course is designed to allow students to do further readings in the theory of computing beyond the material presented in IPS 101. Topics, scope, and meeting times to be arranged for the individual student. Prerequisite: IPS 101 and consent of instructor. LEC.