Computational Sciences (CMPS)

College of Natural Sciences

Faculty of Science

CMPS 2800 [0.5 credit]
Discrete Mathematics and Algorithms
Introduction to discrete mathematics and algorithms in the context of the computational sciences. Basic number theory and counting methods, algorithms for strings, trees and sequences. Applications to DNA and protein sequencing problems. Analysis and complexity of algorithms. Only one of COMP 1805/MATH 1805 or CMPS 2800/MATH 2800 may count for credit in a Bachelor of Mathematics program.
Also listed as MATH 2800.
Prerequisite(s): COMP 1006 and at least one of MATH 1007, MATH 1107, or STAT 2507.
Lectures three hours a week.

CMPS 3604 [0.5 credit]
Analysis of Ecological Relationships
Introduction to the analysis of ecological data. Students analyze real ecological data sets in weekly laboratory sessions. Methods introduced include simple linear, polynomial, and multiple regression analysis, analysis of variance, non-parametric tests, tests of independence and logistic regression analysis.
Also listed as BIOL 3604.
Prerequisite(s): BIOL 2600 and Mathematics STAT 2507.
Workshops four hours a week.

CMPS 3800 [0.5 credit]
Modeling and Computational Methods for Experimental Science
Mathematical modeling in the experimental sciences: design, analysis and pitfalls. Computational methods directly applicable to problems in science will be described including function evaluation, Interpolation, solution of linear equations, root finding, integration, solution of differential equations, Fourier series and Monte Carlo methods. Only one of COMP 3806/Mathematics MATH 3806 or CMPS 3800/MATH 3800 may count for credit in a Bachelor of Mathematics program.
Also listed as MATH 3800.
Prerequisite(s): MATH 1107, MATH 2007 or MATH 2009, COMP 1006.
Lectures three hours a week.

CMPS 4909 [1.0 credit]
Honours Research Thesis in Computational Science
An independent research project under the supervision of a Faculty adviser, applying computational techniques to some experimental or theoretical problem in the disciplinary area of the student.
Prerequisite(s): permission of the Department. or Institute associated with the discipline.