Prerequisites Form

Microprogram in Interdisciplinary Artificial Intelligence

Please, indicate below the grades that you obtained in the following courses (N/A if you did not take that course). If your university differentiates between "theory course" and "laboratory", please indicate only the "theory" part. Below please find descriptions of the prerequisite courses offered at the University of Ottawa.

Student name: _____

Student number (if available): _____

Course name	Your grade	Maximum grade possible
Linear Algebra		
Calculus II		
Statistics and Probabilities		
Introductory Programming		

Linear algebra: Review of complex numbers. The fundamental theorem of algebra. Review of vector and scalar products, projections. Introduction to vector spaces, linear independence, bases; function spaces. Solution of systems of linear equations, matrix algebra, determinants, eigenvalues and eigenvectors. Gram Schmidt, orthogonal projections. Linear transformations, kernel and image, their standard matrices. Applications (e.g., geometry, networks, differential equations).

Calculus II: Integrals: numerical integration; improper integrals. Introduction to differential equations: techniques to solve differential equations, numerical solution of differential equations and models in the life sciences using differential equations. Introduction to linear algebra: matrices and matrix algebra, determinants, eigenvalues and eigenvectors (in two or three dimensions). Functions of several variables: graphical representations, partial derivatives. Systems of differential equations: equilibrium points, stability, phase portrait and global analysis.

Statistics and probabilities: A survey of combinatorial analysis; probability and random variables; discrete and continuous densities and distribution functions; expectation and variance; normal (Gaussian), binomial and Poisson distributions; statistical estimation and hypothesis testing; method of least squares, correlation and regression.

Introductory programming: Problem solving and algorithm design. Basic principles of software engineering: structure decomposition, documentation, testing and debugging. Variable types, expressions and assignment. Conditional and iterative control structures. Modules and parameter passing. Recursion. Fundamental data structures: arrays, strings, matrices, records. Introduction to objects. Examples of applications in various disciplines, including science and engineering.