Name-Surname	**Anastasios Alimissis**
Thesis Title	Spatial estimation of urban outdoor air pollution with the use of artificial neural network models
Supervisor	D. Deligiorgi, Associate Professor
Summary	The deterioration of urban air quality is considered worldwide one of the primary environmental issues and most recent scientific evidence associates the exposure to ambient air pollution with serious health effects. This fact highlights the importance of generating accurate fields of air pollution for quantifying present and future health related risks. Interpolation methods for point estimations in the field of air pollution modeling enable the estimation of pollutant concentrations in unmonitored locations. The main objective of this study is to evaluate two interpolation methodologies, artificial neural networks and multiple linear regression, using data from a real urban air quality monitoring network located at the greater area of metropolitan Athens in Greece. The results for five air pollutants (ozone, nitrogen dioxide, nitrogen monoxide, sulfur dioxide and carbon monoxide) are compared through the use of error measures in the estimation period (root mean squared error, mean absolute error and mean absolute percentage error). Artificial neural networks are found to be statistical significantly superior in most cases, especially when a smaller number of stations is examined, and thus the non-linear correlations are augmented.
Key words	Interpolation, Artificial Neural Networks, Urban air pollution
Evaluation committee	D. Deligiorgi, Associate Professor M. Tombrou, Associate Professor H. Flocas, Associate Professor