Graduate Studies Programme  «ENVIRONMENTAL ENGINEERING»

<table>
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<th>Specialization:</th>
<th>PhD LEVEL</th>
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<tr>
<td>Code:</td>
<td>GENVE 870</td>
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<tr>
<td>Course:</td>
<td>Regression Analysis and Experimental Design</td>
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- Required: □  Elective: X
- 1\textsuperscript{st} semester: □  2\textsuperscript{nd} semester: X

Instructor: Professor Evan Diamadopoulos

Bibliography

Course objectives
The aim of the course is the understanding of basic statistical theory allowing the estimation of parameters in deterministic models (both linear and non-linear), as well as the design of experimental systems in terms of specifying the values of the variables in order to quantitatively estimate their effect on the system.

Syllabus
A. Basic statistics:
A1. Population and statistical sample
A2. Normal and t distributions
A3. Statistical dependence
A4. Confidence intervals
A5. Hypothesis checking
A6. Analysis of Variance (ANOVA)

B. Regression Analysis:
B1. Linear regression
B2. Generalized least squares
B3. Non-linear regression
B4. Multi-response parameter estimation

C. Experimental Design:
C1. 2k factorial design
C2. 2k-1 factorial design
C3. 2k-p factorial design
C4. Factorial design for non-linear models

**Student evaluation**

1. 4 assignments (40%)
2. Final exam (60%)