



*Ph.D. programme
in Mathematics and Computer Science*

***Speaker:* Prof. Mehiddin Al-Baali**

Dept. of Mathematics and Statistics

Sultan Qaboos University

Muscat

Oman.

Title and Organization

The course consists of two lectures:

Wednesday, 1st July: “Descent, CG and Newton Methods”
with an introduction by **Prof. Roberto Musmanno**

Thursday, 2nd July: “On the Quasi-Wolfe Conditions for Self-Scaling
Quasi-Newton Methods”

Abstract:

The conjugate gradient class of methods for large-scale unconstrained optimization will be analyzed, based on exact and inexact line search frameworks. To rectify certain drawbacks of certain methods, a new strategy for measuring the quality of a conjugate gradient search direction will be considered. Hence, some disadvantages of particular methods (such as Fletcher-Reeves and Polak-Ribière) will be justified so that some modified methods will be suggested. It will be shown that the proposed strategy works better than other well-known techniques in several cases.

Relation of these methods to quasi-Newton methods will be discussed in the second talk.