**Applied mathematical optimization**

Basic Info:

IGDT-ART Basic/ Core subject, 1SWS,

**Time:** blocked - KW18/19 or KW 23/24 depending on preferences

Location: presumably SR 609, Technikerstraße 13

Enrollment/ contact: [Lukas.Neumann@uibk.ac.at](mailto:Lukas.Neumann@uibk.ac.at)

**Planned Content:**

* Classification and problem setting
* Linear optimization

Simplex Algorithm and alternatives

Duality

* Combinatorial optimization

Branch and bound

* Unconstrained nonlinear optimization

Gradient descent

Line search strategies

Newton’s method and globalization

Quasinewton Methods

Gauss-Newton and Levenberg–Marquardt

If time allows:

* Constrained nonlinear optimization

KKT conditions

Penalty methods

Sequential quadratic programming

Please contact [lukas.neumann@uibk.ac.at](mailto:lukas.neumann@uibk.ac.at) if your are interested to participate in the course.