Lund University and the University of the Witwatersrand present a one-day workshop

Introduction to experimental design and multivariate analysis – Theory and practice

17th of June, 2018, Kemicentrum (KC), Lund

Workshop for PhD students, postdocs and other researchers.

Suggested number of credit points for PhD students: 1 hp

Course content

Morning lectures, at 9-12

1. Design of Experiment (DoE), by R. Zuban

- Introduction
  - Screening
    - Full factorials
    - Fractional factorials
  - Optimization
    - RSM designs

2. Multivariate Data Analysis (MDA), by R. Zuban

- Introduction
  - Overview (PCA)
  - Regression (OPLS/PLS)
  - Classification (OPLS-DA)

3. Machine learning in relation to Multivariate Data Analysis, by H. Tutu

Lunch, sponsored by Sartorius Stedim Data Analytics (SSDA)

Afternoon demonstration, at 13-16

1. DoE; Screening – click along. By R. Zuban

2. MVA; Overview – click along. By R. Zuban

3. MVA in process modelling. By R. Zuban

Teachers:

Robert Zuban, Robert.Zuban@Sartorius-Stedim.com, Sartorius Stedim Data Analytics (SSDA), Sweden, Helsingborg

Robert has a master degree in Chemical Engineering from Lund University, Sweden. He works for Sartorius Stedim Data Analytics as Senior Data Scientist, where he inspires clients to use advanced data analysis through teaching and consulting. Robert teaches both open house courses (design of experiments, quality by design, multivariate data analysis and process modelling) as well as tailored in-house courses.

Prof. Hlanganani Tutu, Hlanganani.Tutu@wits.ac.za, University of the Witwatersrand, Johannesburg, South Africa
Prof. Tutu's research field is environmental analytical chemistry. Areas of interest include analytical method development for water and soil analysis; geochemical modelling (predicting elemental speciation, forward and inverse modelling, reactive transport modelling, pit lake chemistry, evaporite and secondary mineral formation) and chemometric modelling (optimization, classification, self-organising maps and artificial neural networks).

Literature and software

Literature: Lecture slides, copied material

Software: Modde and Simca (bring your own laptop and download a demo one day before the workshop to make sure it works on your computer)

Appropriate pre-knowledge

Significant figures, propagation of errors, measurement of variability, probability distributions, analysis of variance, hypothesis tests

Registration

Register to this workshop latest the 4th of June by signing up here:

https://goo.gl/forms/H0RhPsXWqUX2iUdx2

Cost for participation: **free for academics**, but for industry participants: 1500 SEK excl. VAT

Cost for no-show: 1000 SEK

Cancellation of registration: latest 10th of June

Acknowledgements to sponsors

Enquires

Charlotta Turner, Lund University, Department of Chemistry, Centre for Analysis and Synthesis, Box 124, 221 00 Lund. Charlotta.Turner@chem.lu.se, 0706-222752.