

Teaching curriculum
TAMS38: Experimental Design and Biostatistics

Course webpage: <http://courses.mai.liu.se/GU/TAMS38/>

Textbook: Design and analysis of experiments. Montgomery, D.C. 7th or 8th edition, Wiley.

Exercises to be solved on lessons come from the file **Collection of Problems** which is on the course website.

Lecture 1: Introduction, repetitions. **Kap 1 och 2.**

Lecture 2: One way analysis of variance. Variance component Model. **Kap 3.1-3.3, 3.9, 3.10.**

Lesson 1: Repetitious tasks: A, B, C, D

Lesson 2: 2.1.1(a), 2.1.3, 2.1.4(a), 2.1.5, 2.1.2

Home Assignment 1 is released.

Lecture 3: Verification of the model. Simultaneous confidence level. Pairwise comparisons. **Kap 3.4-3.6.**

Lesson 3: 2.1.1(b), 2.1.6, 2.1.7

Lesson 4: 2.1.4(b)(c)(d), 2.1.8, 2.1.9

Lab 1: (2h) One way analysis of variance.

Lecture 4: Non-parametric methods. **Kap 3.11.**

Lesson 5: 2.5.1, 2.5.2, 2.5.3, 2.5.4

Lab 2: (2h) Non-parametric methods.

Home Assignment 1 is due on Friday November 23 2018 by 5 PM.

Lecture 5: Two way analysis of variance. Blocking. **Kap 5.3, 4.1.**

Lesson 6: 2.2.1, 2.2.2, 2.5.5, 2.2.3, 2.2.4

Home Assignment 2 is released.

Lab 3: (2h) Two way analysis of variance.

Lecture 6: ANOVA, square design. **Kap 5.4, 5.6, 4.2, 4.3.**

Lesson 7: 2.3.1, 2.3.2, 2.3.3

Lab 4: (2h) ANOVA, square design.

Home Assignment 2 is due on Friday December 7 2018 by 5 PM.

Lecture 7: Two level factorial design. 2^k . **Kap 3.9, 6.1-6.6.**

Lesson 8: 2.4.1, 2.4.2

Home Assignment 3 is released.

Lecture 8: 2^{k-p} fractional factorial design. **kap 7.1-7.5, 8.1-8.6.**

Lesson 9: 2.4.3, 2.4.4, 2.4.5, 2.4.6

Lab 5: (2h) Two level factorial design 2^k and 2^{k-p} .

Lecture 9: Choice of sample size. Repetition of regression analysis. **kap 3.7, 3.10, 10.1-10.6.**

Lecture 10: Response surface methodology. **kap 11.1-11.4.**

Lesson 10: 2.7.1, 2.6.1, 2.7.2, I, 2.6.2

Lecture 11: Linear and generalized linear models, i.e., logistic regression. **Kap 15.1.**

Lesson 11: 2.8.1, 2.8.2, 2.8.3, 2.8.4

Lab 6: (2h) Linear models. Response surface. Logistic regression.

Home Assignment 3 is due on Friday, January 18 2019 by 5 PM.