

MSE-213

Probability and statistics for materials science

Lecture 14

THE EXAM

- Written (on paper – squared paper will be provided)
- You can bring notes (two A4 pages, two-sided or one A3 page, two-sided).
- Necessary tables will be provided (and you will get them before)
- You should bring a non-programmable non-graphic calculator. It must not have any wireless communication capabilities.
- No pencil, no eraseable ballpoint-pen, no red pen
- No books, phones, smartwatches/devices, earphones.
- You can bring a dictionary and we will provide a mini-dictionary at the end of the exam
- Please arrive 15 min early, bring your Camipro.

Some further “reading”

- How to convey a powerful message with statistics:

<http://www.fallen.io/ww2/>

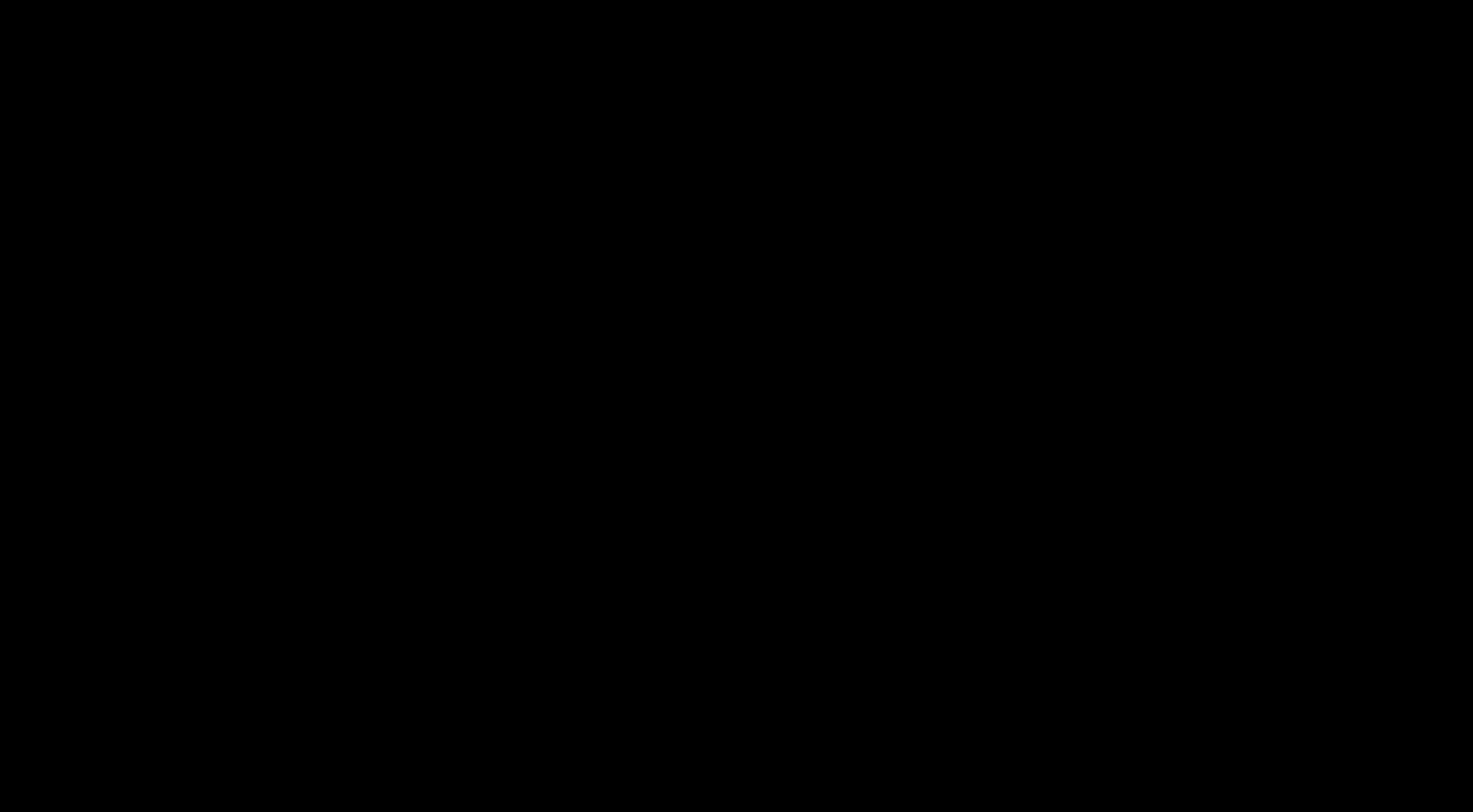
- Intro to machine learning in 3 lessons with Python Notebooks:

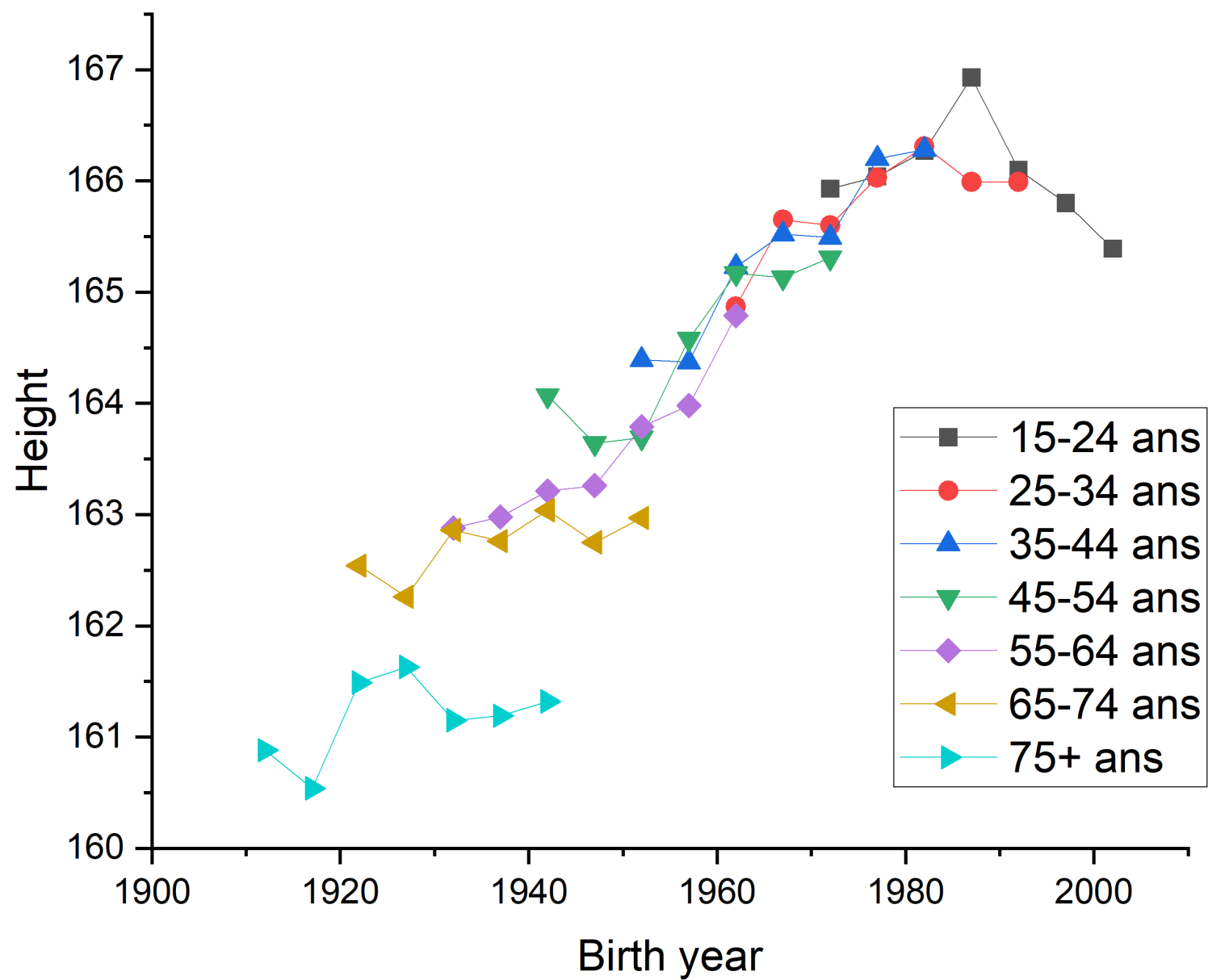
[https://florianmarquardt.github.io/
MachineLearningThreeEasyLessons/](https://florianmarquardt.github.io/MachineLearningThreeEasyLessons/)

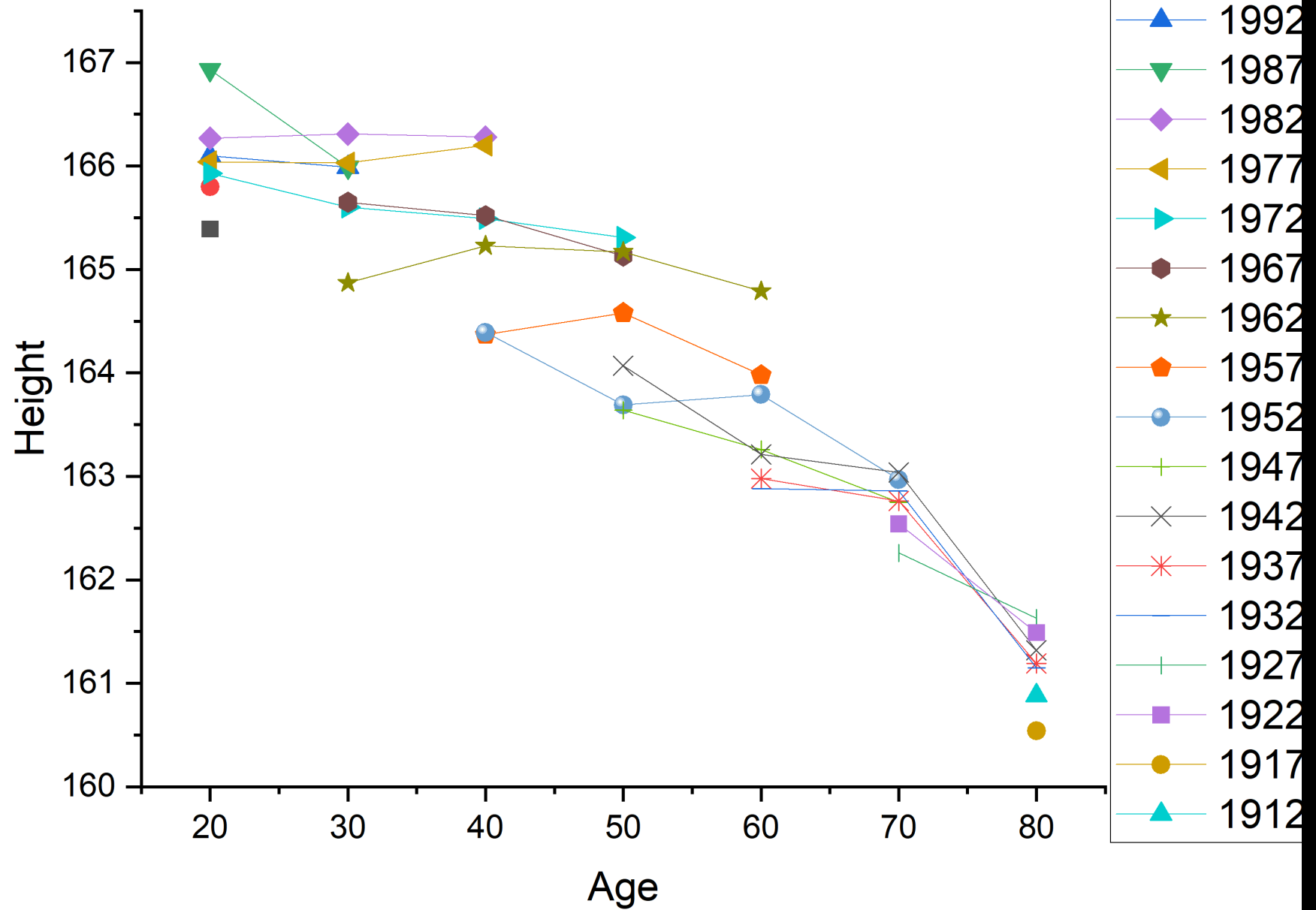
2-factor ANOVA, with interactions

Source of Variation	Degrees of Freedom, ν	Sum of Squares, SS	Mean square, MS	Fisher statistic, F_{MEASURED}
Factor I	I-1	$SS_{B,I}$	$SS_{B,I}/\nu_I$	$MS_{B,I}/MS_E$
Factor J	J-1	$SS_{B,J}$	$SS_{B,J}/\nu_J$	$MS_{B,J}/MS_E$
Interaction I:J	(I-1)(J-1)	$SS_{B,I:J}$	$SS_{B,I:J}/\nu_{I:J}$	$MS_{B,I:J}/MS_E$
Error within Groups	$IJ(N_S-1)$	SS_E	SS_E/ν_E	
Total	IJN_S-1	SS_T		

Average height of Swiss women vs age and time







<https://cape-quest.epfl.ch/evasys/online.php?p=KMF9X>

