# How to make students come to class prepared

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# Outline

- Motivation
- New teaching structure based on **blended learning**
- Examples of online material
- Own and students' experiences

# Courses in biostatistics

Level:

Master and PhD.

Contents:

Regression models. Perform analyses on their own (SAS or R).

Format:

50%                                          50%

# Statistical software programming



Advanced users

Find software difficult.
Trapped in a downward
spiral

# Students' preparation

No specific requirements on

- preparation
- training.

Students could increase (AU, 2007-2014):

- **number of hours** spent on preparation
- **quality** of preparation.

We can prepare the students' preparation (von Müllen 2011):

- specify **how** they should prepare
- **incorporate** their preparation in class

Specific skills need to be trained!

# Training activities

# Incorporating training activities in class

# Automated online feedback



Fill in the *blank*

Multiple choice

# Video examples

Own production

- Short lectures (PowerPoint with speak (Camtasia))
- Instruction in software
- Explanation of output (iPad (Explain Everything))

Professional

- YouTube
- homepages (e.g. jbstatistics.com)

## Discussion

1) Can specific guidelines aid your students in preparing for class?
2) Can online automated feedback support your students' learning?

3) Can videos support your students' learning? Podcasts?
4) Do the videos have to be professional?
5) Do there exist professional videos you can use?

# My experience

Student performance is increased

- in the teaching sessions
  - students have same knowledge
  - spend less time on technical details
  - spend more time on discussions (paired / clickers)
- in the mandatory exercises.

# Student attitudes and experiences

'It really helps me to understand what we did in class when I go home and actually do it with the activities'

- Continuity in working with the topics.
- Training is necessary:
  Technical (97% agree) / methodological (93%), n=122.
- Feedback is important.
- Unstructured mandatory exercise is important.
- Acknowledge that they learned a lot:

  'I really really feel I am getting these concepts. I was so proud.'

# Preparing the students' preparation

'This is the best organized course I have followed on UCPH'

**Should we** prepare the students' preparation?

- voluntary or mandatory training activities?
- students or pupils?
- Mandatory 55% - Voluntary 11% - Mixed 34%

**How much** can we require from the students?

- 1 ECTS = 28 hours.
- **3.75 hours** per lesson (lecture or computer lab)

# Perspective

Training can be used in other academic disciplines

- Natural sciences (e.g. practicing exercises)
- Language (e.g. practicing verbal forms)
- Social sciences (von Müllen (2011))
- · · · ?

A lot of work for the teacher!

Future directions:

- More video lectures. Fewer lectures?
- How to encourage students to help each other online?

# Literature

Rosthøj (2014) Undervisning baseret på færdighedstræning via online aktiviteter med løbende feedback, *Læring Og Medier*.

von Müllen (2011) At forberede forberedelsen. Fra den pædagogisk-didaktiske værktøjskasse. *Dansk Universitetspædagogisk Tidsskrift* (6):10 64-65.