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Transformation of **E**uropean **F**ood **S**ystems Towards  
Sustainability by Transnational, **I**nnovative Teaching



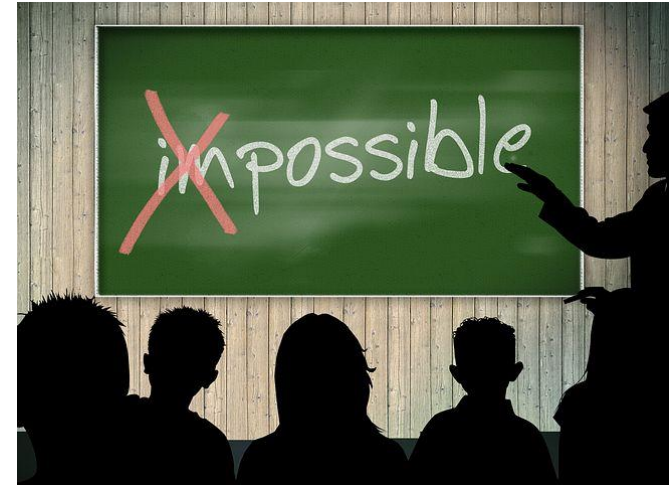
# Flipped classroom

Presented by Susanne Bügel, U-CPH, Department of Nutrition,  
Exercise and Sports, DK

**What is flipped classroom? Previous experience. Will I do it again?**

# Flipped classroom

[https://www.youtube.com/watch?v=qdKzSq\\_t8k8](https://www.youtube.com/watch?v=qdKzSq_t8k8)



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# My previous experience – my ambition

BA course – 1. semester

Total 100 students (50% technology + 50% nutrition)

My topic: Vitamins and minerals

5 x 10 min videos to be watched at home

1-2 textbook chapters to read before each class

Quiz before each class

In class:

Plenum discussion about challenges observed from quiz

Group work discussions about vitamins and minerals not in videos with 2 teachers present all time and short presentation in plenum



# Previous experience – what really happened

8 students answered the quizzes

50 students turned up and 25 ran out when I presented the days program

In class:

Plenum discussion about challenges observed from quiz – none observed

Group work discussions ? Students disappeared from class room and 2 teachers sat alone until plenum presentation – 3 groups returned (12 students)



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# What happened?

1. I was not responsible for the course and did not have a “contract” with the students
2. I was one of many teachers having my classes in late November – students’ motivation is low
3. Students either study technology OR nutrition AND prioritize
4. Participation is not mandatory
5. Tests not part of exam
6. ….

# Will I do it again?



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# Sustainable food systems and diets

Module 3: Nutrition, diets and health

MSc course; Block 4, 30 students

Susanne Bügel

KØBENHAVNS UNIVERSITET



- Sustainable food systems and diets is an interdisciplinary course offered in collaboration by four Departments at Science KU. Based on a systemic understanding of the food system as a complex web of actors, businesses and institutions an interdisciplinary approach combining social and natural sciences will be applied within five themes:
- **Aspects affecting the environmental sustainability of primary production:** farming systems; type of produce, fertilizers/pesticides, trophic level of food; food security, waste recycling.
- **The transformation and preservation of raw materials to maintain a good food quality** (shelf life and sensory properties). Strategies to reduce waste in the food production chain, including minimization of energy and water use. Methods and technologies to utilize side-streams from production for human food consumption will be addressed.
- **Nutrition, diets and health: using the Mediterranean diet and the New Nordic Diet as models for more sustainable diets, this topic will address issues like protein/nutrient quality from meat and plants as well as novel protein sources like insects. Include discussion of dietary/nutritional quality based on the NOVA food classification and the use of dietary guidelines.**
- **Social and cultural aspects:** aspects of social sustainability will be addressed along the importance of social and cultural factors constitute as a framework for changes of the food system. This includes the importance of social structures (culture, norms etc.) as well as the role social relations and individual factors like taste and acceptance of food technologies.
- **Food policy, economics and planning:** this concluding theme will address how governance towards a sustainable food system must take economic factors as well as the power of different stakeholders into account. Based on this it will be discussed, how a sustainable food policy that takes the multitude of factors into account, can be developed.
- **The course features a comprehensive analysis of sustainability of a self-selected and a given meal in relation to the five themes mentioned above.**



# Module: Nutrition, diets and health

- Nutrition, diets and health: using the **Mediterranean diet** and the **New Nordic Diet as models** for more **sustainable diets**, this topic will address issues like **protein/nutrient quality** from meat and plants as well as novel protein sources like **insects**. Include discussion of **dietary/nutritional quality** based on the **NOVA food classification** and the use of **dietary guidelines**.

## Lectures:

Meddiet and NND as models for sustainable diets

Sustainable food based dietary guidelines

Protein and nutrient quality of meats and plants

Novel protein sources in sustainable diets (insects, seaweed, algae etc)

Effects of food processing on nutrient content and health

## **Lectures (videos - homework):**

Meddiet and NND as models for sustainable diets

Sustainable food based dietary guidelines

Protein and nutrient quality of meats and plants

Novel protein sources in sustainable diets (insects, seaweed, alga etc)

Effects of food processing on nutrient content and health

## **Quiz to test understanding of each topic (homework)**

Elaboration and discussion in class based on test results

## **Readings: Scientific papers and reports (homework)**

Presentation by students and discussion in class

## **Assignment: National Dish**

Group work during classes and Daily/weekly short presentations and discussion in plenum

# Assignment: (Modified) National Dish

Comparing a meat based average Danish diet and one apparently healthy plant based diet

- Adherence to guidelines and recommendations

Nutritional aspects	Other sustainability aspects
NND and Meddiet indexes Vegetable/animal protein ratio Energy intake Nutrient intake (fat, sugar, salt; iron, vit B12)	Production system LCA light Water use Land use Fertilizers and pesticides Transport Storage waste Price Cultural context Acceptance ...

- Optimization to more sustainable diet