

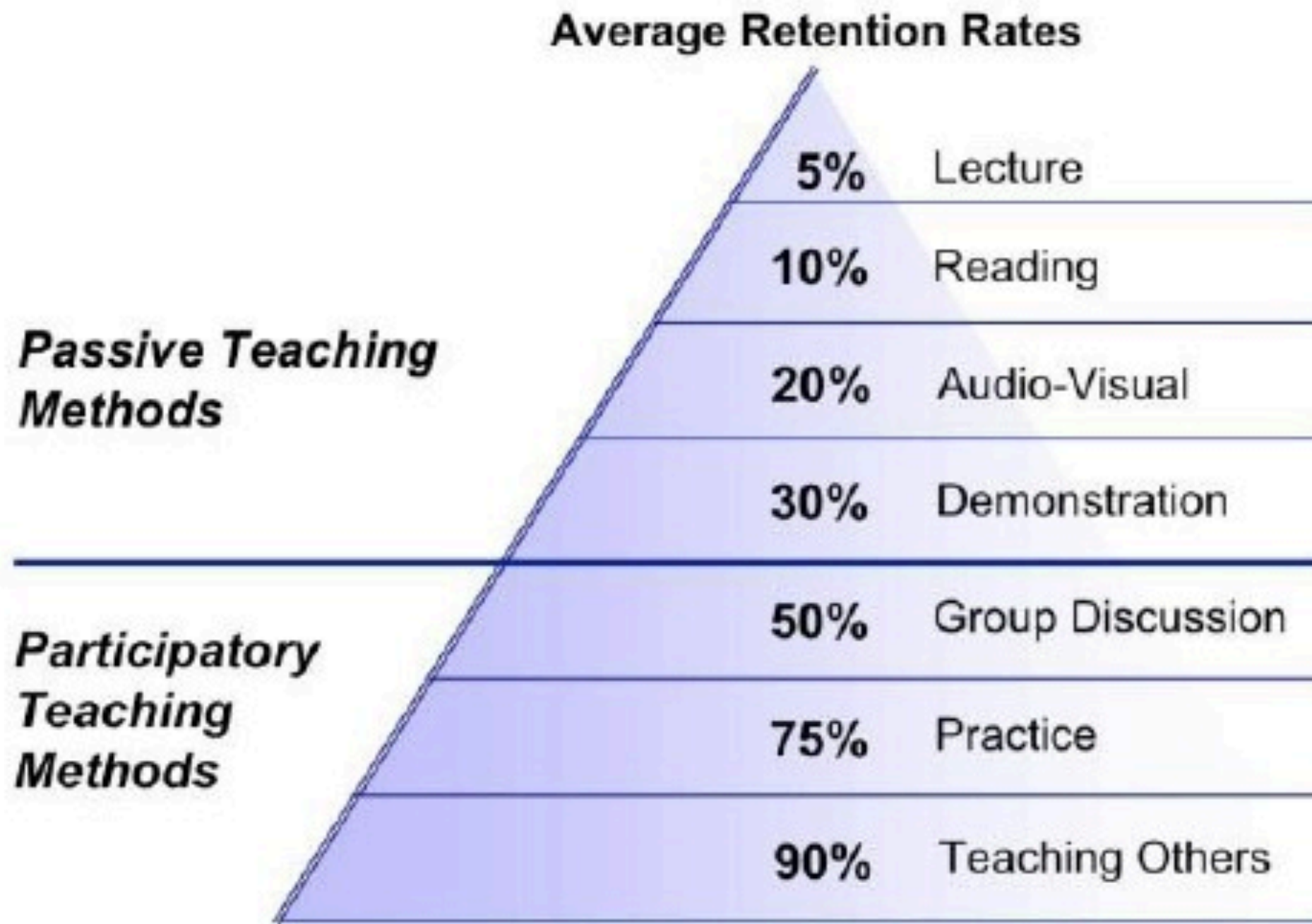
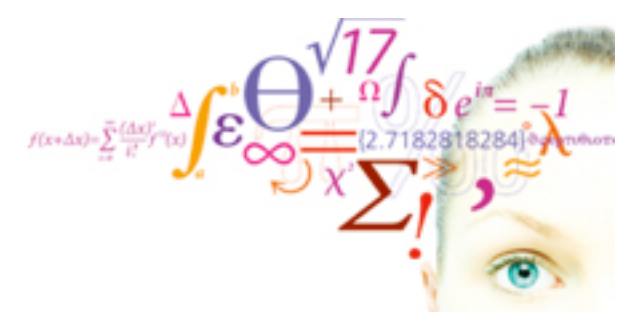
Massive Open Online Courses

Branding, læring, eller ... ?



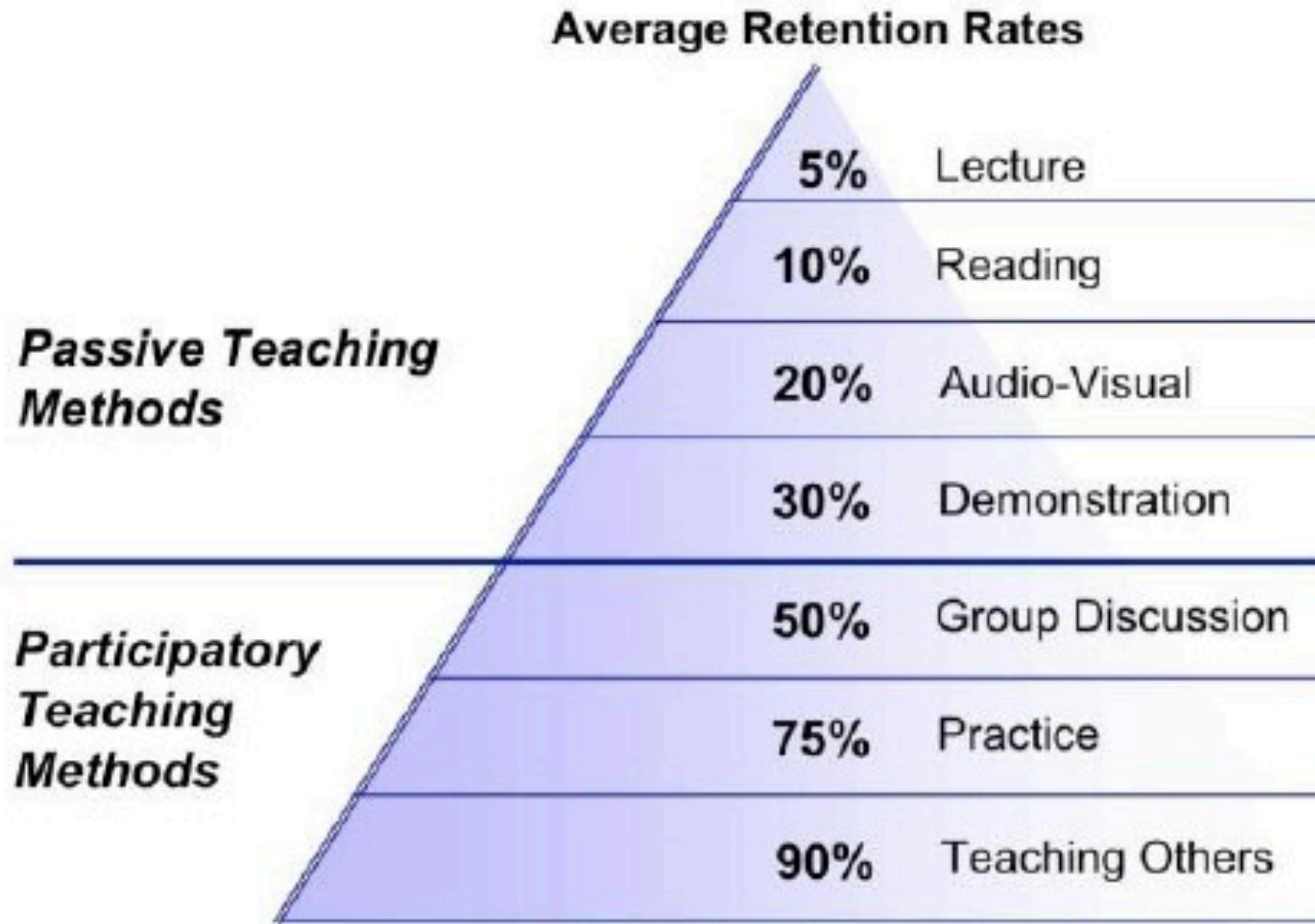
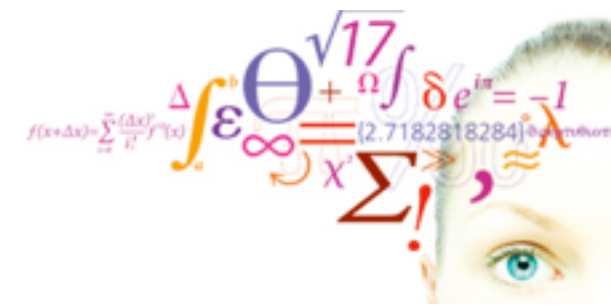
Hanne Jarmer

Lektor og Uddannelsesleder på DTU Systembiologi

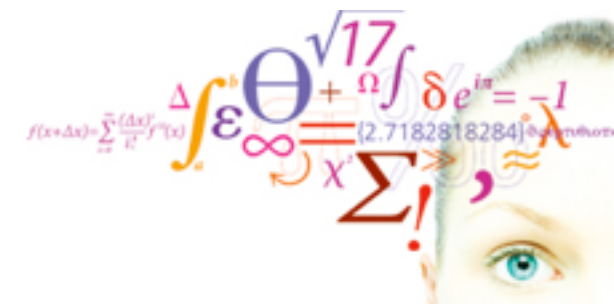


*Adapted from National Training Laboratories. Bethel, Maine

The Learning Pyramid



*Adapted from National Training Laboratories. Bethel, Maine



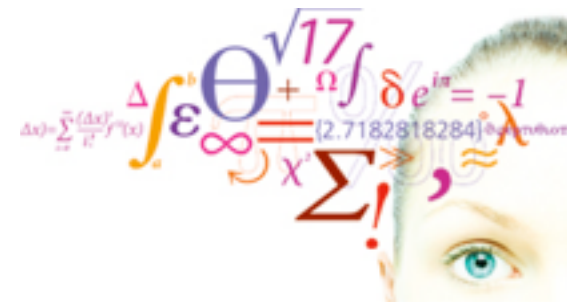
TED talk by

Daphne Koller

Professor at Stanford



coursera



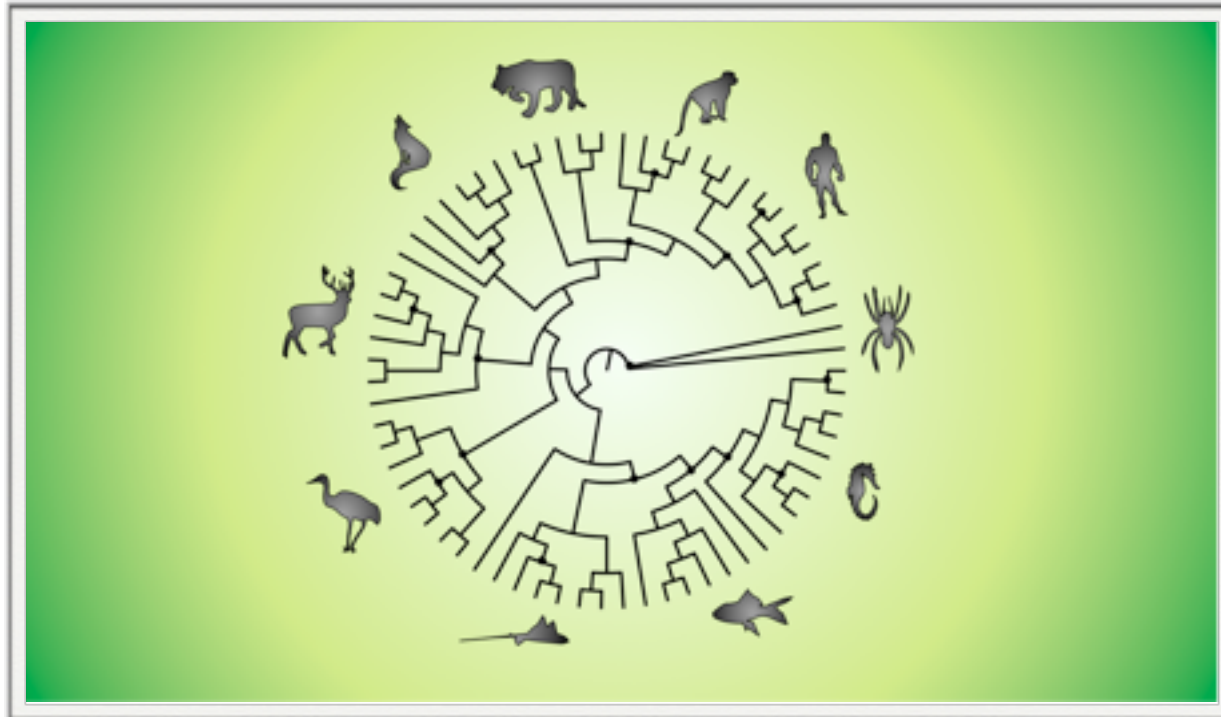
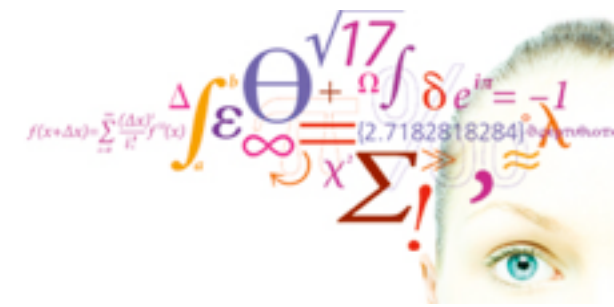
- Den bedste undervisning
- Af de bedste undervisere
- Fra de bedste universiteter

GRATIS til alle !

- Eminent branding
- Uvurderlig feedback til underviserne
- Pædagogiske fordele



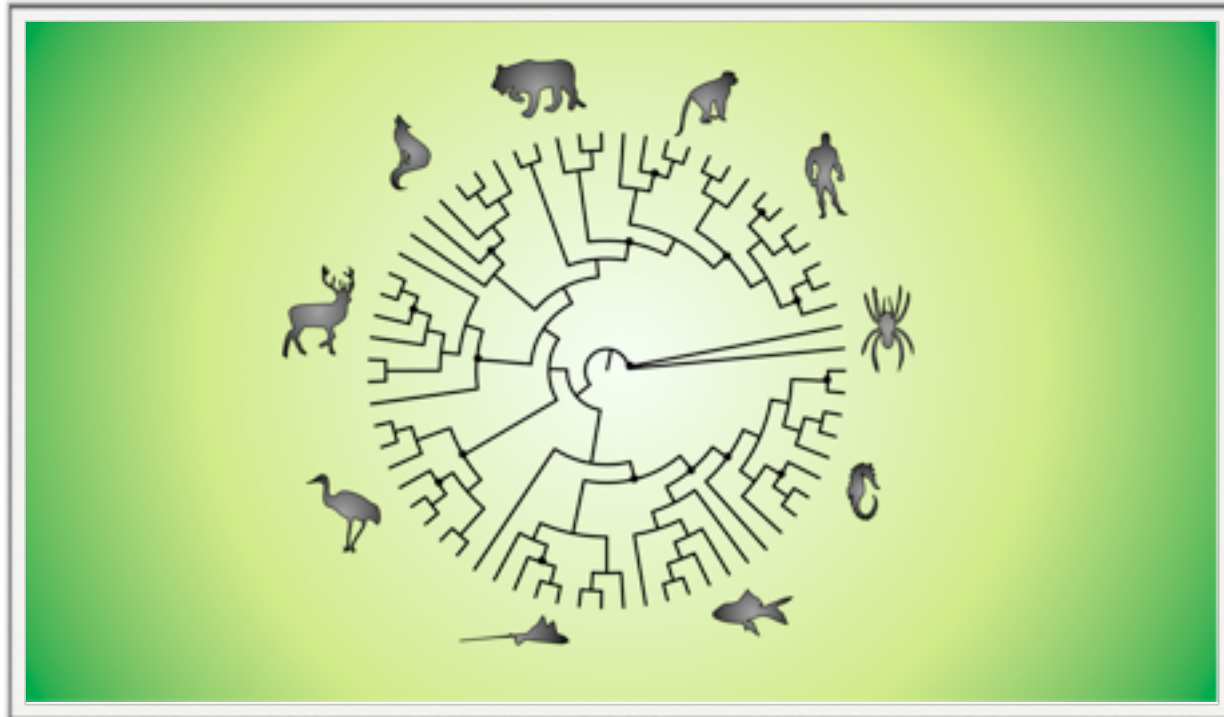
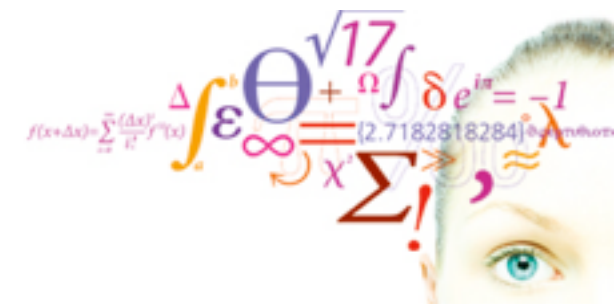
Andrew Ng



- Videoer
- In-video quizzzer



Anders Gorm Pedersen



- Videoer
- In-video quizzzer

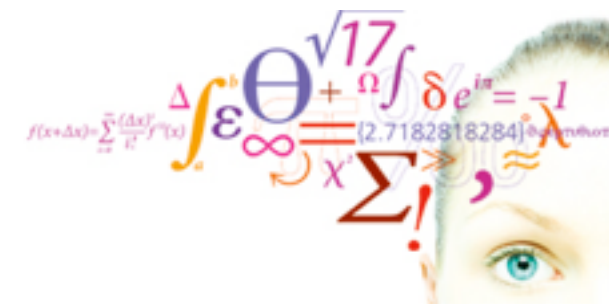
- Ugentlige quizzzer
- Ugentlige øvelser
- Instant Feedback
- Peer-assessment
- Diskussionsforum



Anders Gorm Pedersen



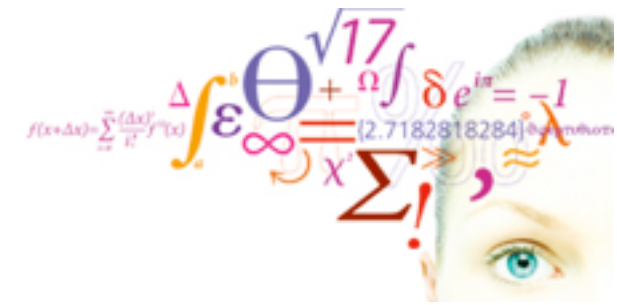
Technical University
of Denmark



Computational Molecular Evolution

In this course you will learn about how and why DNA and protein sequences evolve. You will learn the theory behind methods for building and analyzing phylogenetic trees, and get hands-on experience with some widely used software packages.

Et lille kursus ...

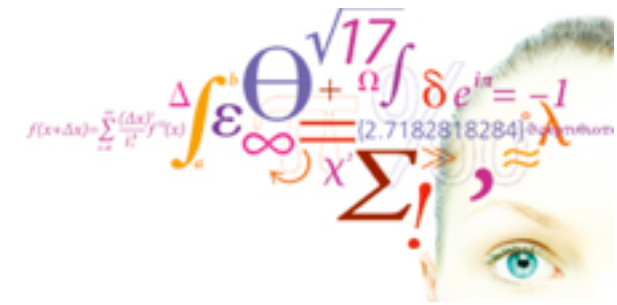


Computational Molecular Evolution

In this course you will learn about how and why DNA and protein sequences evolve. You will learn the theory behind methods for building and analyzing phylogenetic trees, and get hands-on experience with some widely used software packages.

Et lille kursus ...

I. gang: ~15.000 studerende



Computational Molecular Evolution

In this course you will learn about how and why DNA and protein sequences evolve. You will learn the theory behind methods for building and analyzing phylogenetic trees, and get hands-on experience with some widely used software packages.

Et lille kursus ...

1. gang: ~15.000 studerende

2. gang: ~5.000 studerende

**Announcements****Resources: Start Here****Video Lectures****Weekly Quizzes****Course Overview****Discussion Forums****Surveys****Course Wiki** **Join a Meetup**

Course Overview

[Help](#)

The main goal of this course is to give an introduction to theory and algorithms in the field of computational molecular evolution. We will cover basic evolutionary theory (common descent, natural selection, genetic drift, models of growth and selection), and the main types of algorithms used for constructing and analyzing phylogenetic trees (parsimony, distance based methods, maximum likelihood methods, and Bayesian inference). We will also discuss the role of statistical modeling in science more generally.

Syllabus

Week 1: Introduction to evolutionary theory and population genetics: models of growth, selection and mutation

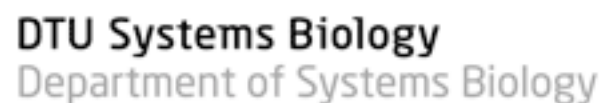
Week 2: Neutral mutations and genetic drift. Tree reconstruction by parsimony

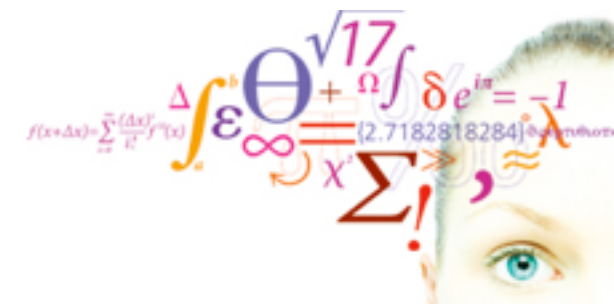
Week 3: Consensus trees. Distance matrix methods

Week 4: Models of sequence evolution. Likelihood methods

Week 5: Bayesian inference of phylogeny

Week 6: Testing hypotheses in a phylogenetic context





Og så gik vi i gang!

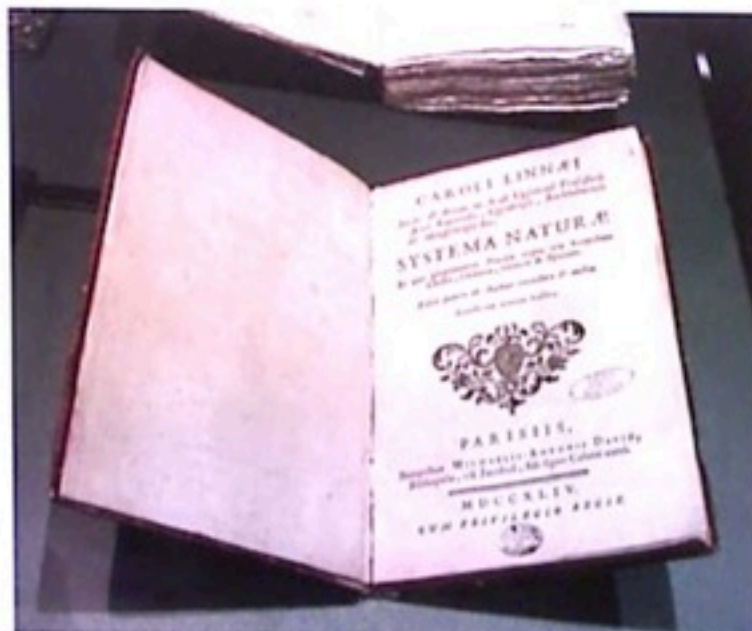
Lectures

$$f(x+\Delta x) = \sum_{n=0}^{\infty} \frac{f^{(n)}(x)}{n!} (\Delta x)^n$$
$$\int_{-\infty}^{\infty} \delta(x) dx = 1$$
$$\Theta(x) = \int_{-\infty}^x \delta(t) dt = \begin{cases} 0 & x < 0 \\ 1 & x > 0 \end{cases}$$
$$\sum_{n=0}^{\infty} \frac{x^n}{n!} = e^x$$
$$\sqrt{17} \approx 4.123105625617660549823448847217$$
$$[2.7182818284] \approx e$$
$$\chi^2 \approx 1.385$$
$$\approx 1$$

Classification: Linnaeus



Carl Linnaeus
1707-1778



Systema Naturae: first edition published in 1735



- Resources: Start Here
- Video Lectures
- Weekly Quizzes
- Course Overview
- Discussion Forums
- Surveys
- Do it Yourself
- Course Wiki
- Join a Meetup

- Help Articles
- Flagged Content
- Course Materials Errors
- Technical Issues
- Instructor Help Articles
- I18N Editor

Week 3

Quiz 1: Consensus Trees (manual)

Help

Attempt Quiz

Due Date	Thu 25 Jul 2013 11:59 PM CEST If you submit after the due date (but before the hard deadline), your submission score will be penalized by 5% for each day after the due date.
Hard Deadline	Sat 31 Aug 2013 11:59 PM CEST If you submit any time after the hard deadline, you will not receive credit.
Effective Score	N/A Each time that you attempt it, we'll record a score based on your performance and any penalties due to late submissions. Your effective score will be the highest score of all the allowed attempts made before the hard deadline.
# of Attempts	0 / 10

Quiz 2: Consensus Trees (computer)

Help

Attempt Quiz

Due Date	Thu 25 Jul 2013 11:59 PM CEST If you submit after the due date (but before the hard deadline), your submission score will be penalized by 5% for each day after the due date.
Hard Deadline	Sat 31 Aug 2013 11:59 PM CEST If you submit any time after the hard deadline, you will not receive credit.
Effective Score	N/A Each time that you attempt it, we'll record a score based on your performance and any penalties due to late submissions. Your effective score will be the highest score of all the allowed attempts made before the hard deadline.
# of Attempts	0 / 100



Arnaud Desombre · 7 months ago

Once more, John Taylor saves the day!

Thank you John, the 3rd box was not ticked, and now that it is everything works like a charm.

The issue is now closed for me.

(I have also installed Chrome on the VM, but obviously Java didn't work until I applied John's instructions)

↑ 1 ↓ · flag

Wiem Cristo · 6 months ago

Hey, I ticked the 3rd box but it says I have internet problem and it's couldn't download, so I tried to do it by myself I downloaded icedtea-7 plugin but it didn't work out any help please ?

↑ 0 ↓ · flag



John W. Taylor · 6 months ago

Try running

```
sudo apt-get update
```

and then try it again.

↑ 0 ↓ · flag

Wiem Cristo · 6 months ago

Problem solved ! Thank You !!

↑ 1 ↓ · flag

Dyana · 6 months ago

great! Thank you John Taylor.

↑ 1 ↓ · flag

Uohna Foster · 3 months ago

Thanks John Taylor. We had the same problem as Wiem and your suggestion worked!





Announcements

Resources: Start Here

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[Forums / General Discussion](#)

"Please Sir, can I have some more?"

[Subscribe for email updates.](#)

 No tags yet. + [Add Tag](#)

Sort replies by: **Oldest first** [Newest first](#)


[Nancy Aagaard-Svendsen](#) · 8 days ago 



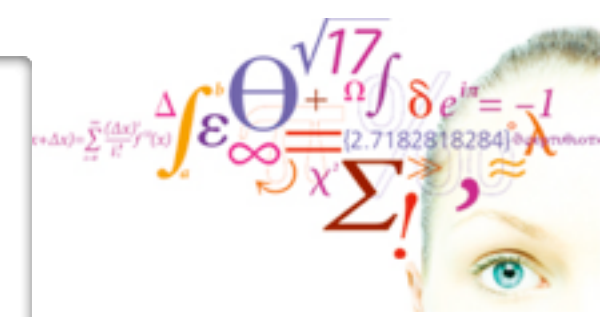
I would like to thank you, Professor Pedersen, and your associates for an amazing experience. I really liked the way you did the video lectures. You have an easy going way to teach that I really enjoyed and you explained everything very well. It was also really nice getting a chance to hear the Danish accent again after being away for so long. :-)

I love a good brain tease and that's what this course has been for me. My education is the Danish Handelsskole Basis år, so I was really over my head education wise. But I felt I was up to the challenge so I enrolled. Every week I felt like I was drowning in information, but thanks to you and my peers, there was always an explanation. The wonderful jubilation I felt at the end of each quiz when I finally "got it" was one of the best things of this course. I've completed 9 Coursera courses now, but I have to say that this is by far the best of them all. I really hope you make a follow-up course, because other courses are going to pale in comparison. Tusind tak!

So, without further ado, I beg:

"Please Sir, can I have some more."

 **29**  · [flag](#)



Anneliese Antonucci · 6 months ago 



Best MOOC I have taken so far :-). Very interactive and engaging. I was skeptical on how the programming part would be done. It turned out to be the BEST thing EVER.

 28  · flag

[+ Comment](#)



Louise Reynolds · 6 months ago 




Thank you from me too! I have thoroughly enjoyed this course. Mixing my two favourite fields biology and computing; this course was made for me!

 11  · flag

[+ Comment](#)



David Fernando Oñate Oquendo · 6 months ago 

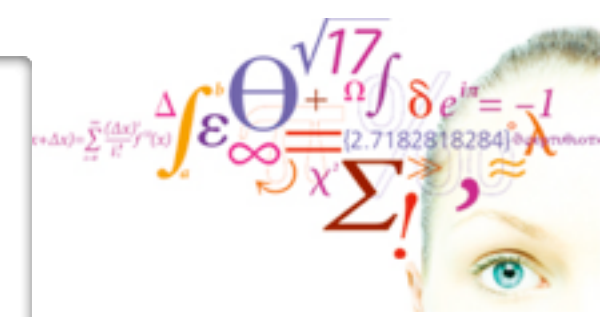


Really an excellent course...!!!

My thanks to Professor Pedersen and all staff that made the development of this course possible....

I hope you continue imparting new courses in later....

 11  · flag



Anneliese Antonucci · 6 months ago



Best MOOC I have taken so far :-). Very interactive and engaging. I was skeptical on how the programming part would be done. It turned out to be the BEST thing EVER.

↑ 28 ↓ · flag

+ Comment



Louise Reynolds · 6 months ago

Thank you from me too! I hope this course was made for me.

↑ 11 ↓ · flag



David Fernando Oñate · 6 months ago

Really an excellent course...

My thanks to Professor Pedersen

I hope you continue imparting

↑ 11 ↓ · flag

Anonymous · 6 months ago



This was a great course!
Very well planned.

I liked the practical, empirical & theoretical approaches and this last week framework on models selection was just what I was looking for!!

Thanks Prof. Pedersen & staff.

↑ 20 ↓ · flag

+ Comment

Anneliese Antonucci · 6 months ago



Best MOOC I have taken so far :-). Very interactive and engaging. I was skeptical on how the programming part would be done. It turned out to be the BEST thing EVER.

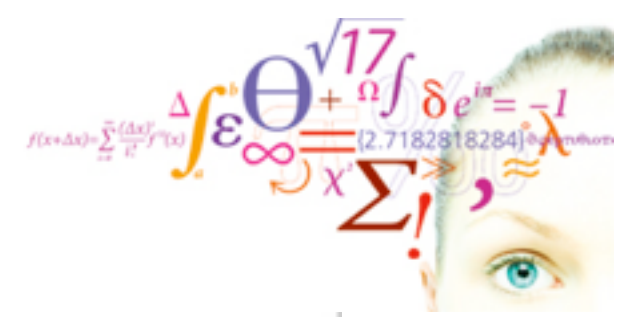
↑ 28 ↓



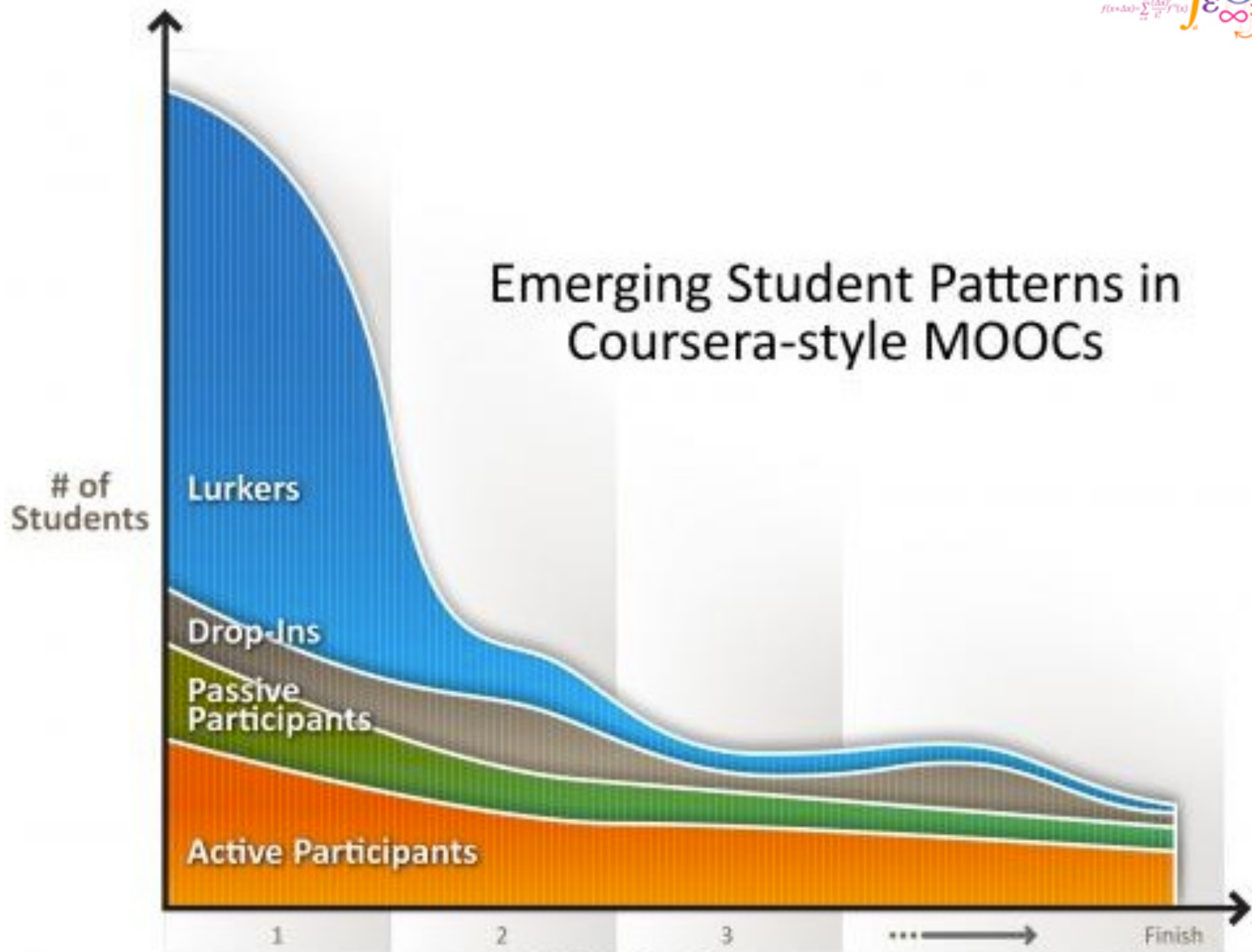
Ricardo Teixeira · 6 months ago

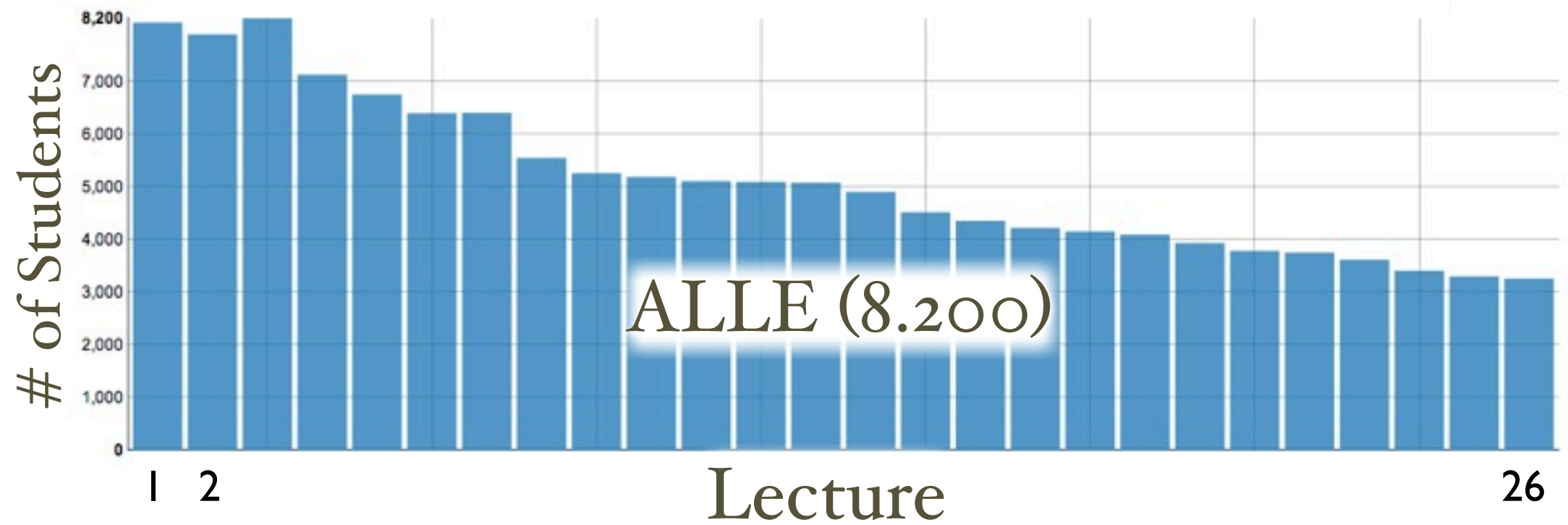
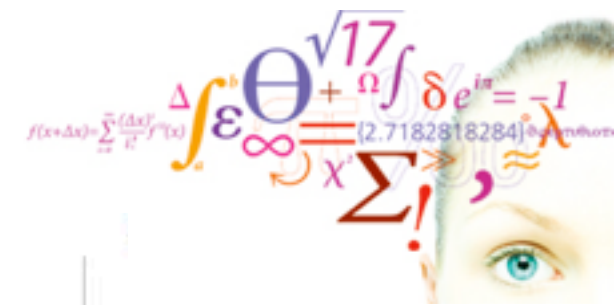
I just finished the final exercise, this completing the course. Thank you so much, Professor, for putting together this material and offering us a great course. Creating the exercises must have been a lot of work, and it's greatly appreciated. I definitely learned a lot!

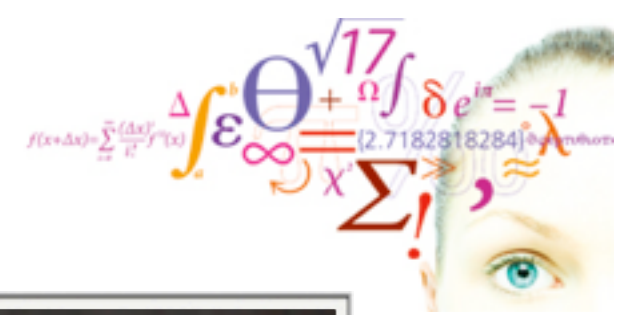
↑ 132 ↓ · flag

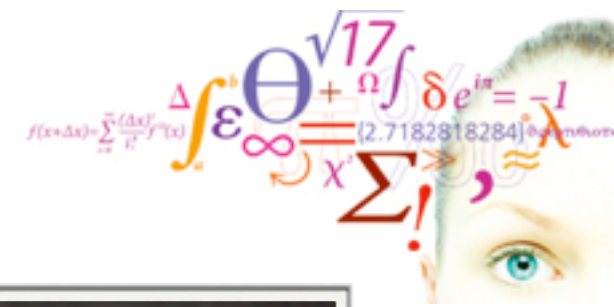


Emerging Student Patterns in Coursera-style MOOCs





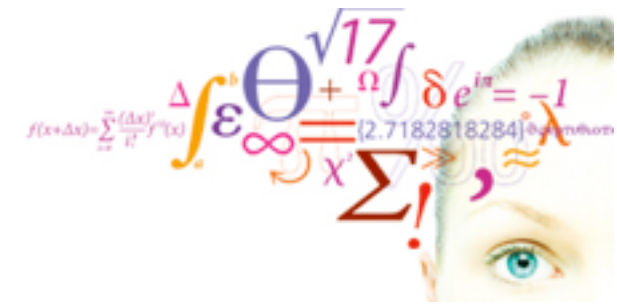




GODT

Og det var så det?

NEJ !



MOOCs

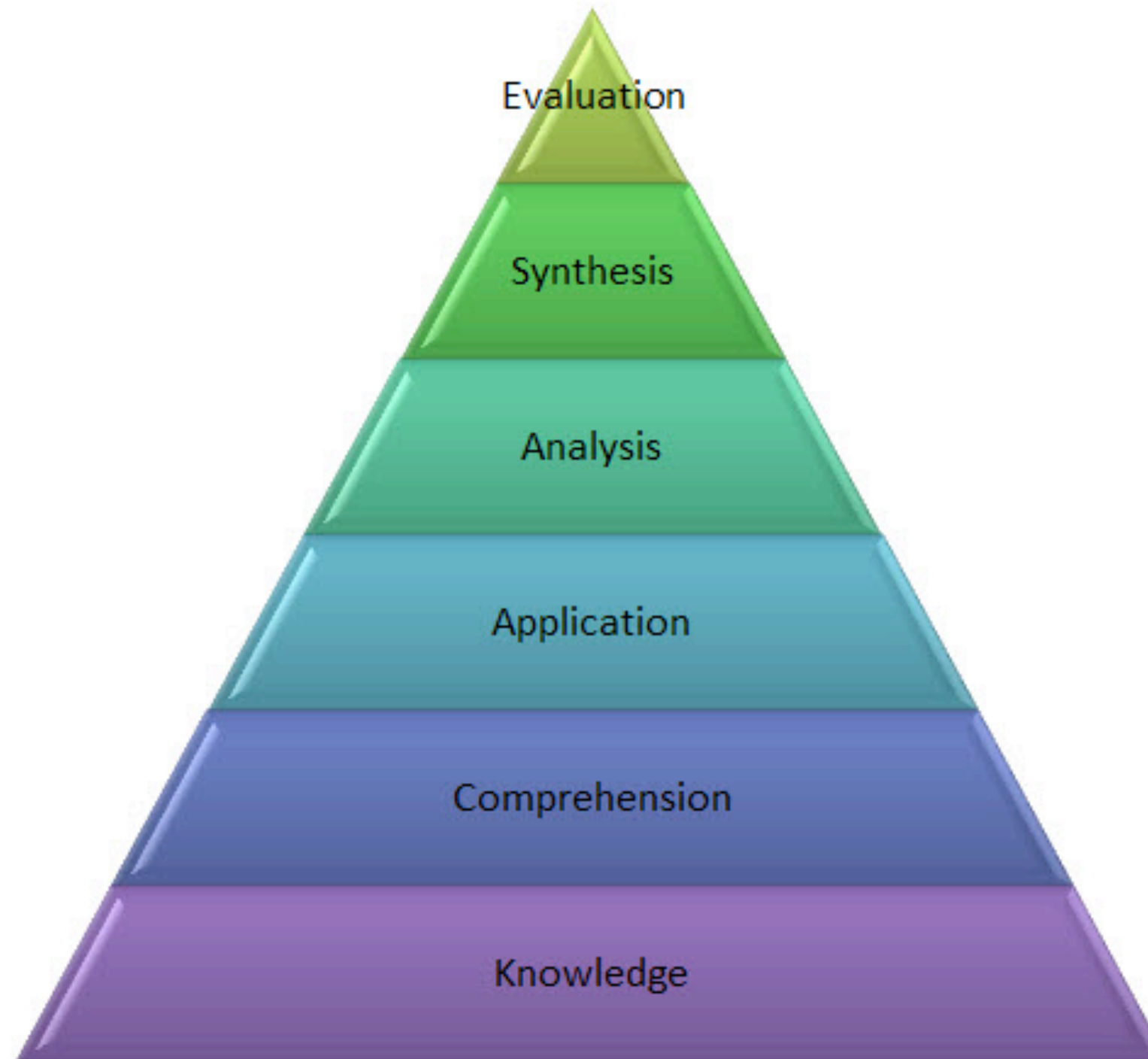
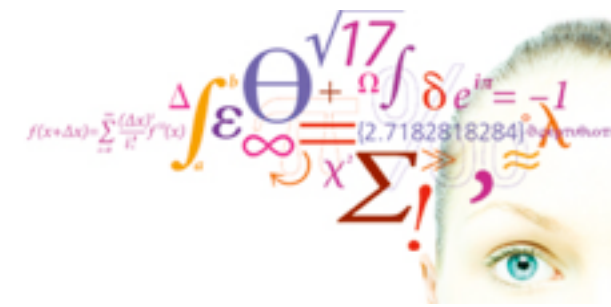


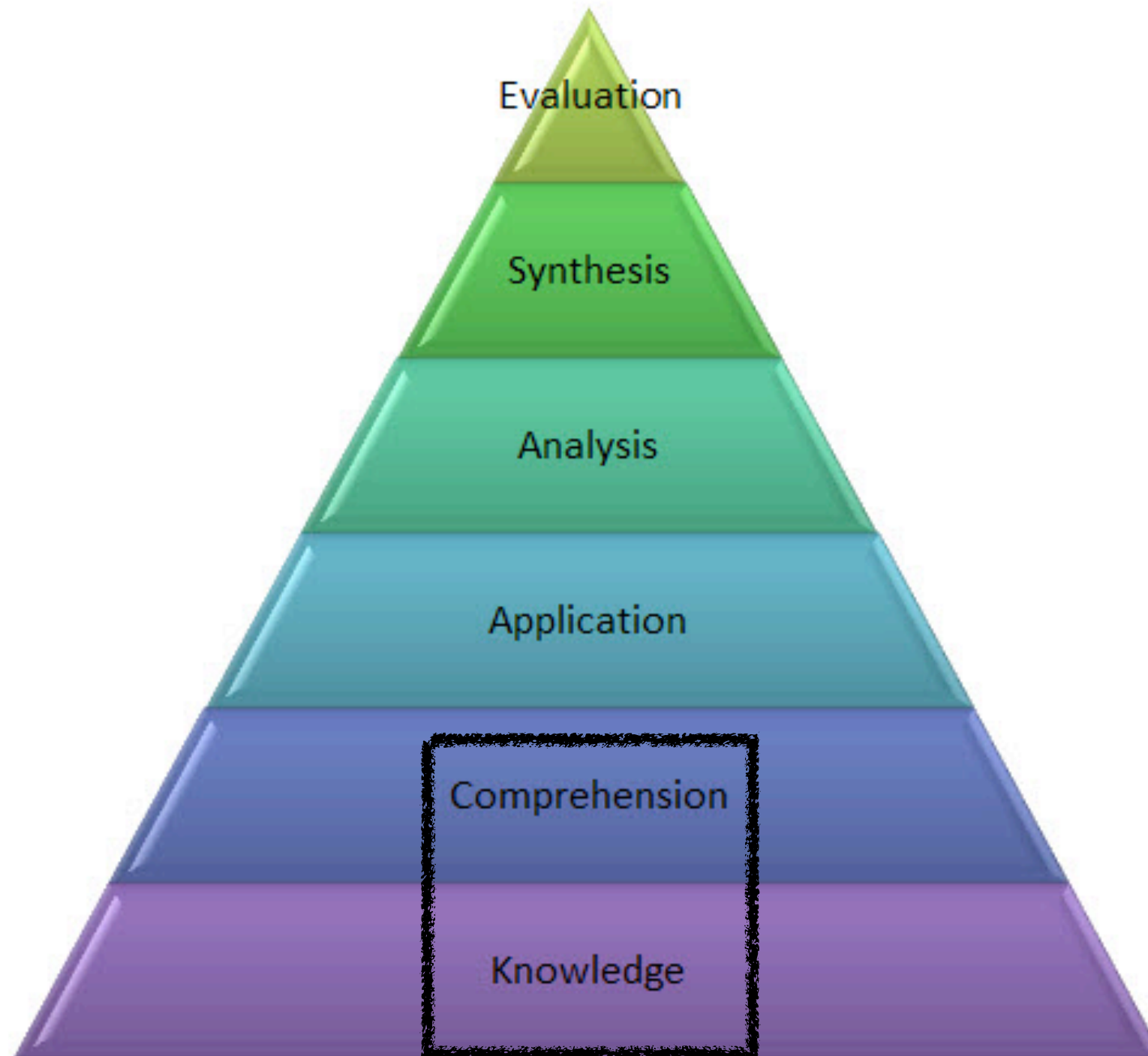
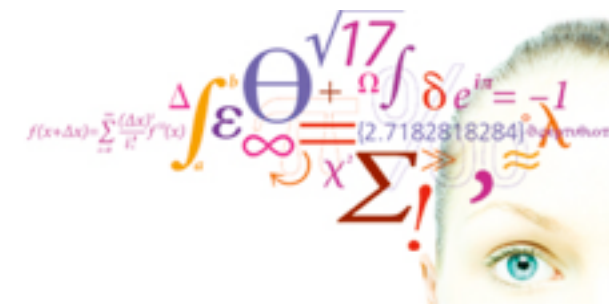
SOCs

+

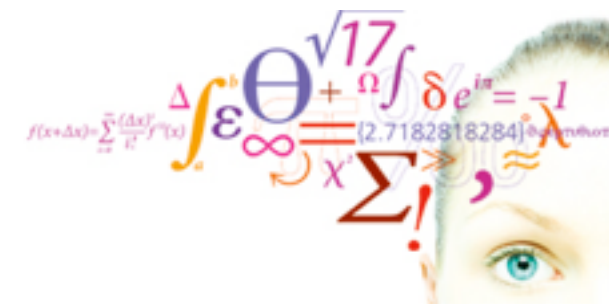
FLIPPED
CLASSROOM
FLIPPED

SOCs = Small Online Courses

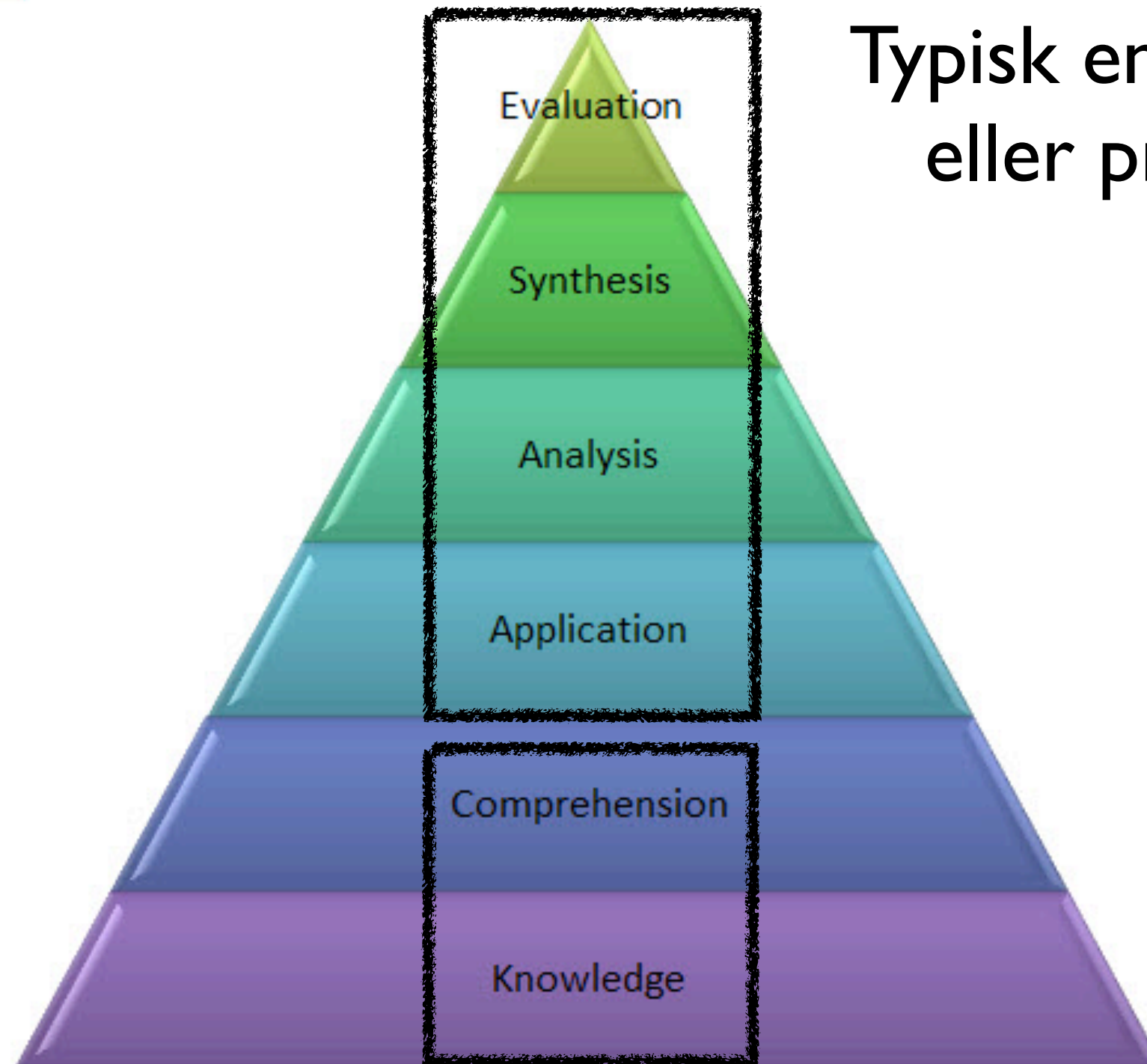




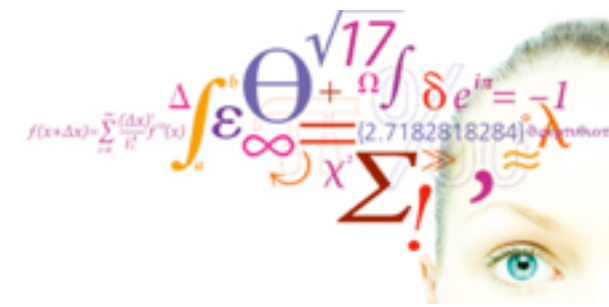
Forelæsning



Typisk en opgave
eller projekt

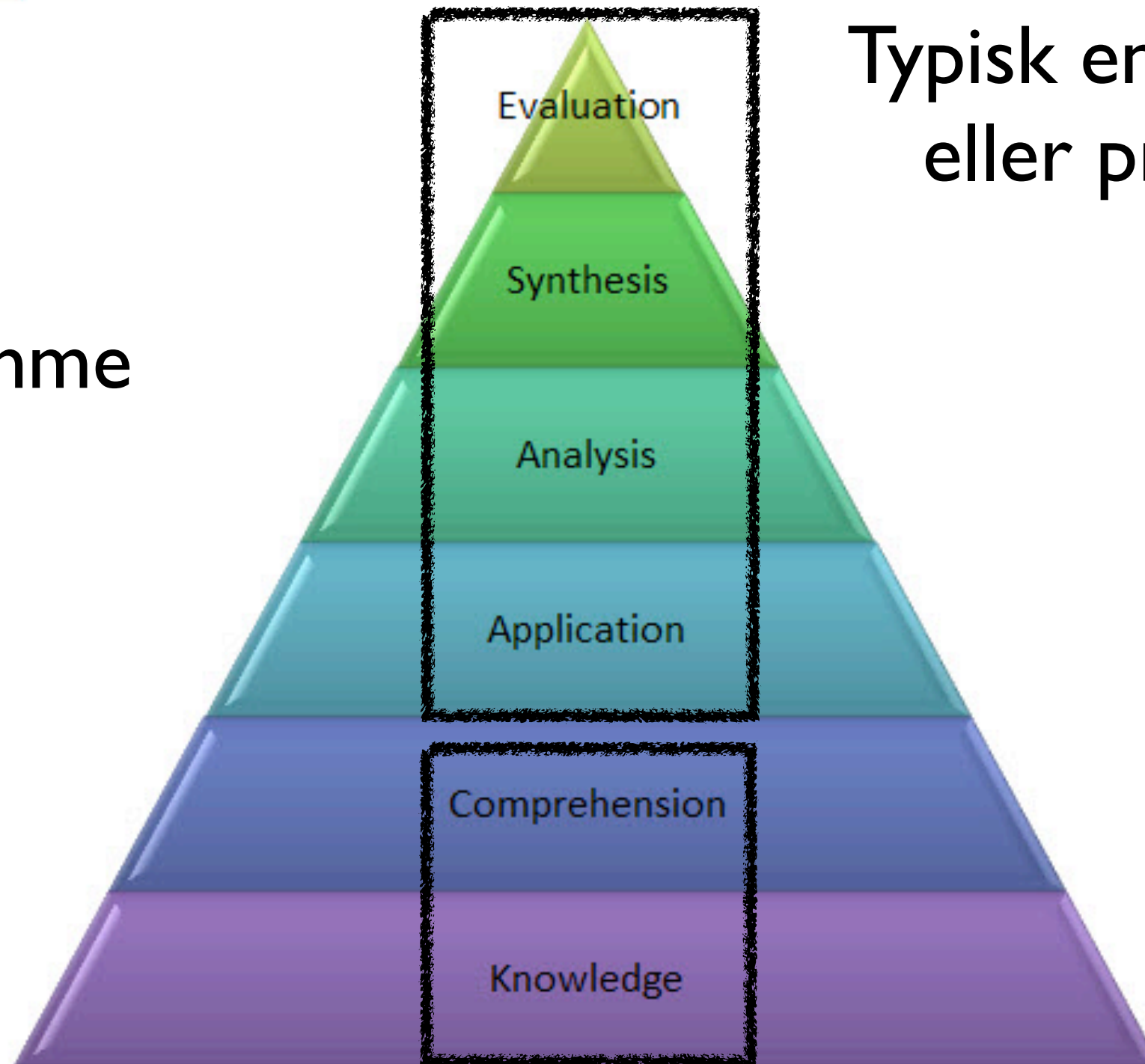


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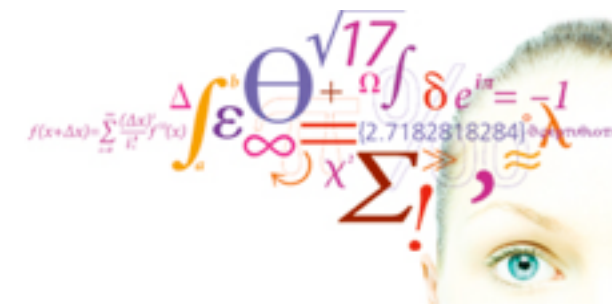


Hjemme

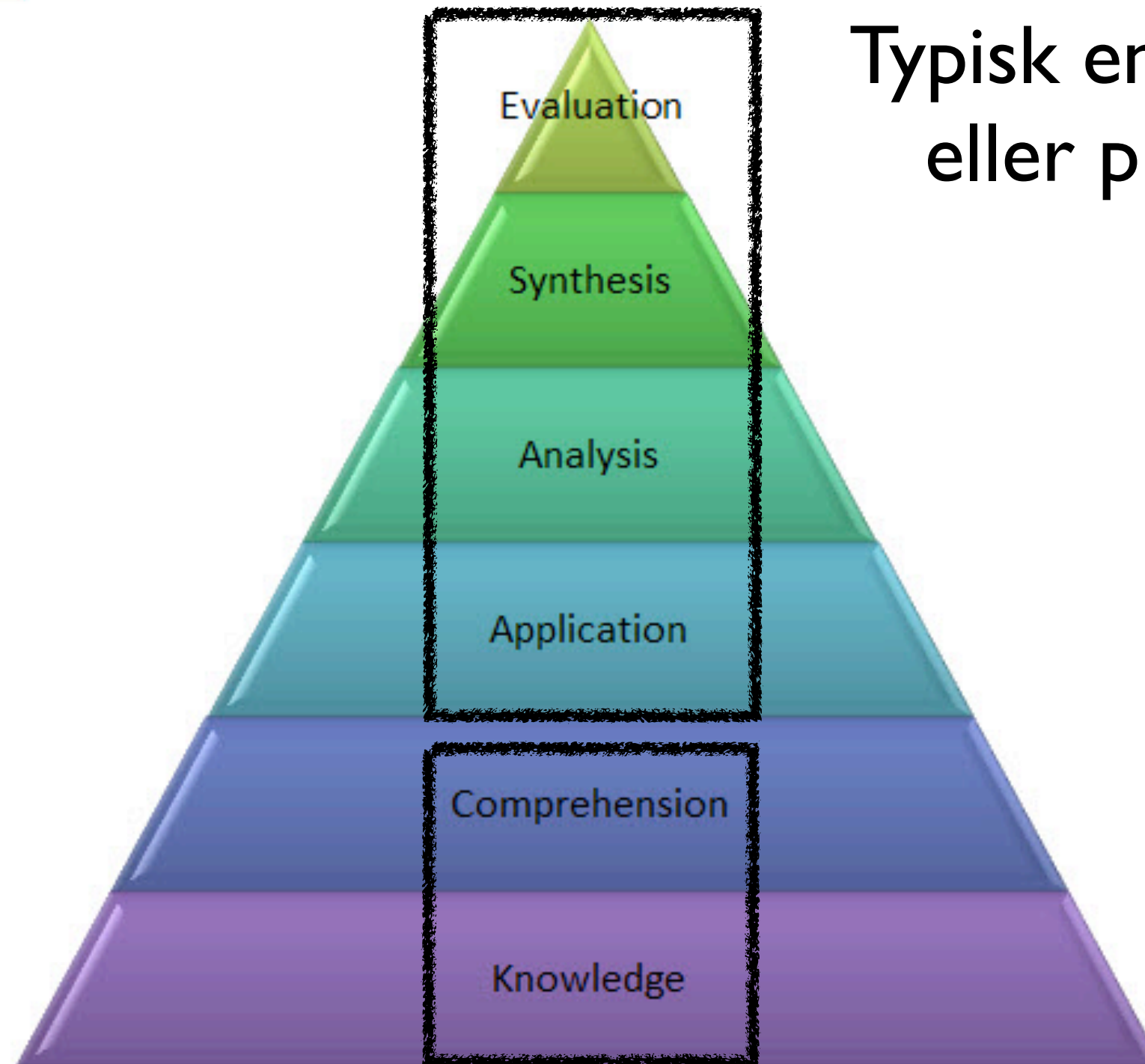
Typisk en opgave
eller projekt



Forelæsning

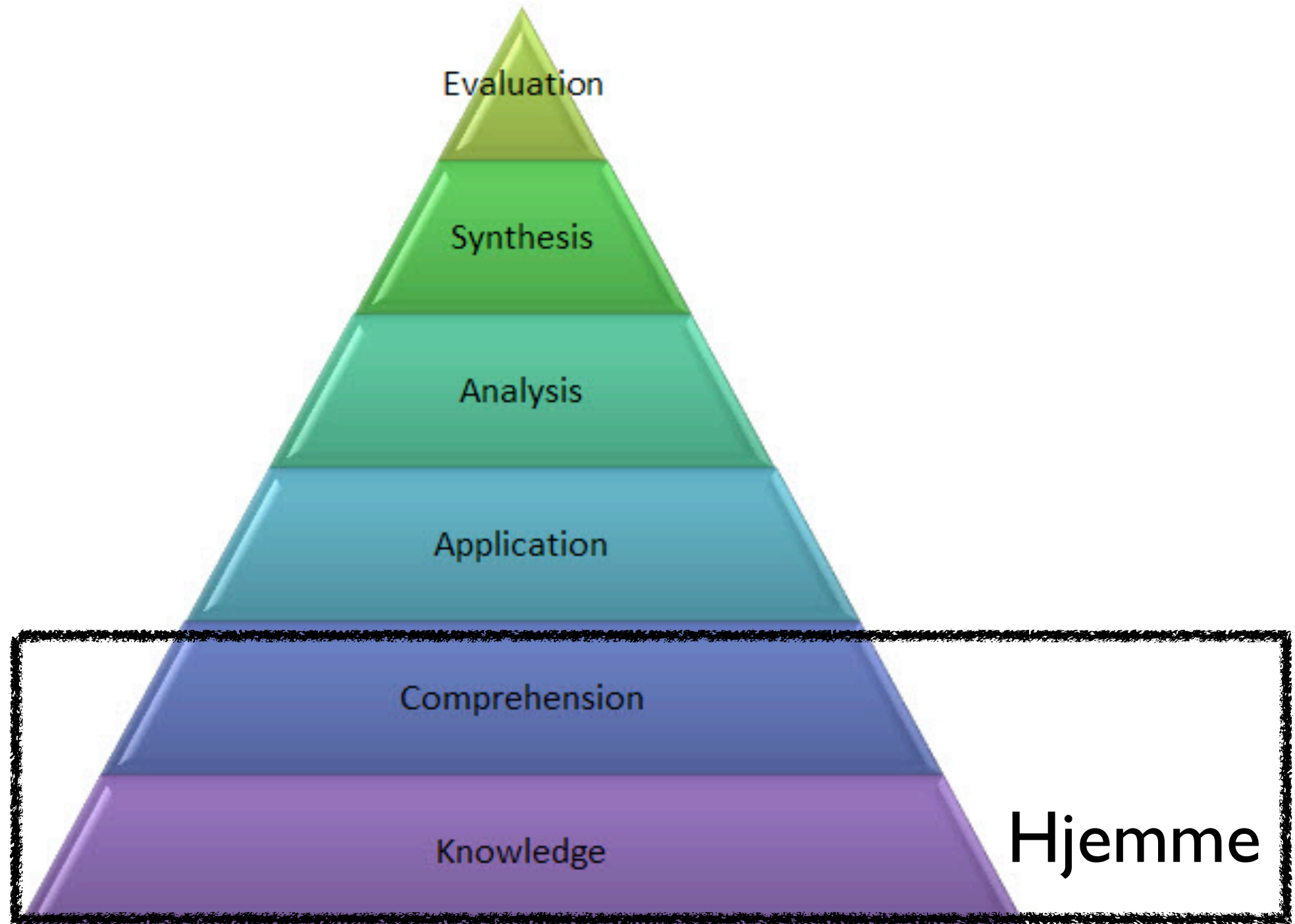
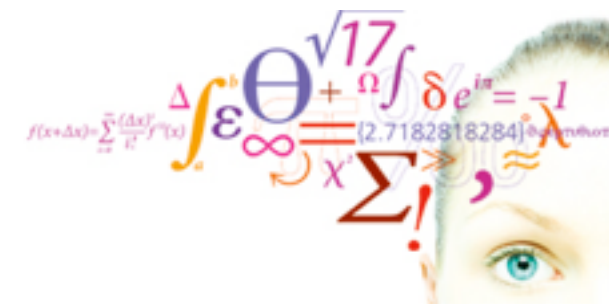


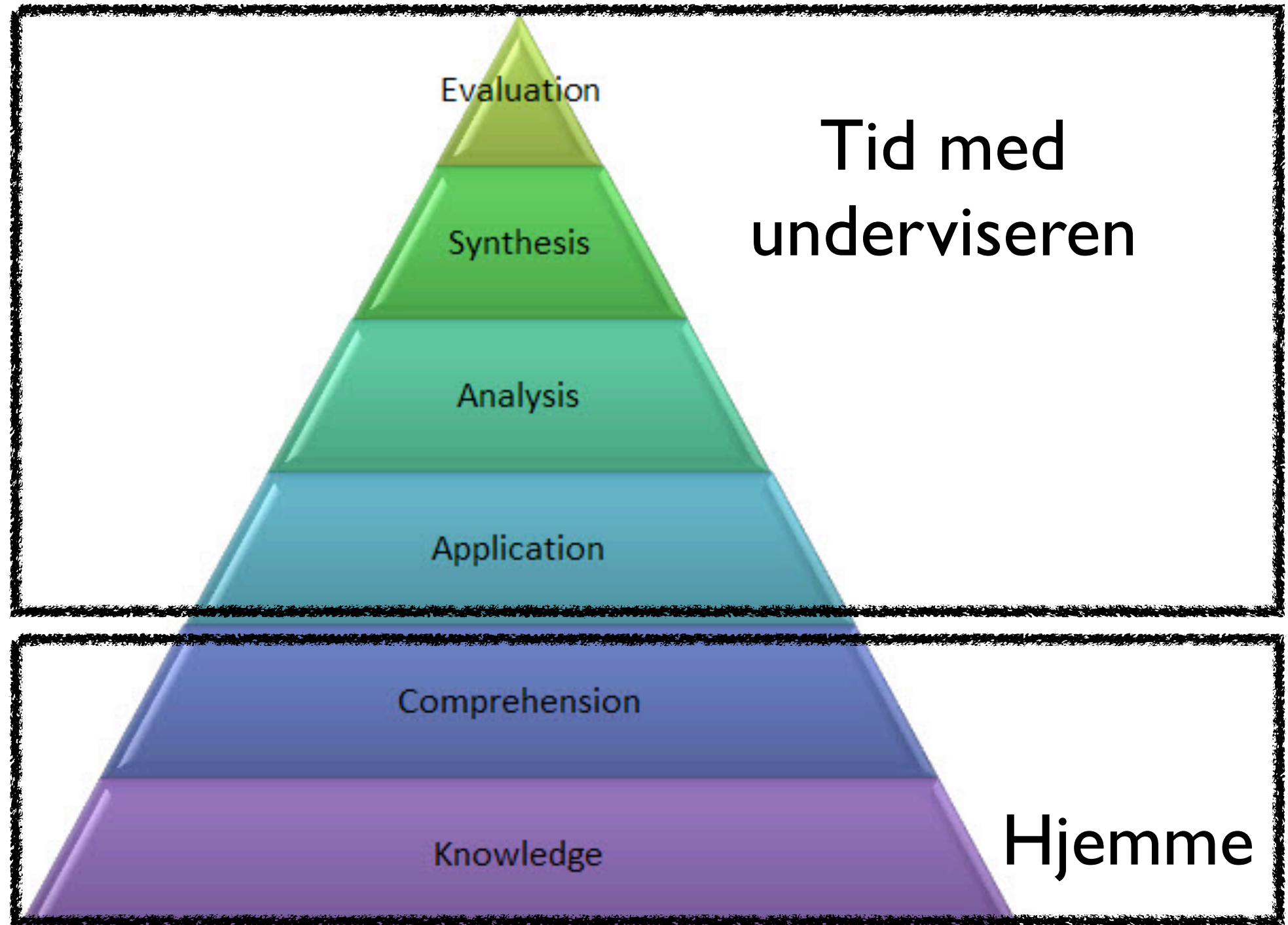
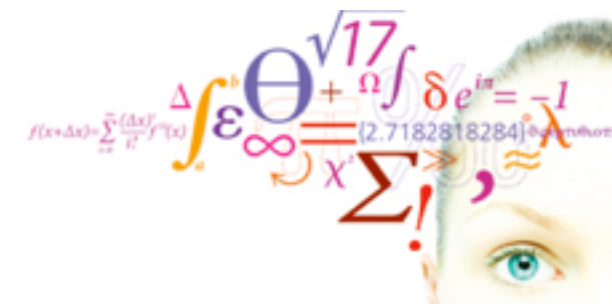
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eller projekt

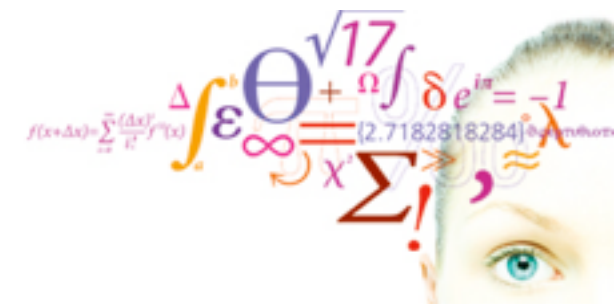


Hjemme

Forelæsning





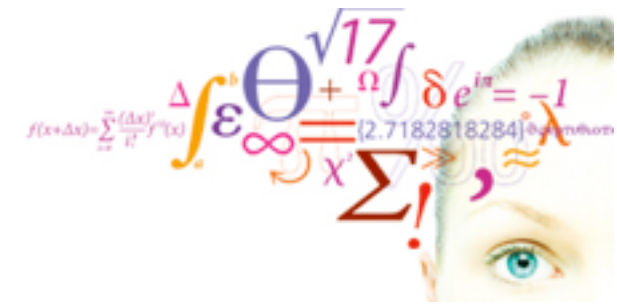


FLIPPED CLASSROOM FLIPPED

Hjemme



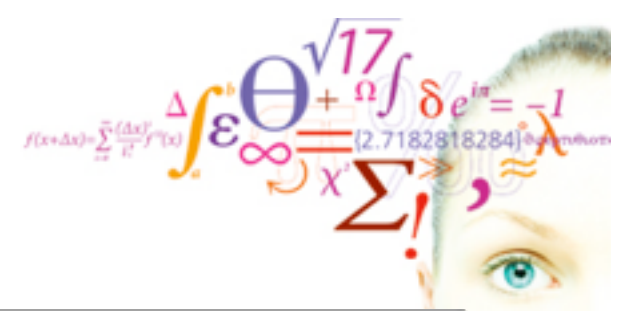
Klasseværelset

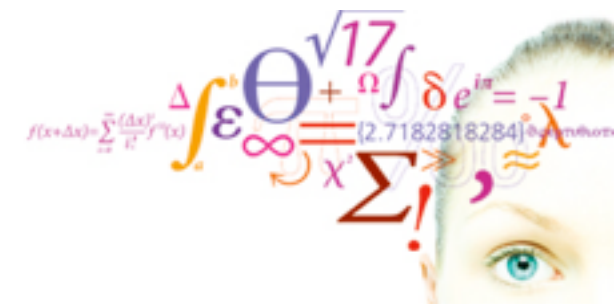


Forelæsninger

Mastery-level metoden

Individuel undervisning

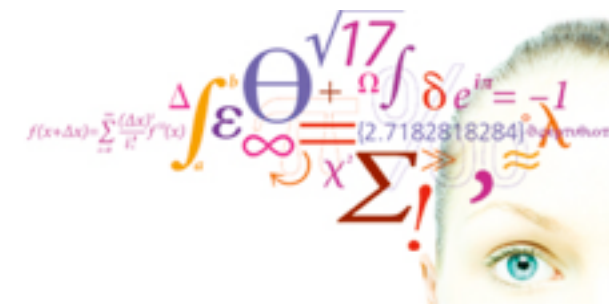




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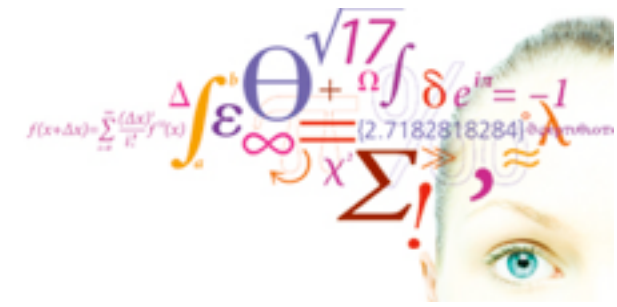


Forelæsninger

Mastery-level metoden

Individuel undervisning

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Forelæsninger

Feedback

Mastery-level metoden

Feedback

Individuel undervisning

Feedback



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Learning Lab**

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Egon

Cecilia
Teaching Assistant

Jessica
Teaching Assistant

Hanne

Head of Education

Anders
Professor

Agnieszka
Teaching Assistant

