

# About this course

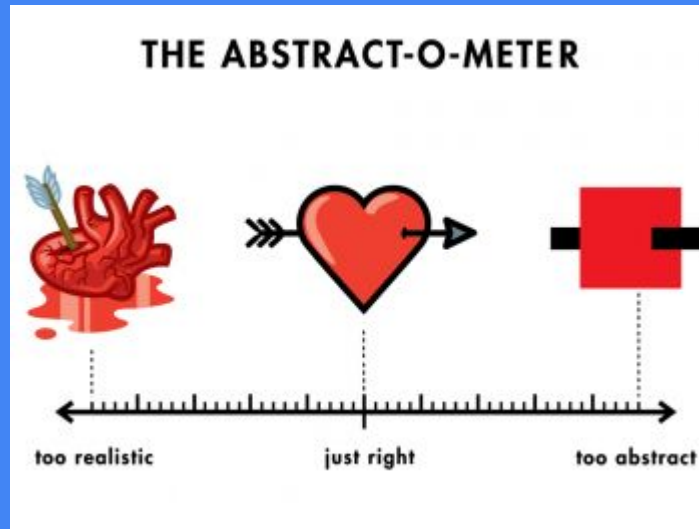
Course materials available at

<https://github.com/mariakesa/IntroductionToComputationalNeuroscienceUdemy>

Maria Kesa, Sille Paas



This course is FOR EVERYONE! Everyone should have access to scientific insights into brain function in the 21st century!



This course exists to excite people about neuroscience and encourage them to delve further!

Some free resources to let you continue the journey:

Gerstner et al, “Neuronal Dynamics”, free book and Python exercises

<https://neurondynamics.epfl.ch/>

Fee, MIT OCW free lectures, “Introduction to Neural Computation”,

<https://ocw.mit.edu/courses/brain-and-cognitive-sciences/9-40-introduction-to-neural-computation-spring-2018/>

White, Coursera free lectures (relatively small fee for certificate),  
“Medical Neuroscience”

<https://www.coursera.org/learn/medical-neuroscience>

NeuroMatch Academy

<https://github.com/NeuromatchAcademy/course-content>

# Course outline

There will be 5 lectures:

1. Spikes
2. Spike trains
3. Neural networks and reinforcement learning
4. Neural activity in 1000 dimensions
5. Whole-brain imaging

Each lecture will be followed by a live coding session and a Q&A conversation with a non-specialist.

Hey, you wanna  
Study neuroscience  
Join the Alliance  
Hey, you wanna  
Study brains  
Get up on  
That train  
Hey, you want  
A scientific spin  
On consciousness  
Can't stand  
No nonsense  
Wanna understand  
The mechanisms  
Of mental illness  
Hey, you wanna  
See those ion channels  
Open  
As doors open

Want to simulate  
Some Hodgkin-Huxley  
Read that fMRI paper  
By Haxby  
No problem, amigo  
Read this credo  
Have you got  
What it takes  
Will you refrain  
From slamming  
The brakes  
Will you go  
All the way  
Implement  
The optogenetic ray  
Do you crave  
The knowledge  
Well then  
Eat your porridge

Run your mile  
Thinking of spike generation  
All the while  
Don't stop  
Let it drop  
The world  
Will be amazed  
The society  
Will be phased  
As knowledge is common  
Science blossoms  
Do you have  
What it takes  
Raise the stakes  
Do a PhD  
Do a PostDoc  
Decrypt the  
Brain's mysteries lock



Enjoy!

It's an epic  
adventure!