

The (He)art of Mathematics or: Mathematics for Design

Create course proposal
3 EC, Year 1

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Objectives

- Learn about the *nature* of maths
 - exploratory and evolving
 - mathematical model – physical theory – reality
 - elegance and abstraction
- Improve thinking and problem solving skills
 - creative
 - analytical
- Provide different view to fields like graphs, probability, sets,...
- Take away fear/ prejudice with joy and curiosity
- Introduce maths inspiration for visual design

Methods and assessment

- Students explore different issues in 8 sessions
 - individual ‘discoveries’ with stepping stones (syllabus)
 - abstract and visual topics alternating
- Discussion on ‘nature of maths’
 - at beginning and at end
 - recorded for reflection and editing
- Two final assignments:
 - essay on a (theoretical/historical) topic;
 - some visualization by traditional or digital medium, 2d or 3d, may be animated

Why as a course in CreaTe?

- Manifests major general characteristics of CreaTe
 - convergence of art, science and technology
 - exploratory learning by doing – attitude is something to learn (too)
 - argumentation and (group) communication are central
- Provides some philosophical and practical foundation for other courses
- In YEAR 1
 - foundation nature, both for NM and ST
 - the time to create the attitude for later, more technical stuff

Why by Zsófi?

- conducted similar projects with 10-18 year olds in the NI too
 - has own materials and a lot of resources
 - has a MSc degree in maths from Hungary, educated in this style
 - she finds it important to get actively involved in the CreaTe education
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- looks forward to receive contribution/comments from others

Will it work?

- Own experience:
 - everybody profits irrespective of background (N/T/G/M)
 - changes in attitude towards math
 - pleasure in creating visible results
- Similar approaches have been praised, e.g:
 - [Maths across the curriculum](#) at Dartmouth University
 - [Maths for Poets, Thinkers and Doers](#) at University College Utrecht
 - [Mathematics and Art: Mathematical Visualization in Art and Education](#), ed. by Claude P. Bruter. Springer-Verlag, 2002.
- References:
 - methodology: Pólya, Lakatos, Erdős, Halmos – a Hungarian tradition