A!ENG Research Lab
A course on science, research and scientific writing

Yhd-12.Z A!ENG Research Lab, 13.4.-18.5.2017
School of Engineering
Aalto University
Todays topic

- Science ➔ Principles of scientific method
- Research
- Scientific writing
Scientific method

• Four bold claims
• Science’s contested rationality
• Science’s presuppositions
• Science’s power and limits
• Logic and reasoning
• Parsimony and efficiency
• Ethics and responsibility

We follow the book:
Scientific Method in Brief by Gauch (2012)
Scientific method

Assignment:

• Make poster of your topic
• Teach key points of your topic to others
• Presentation time 12 min. including discussion

Schedule:

<table>
<thead>
<tr>
<th>Time</th>
<th>Duration</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>12.30-13.30</td>
<td>60 min.</td>
<td>Poster making</td>
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<tr>
<td>13.30-13.45</td>
<td>15 min.</td>
<td>Break</td>
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<tr>
<td><strong>13.45-14.40</strong></td>
<td><strong>55 min.</strong></td>
<td><strong>4 presentations (groups 1-4)</strong></td>
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<tr>
<td>14.40-14.50</td>
<td>10 min.</td>
<td>Break</td>
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<tr>
<td><strong>14.50-15.30</strong></td>
<td><strong>40 min</strong></td>
<td><strong>3 presentations (groups 5-7)</strong></td>
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<tr>
<td>15.30-15.45</td>
<td>15 min.</td>
<td>Discussion</td>
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Discussion

• Did you learn something today? What?
• How about the teaching method? Do you like it, does it work?

Discuss in groups (7 min!)
What I learned from Scientific Method in Brief (Gauch, 2012)

It gave context and structure to my thesis:

Hydrological changes in the Mekong River Basin – Effects of Climate variability and hydropower development

Thesis has three main parts:

• Scientific and methodological framework
  • Gauch (2012) and other texts helped me to identify this

• New findings: hydrological changes
  • 2 papers on climate variability
  • 2 papers on hydropower development

• ”Philosophical” discussion on methodology
  • Statistics
  • Mathematical modelling