

#sustainabilityday @ChalmersUniv

# CHALMERS SUSTAINABILITY DAY

23 OCTOBER  
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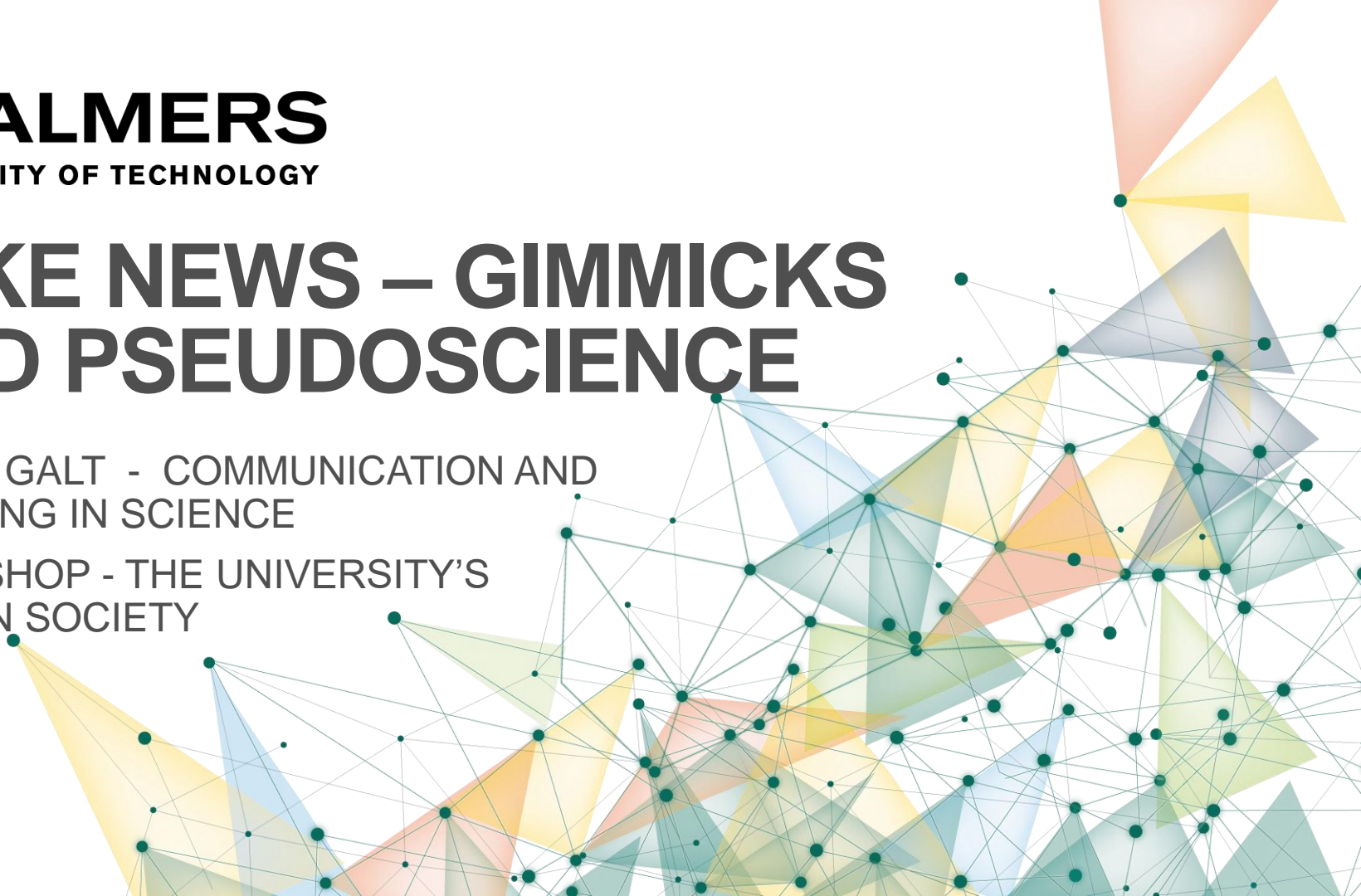


**CHALMERS**  
UNIVERSITY OF TECHNOLOGY

# FAKE NEWS – GIMMICKS AND PSEUDOSCIENCE

SHEILA GALT - COMMUNICATION AND  
LEARNING IN SCIENCE

WORKSHOP - THE UNIVERSITY'S  
ROLE IN SOCIETY



# WORKSHOP AGENDA

- Introduction – What do we mean?
- A few examples
- Group activity 1 – Chalmers-relevant examples
- What's the harm? – Sustainability relevance
- Group activity 2 – What can/should one do?
- Prevent, prepare, act, react
- Individual activity – This is what I could/should/will do!

# FAKE NEWS, GIMMICKS, PSEUDOSCIENCE

- Fake news:
  - False "facts" spread as news
  - An excuse to ignore facts
- Gimmicks:
  - Often meant to mislead
  - Magical thinking among customers
- Pseudoscience:
  - Bad science, believed in by practitioners and followers

# ASPECTS TO TAKE INTO ACCOUNT

- Placebo effect
- Cherry picking
- Anecdotal evidence
- Source criticism
- Too good to be true?

# A FEW EXAMPLES

- Climate sceptics
- Anti-vaccination
- Colloidal silver
- Quantum mysticism
- Homeopathy
- Magnetic bracelets

# CHALMERS RELEVANCE

- Education
- Research
- Utilisation
- Internal environment

# GROUP ACTIVITY 1

- Discuss Chalmers-relevant examples
- What fake news, gimmicks, pseudoscience etc. should Chalmers students and employees be aware of?
- Categorize relevance:
  - Education
  - Research
  - Utilisation
  - Internal environment
  - ...other relevance

[www.socrative.com](http://www.socrative.com)

Log in as "student".

Room: PHOTON



# GROUP ACTIVITY 1 – RESULTS

What fake news, gimmicks, pseudoscience etc. should Chalmers students and employees be aware of?

## EDUCATION:

- gender science in general; gender as a social construct; equality of outcome instead of opportunity; climate as social science
- Politics makes equality lack from edge when interacting.
- Studies funded by corporations to produce the result they want, e.g. chemical company proving their product is harmless.
- Cereals bad for your health; Human influence on climate issues; Cows' effect on climate
- Food related - i.e. "all carbohydrates and/or cereals are bad for your health"
- ufology
- Training on how to approach blurry issues? E.g. Type A Influenza anti-vaccination/vaccination, apathy in immigrant children, side-effects of vaccination against virus related to utero cancer

# GROUP ACTIVITY 1 – RESULTS *CONT.*

What fake news, gimmicks, pseudoscience etc. should Chalmers students and employees be aware of?

## RESEARCH:

- Critical thinking and the scientific method are not taught as much in schools now.
- Electric vehicles worse than internal combustion engines
- researchers "sponsored" by companies. How much can the company decide? For example tobacco companies sponsoring

## UTILISATION:

- Kan budskapet och resultaten bli fel när vi försöker göra den populärvetenskaplig

## OTHER:

- Är avsändaren Chalmers en garant för att allt är ok, dvs inte fake?

# WHAT'S THE HARM? – SUSTAINABILITY?

- Why not allow magical thinking?
- If people want to spend money on junk ...
  
- Health care that really works, better for all!
- Fact based political decision-making, best for all!
- Earth care that really works, necessary!

# GROUP ACTIVITY 2

- Discuss what one can/should do.
- Focus on your role as a Chalmers student or employee.
- Categorize actions within:
  - Education
  - Research
  - Utilisation
  - Internal environment
  - ...other actions

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# GROUP ACTIVITY 2 – RESULTS

What can/should one do as a Chalmers student or employee?

## EDUCATION:

- science is self correcting, so a return to classic scientific metjod is sufficient
- Become to teach technological anquering
- Teach basic courses on the scientific method and critical thinking
- Inform students about how to find/use reliable sources with different perspectives, e.g. [theconversation.com](http://theconversation.com)
- Addressing issues, social debates
- We can help students at all level to understand the value of knowledge eg "rädda ägget" helps to understand the value of physics
- Erbjudna utbildning i källkritik, kritiskt tänkande på alla nivåer
- Referencing and plagiarism; Critical thinking; source evaluation

# GROUP ACTIVITY 2 – RESULTS *CONT.*

What can/should one do as a Chalmers student or employee?

## RESEARCH:

- demand evidence
- Outreach with valid results, e.g. contribute on online platforms
- Get involved in societal debates, write popular articles in mass media, TV and Radio appearances
- Promote interdisciplinary debate
- Prata om det!
- Metacognition

# GROUP ACTIVITY 2 – RESULTS *CONT.*

What can/should one do as a Chalmers student or employee?

## UTILISATION:

- researchers should talk directly to the public -not rely on communicators distorting the message
- Talk to friends and family, challenging false ideas as they arise and sharing our expertise. Make the scientist human.
- Responsible external communication, not exaggerating. Balance, timing, quantity of communication. Helping reporters to understand and communicate messages correctly.
- se till att det vi visar upp verkligen har grund i fakta och får att bevis
- Prepare students to real life scenarios and work life (critical thinking, evaluation of resources )

## INTERNAL ENVIRONMENT:

- Internal discussions, sharing information. Weekly 'pseudoscience newsletter'
- Open Science

# PREVENT, PREPARE, ACT, REACT

- Educate for awareness, readiness and courage.
- Communicate relevant facts understandably.
- React locally to keep high standards at Chalmers.
- React externally when pseudoscience becomes dangerous, especially within your field of competence.
- Remember psychology ... what makes you listen?



# INDIVIDUAL ACTIVITY

- This is what I could/should/will do!
- Write a reminder to yourself.
- If you are comfortable with sharing anonymously,

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# INDIVIDUAL ACTIVITY - RESULTS

This is what I could/should/will do!

- I will try to take on the discussion whenever it appears. Respecting the other person (even if I think he/she is a twat.).
- work with critical thinking at elementary school and high school through, for example, save the egg, teknikåttan, young researchers, etc.
- Read my draft articles/pressreleases once more, making sure they are correct and well-balanced.
- Lead by example: admit openly and shamelessly when I am wrong.
- I will remind myself that no one owns the truth, at least to the best of my knowledge.
- Consider the ways you could be misinterpreted and preemptively work against them.
- Make sure I dare to engage in areas where I have knowledge, either professionally or aquired by interest; Still try to listen more than talk, but not get intimidated by aggressive attacks from eg climate deniers; Find weak spots in opponents arguments but don't use the to bang someone in the head instead try to build them an escape route from their present belief; Look for good examples combining science with communication and there are many!

# INDIVIDUAL ACTIVITY – RESULTS *CONT.*

This is what I could/should/will do!

- Not being afraid of coming into conflict with people who believe in fake news/pseudosciences.
- Be transparent about the information sources in science communication. Check out the Kialo communication/debate platform.
- Be careful with sharing things in social media that I don't know the source of/background on. – Speak out/take the discussion – no matter in what situation/environment. – Be critical and look up things that sound too good to be true or seem to lack important information.
- Use my teaching to work with students on where they get their facts from and how to question their sources. Teach students to enter into societal debates; Be an active member of the acgool community and talk about these issues there; Remind myself and my colleagues to be active in the societal debate, both privately and professionally. Reach out with the research performed at the division, not only my own research.
- Double check sources of information and any evidence I saw published before sharing news with others

# FIND OUT MORE

- The Debunking Handbook  
[https://skepticalscience.com/docs/Debunking\\_Handbook.pdf](https://skepticalscience.com/docs/Debunking_Handbook.pdf)
- What's the harm? <http://whatstheharm.net/>
- Vetenskap och folkbildning, VoF [www.vof.se](http://www.vof.se)
- Skeptical Science [www.skepticalscience.com](http://www.skepticalscience.com)

# THANK YOU FOR PARTICIPATING

- May the facts be with you!
  - ... and remember
  - ... it used to be a fact
  - ... that the earth was flat!

# NOTE ON PUBLICATION OF RESULTS

- Workshop participants provided their input anonymously.
- All participants were informed that entering their input would be considered as consent to publish the results of the workshop.
- The tool use to collect workshop results was the online service "Socrative" where participants logged on as anonymous "students".
- The wording of the input reported here has not been changed, with no attempt made to correct spelling etc.
- The order of the input is exactly the order in which it was uploaded by the workshop participants, with no attempt made to sort the input.