



Norwegian University of
Science and Technology

AI for Organic Chemists: Sensible and Responsible Use



Trying to hit a moving target



- (Introduction)
- NTNU and regulations
- What to use (and for what)
- 3 use cases
 - Literature review (Litmaps)
 - Rapid insight into new research areas (Scispace)
 - First (?) useful examples of *de novo* synthetic design

The AI “virus” is unstoppable..



The California State University system signed a contract in 2025 with OpenAI for \$17 million.



500,000+ students and staff will get premium ChatGPT. But there is little guardrails or guidelines for usage...

NEWS

How Cal State Became Ground Zero for the Fight over AI in Higher Education

CHRIS MILLS RODRIGO / MAR 18, 2026

Chris Mills Rodrigo is a fellow at Tech Policy Press.

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The AI “virus” is unstoppable..



Mistenker massivt KI-fusk. — Jeg har null kontroll

KUNSTIG INTELLIGENS

116 studenter felt for KI-fusk i fjor. Særlig én ting avslørte dem

Stadig flere studenter blir tatt for å fuske med kunstig intelligens.

Khrono har samlet inn fusketall fra studentnemndene ved 22 statlige universiteter og høyskoler fra 2020 til og med 2024.

De viser at:

- I alt har 3356 studenter blitt felt for fusk.
- Av disse ble over 2697 studenter utestengt, hvorav 1843 ble utestengt i to semestre.

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NTNU and regulations



- NTNU recommends using Microsoft Copilot (and Scopus AI). Copilot is integrated into NTNU's systems and meets requirements for privacy and information security.
- Teaching materials such as lecture notes, assignments, laboratory tasks/cases, or assessment criteria must not be shared with external AI services such as ChatGPT!
- Take the introductory NTNU AI web-course:

<https://kurspaamelding.no/ntnu-ub/artificial-intelligence-as-a-tool-in-your-studies>

26.03.26 ✓

Tidspunkt: 10:15 - 12:00

Sted: The virtual library

Status: 146 ledige

Påmeldingsfrist: 26.03.2026, 10:00

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NTNU Requirements for documenting AI use



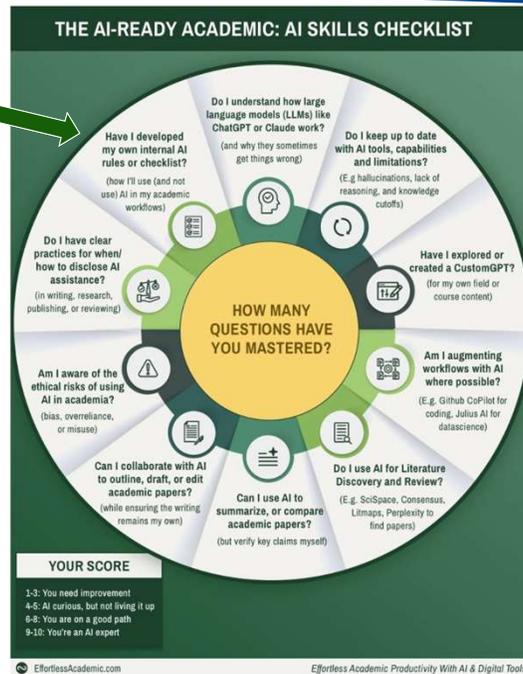
- Whenever AI is used for written assignments, you must explain the use of the tool:
 - which tool was used (i.e. Copilot)
 - what AI was used for (i.e. proofreading, structural suggestions...)

Principles and guidelines

- Ethical principles
- Acceptable use
- Unacceptable use
- Use of data in AI services
- Privacy and legislation
- NTNU policy
- National policy

<https://i.ntnu.no/wiki/-/wiki/English/using+artificial+intelligence+as+a+student>

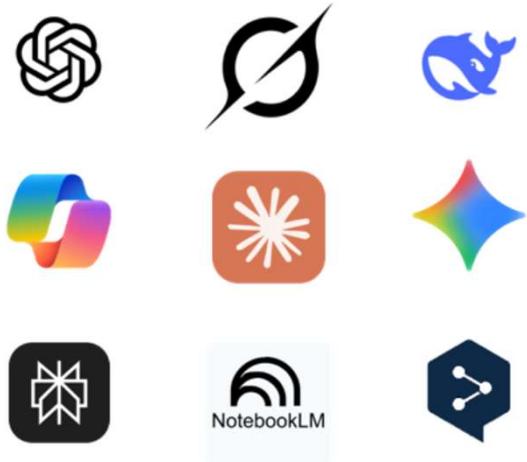
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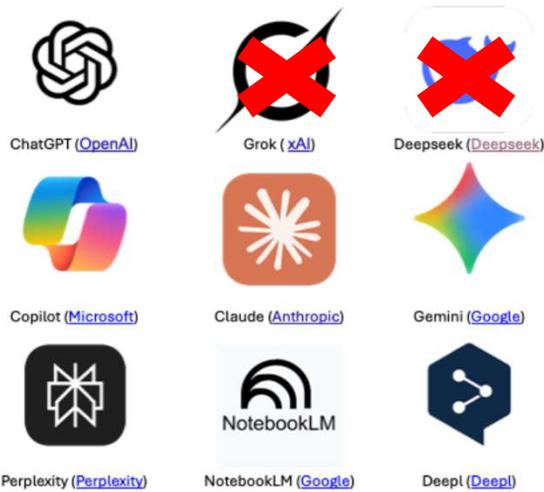
Which is better?



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Which is better?



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How?

1. Don't use AI to outsource your thinking (outsource labour..)
2. Don't use AI to create content (create structure)
3. Don't use AI for citations or references (use Scite.ai or Scispace.com)
4. Don't ask AI to answer your questions (use it as a dialog partner)
5. Don't use AI to write something for you (use it for peer review)

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Use case 1 - Literature mapping



DEMO!

5 min tutorial: <https://youtube.com/watch?v=gxm3ahlaO7c>

(And a [link](#) to a review of the 3)

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Use case 1 - Literature mapping



- Add one paper
- Explore its map
- Grow your network
- Tag sub-topics
- Visualize, export references (& share)

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Use case 2 - New research areas



SCISPACE

DEMO!

Elicit

Alternatives:



Semantic Scholar

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Use case 3



Very few new drugs exist

Between 1980 and 2003, only 5 new antibiotics were developed by major drug companies. Making drugs is slow, expensive, and often unprofitable — so companies stopped investing.



The death toll is rising

Antibiotic-resistant infections cause ~5 million deaths per year globally. Two especially dangerous bacteria are gonorrhea (*N. gonorrhoeae*) and MRSA (drug-resistant *Staph aureus*).

$$10^7 \ll 10^{60}$$

CellPress

Cell

Article

A generative deep learning approach to *de novo* antibiotic design

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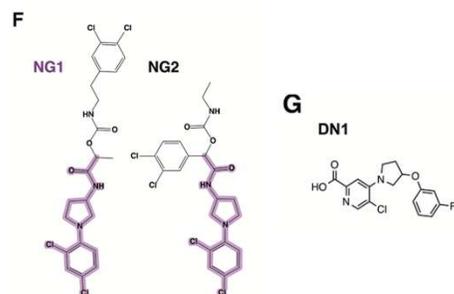
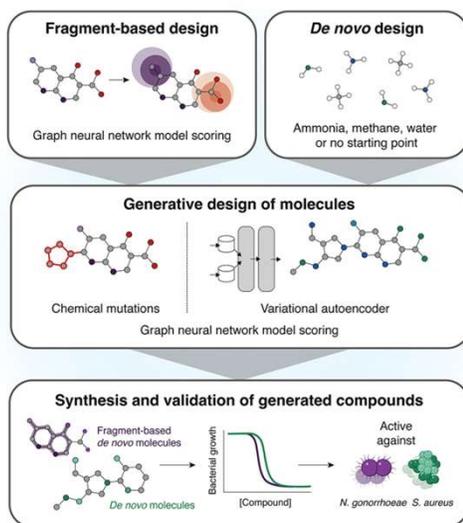
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Use case 3



New modes of action! (?)

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