

FS2025

Finalized schedule

23 Oct: [Delay, Detect, Defend: Preparing for a Future in which Thousands Can Release New Pandemics](#) (2022)

Note: A policy publication by Geneva Center for Security Policy (GCSP) proposing a set of strategies to mitigate catastrophic biological risk.

Facilitator(-s): Ilia

20 Nov: [Spiez CONVERGENCE Report 2024](#)

Note: Overview of the 6th CONVERGENCE conference about latest developments at biology and chemistry intersection, its influence on production of toxic chemicals, toxins and microorganisms and for chemical and biological arms control.

Facilitator(-s): Bartu + Ilia

18 Dec: [Confronting risks of mirror life | Science](#) (2024)

- [Technical report](#)
- Core chapters for the discussion: 2, 3, 4 (and 8 optional)
- Prompt questions:
 - Should scientists try to make mirror bacteria?
 - How should society manage the risks?
 - Who decides what research is “too risky”?

<https://press.asimov.com/articles/mirror-life?ref=defensesindepth.bio>

Note: An overview and comprehensive (~300 pages) technical report on the feasibility and risks of mirror bacteria.

Facilitator: Chau

15 Jan: [Inferring the sensitivity of wastewater metagenomic sequencing for early detection of viruses: a statistical modelling study | medRxiv](#) (2025)

+ [Scaling US pathogen detection](#)

Note: Analysis of the applicability and limitations of wastewater metagenomics in terms of sensitivity and cost. Role in a general detection system.

Facilitator (-s):

- + Wastewater program in the US: <https://www.cdc.gov/nwss/index.html>

Questions:

1. How to use wastewater to detect new pathogens?

12 Feb:

Reading list

At the kickoff meeting and shortly afterwards, we were gathering interest for the publications collected in the list below (indicate your interest with a + in a Vote section):

- [Delivering Pandemic Vaccines in 100 Days \(2022\)](#)
Note: A policy paper by Coalition for Epidemic Preparedness Innovations (CEPI), outlining strategies needed to radically speed up the rate of development of new vaccines
Vote: +
- [COVID-19: examining the effectiveness of non-pharmaceutical interventions \(2023\)](#)
Note: Evidence review and case studies for effectiveness of NPI (e.g. masks, distancing, contact tracing) in COVID by The Royal Society.
Vote: +
- [Spiez lab 2024 Annual Report](#)
Note: Overview of the activities of Swiss Federal Institute for NBC-Protection
Vote:
- [Spiez CONVERGENCE Report 2024](#)
Note: Overview of the 6th CONVERGENCE conference about latest developments at biology and chemistry intersection, its influence on production of toxic chemicals, toxins and microorganisms and for chemical and biological arms control.
Vote:+++
- [Inferring the sensitivity of wastewater metagenomic sequencing for early detection of viruses: a statistical modelling study | medRxiv \(2025\)](#)
Note: Analysis of the applicability and limitations of wastewater metagenomics in terms of sensitivity and cost.
Vote:+++
- [Synthetic biology regulation in Europe: containment, release and beyond \(2023\)](#)
Note: Limits and challenges in current synthetic biology regulation.
Vote:
- [Developing Guardrails for AI Biodesign Tools \(2024\)](#)
Note: An overview of potential directions to make biodesign tools safer, produced by Nuclear Threat Initiative.
Vote:
- [Confronting risks of mirror life | Science \(2024\)](#)
 - [Technical report](#)
 - Core chapters for the discussion: 2, 3, 4 (and 8 optional)
 - Prompt questions:
 - Should scientists try to make mirror bacteria?
 - How should society manage the risks?
 - Who decides what research is “too risky”?

Note: An overview and comprehensive (~300 pages) technical report on the feasibility and risks of mirror bacteria.

Vote: ++

Facilitator: Chau

- **Topic: Antibiotic resistance – how impactful and tractable?**

Note: Read publication(-s) on growing impact of antibiotic resistance and/or the actions that can be done to mitigate.

Vote: +

Meeting structure

1. **An overview presentation** to remind of the main points / share relevant information (10-20 mins)
2. An open-ended **discussion**
3. Optional socializing, wrapping up

Facilitation

A facilitator would be the person(-s) preparing the overview and leading the discussion. By default, Ilia and Chau will be moderating any discussions not reserved by others.

Indicate your interest to lead the conversation for a particular publication by making a comment in this document or letting Ilia or Chau know directly.

Sources

[Biosurveillance | RAND](#)

AS2024

Meeting structure

1. **An overview presentation** to remind of the main points / share relevant information (10-20 mins)
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3. Optional socializing, wrapping up

Facilitation

A facilitator would be the person(s) preparing the overview and leading the discussion. By default, Ilia and Luca will be moderating any discussions not reserved by others.

Indicate your interest to do this by writing your name under an article or letting Ilia know directly. It's not expected of anyone joining to facilitate, but encouraged!

Finalized schedule

10 April: [Delay, Detect, Defend: Preparing for a Future in which Thousands Can Release New Pandemics](#) (2022)

Note: A policy publication by Geneva Center for Security Policy (GCSP) proposing a set of strategies to mitigate catastrophic biological risk.

Facilitator(-s):

15 May: [Toward A Global Pathogen Early Warning System](#) (2021)

Note: Report by Council on Strategic Risks that covers the current landscape in pathogen early warning and biosurveillance.

Facilitator(-s):

12 June: Intersection between biosecurity and CRISPR, in particular gene drives

Proposed readings:

- [Genome Engineering via CRISPR-Cas9 System](#). Chapter 21.1-3 **Emergent challenges for CRISPR: biosafety, biosecurity**
- **Asilomar conference** – a wider topic of history of recombinant DNA regulation (one or two of the list):
 - Grace, “**The Asilomar Conference: A Case Study in Risk Mitigation.**”
 - Berg et al., “Summary Statement of the Asilomar Conference on Recombinant DNA Molecules”;
 - Berg and Singer, “The Recombinant DNA Controversy: Twenty Years Later”;

Note: Potential for CRISPR modifications in humans, in agriculture, in genetically modified cells spreading long-term.

Facilitator(-s):

3 July: [Agnostic Sequencing for Detection of Viral Pathogens](#) (2023)

Note: Overview of techniques, applications and challenges of metagenomic sequencing

Facilitator(-s):

31 July: AI impact on biosecurity risks

Link 1: [Dual use of artificial-intelligence-powered drug discovery | Nature Machine Intelligence](#) (2022)

Link 2: [Will releasing the weights of future large language models grant widespread access to pandemic agents?](#) (2023)

Note: Experimental reports detailing potential risks of misuse, contributed by Collaborations Pharmaceuticals, Inc., Swiss Spiez laboratory and SecureBio and Secure DNA foundations.

Facilitator(-s):

28 August: Genetic engineering attribution

Link 1: [The biosecurity benefits of genetic engineering attribution | Nature Communications](#) (2020)

Link 2: [Analysis of the first genetic engineering attribution challenge | Nature Communications](#) (2022)

Note: Introducing an approach to enhance accountability by tracing the origins of genetic engineering products

Facilitator(-s):

Voting history

This section contains topics discussed during the first planning meeting, but not included in the final schedule.

Voting system: indicate your interest with a + or, if you have a strong interest, with !

- [Delivering Pandemic Vaccines in 100 Days](#) (2022)
Note: A policy paper by Coalition for Epidemic Preparedness Innovations (CEPI), outlining strategies needed to radically speed up the rate of development of new vaccines
Vote: +
- [Artificial intelligence for modelling infectious disease epidemics | Nature](#) (2024)
Note: A study in Nature co-authored by Tanja Stadler highlights how integrating AI into global health systems over the next five years could save lives by predicting disease outbreaks and improving healthcare resource allocation.
Vote:
- [CRISPR-based diagnostics | Nature Biomedical Engineering](#) (2021)
Note: Technical overview and applications of CRISPR-based diagnostics
Vote: +
- [Platform-Derived Broad-Spectrum Antivirals](#) (2023)
Note: In 2021 Germany's Federal Agency for Disruptive Innovation (SPRIND) launched an [innovation competition](#) aimed at identifying and funding approaches for platform-based broad-spectrum antivirals. This report presents 6 approaches that received funding between 2021-23.
Vote:
- [COVID-19: examining the effectiveness of non-pharmaceutical interventions](#) (2023)
Note: Evidence review and case studies for effectiveness of NPI (e.g. masks, distancing, contact tracing) in COVID by The Royal Society.
Vote: +
- [Nowcasting epidemics of novel pathogens: lessons from COVID-19](#) (2021)
Note: Reviews key characteristics of an outbreak
Vote:
- Topic: History of lab leaks
Note:
Vote: +
- Tech for biosafety, intersections with lab automation
Link: (optional)
Note:
Vote: +

Acknowledgements

Many of the readings were drawn from the curriculum of [Bluedot Impact Biosecurity Fundamentals program](#).