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AI and biosecurity: What's in a name?

This introductory lecture will provide the course participants with various educational backgrounds and academic qualifications, with the basic scientific, technical, and socio-economic aspects related to policies and practices designed to protect against deliberate misuse of biology to cause harm. It will provide a concise but comprehensive overview of how AI interacts with life sciences in relation to biosecurity. In the first section, attendees will be introduced to the basic concepts of AIxBio and the current state-of-the-art in this field. The second section will discuss what biosecurity means and how it contributes to peace and stability. Attendees will learn about how the convergence of life sciences and AI-enabled technologies shapes the threat landscape in biosecurity. Finally, the third section will explore the implications of the emerging biotechnology revolution for WMD non-proliferation. This section will examine the challenges posed by AI-bio capabilities and opportunities for reducing global biological risks without hindering scientific progress.

Links to suggested, open access, reading materials for course participants

- The Convergence of Artificial Intelligence and the Life Sciences. NTI, 2023. <https://www.nti.org/analysis/articles/the-convergence-of-artificial-intelligence-and-the-life-sciences/> **Read pages 12-30 (60 min read)**
- Luckey, David, Sara Duhachek Muggy, Taylor Frey, David Stebbins, Tracey Rissman, Bianca Espinosa, Daniel Tapia, Greg McKelvey, Jr., Neeti Pokhriyal, Joseph Dawson, Sara Hughes, Morgan Sandler, Rushil Bakhshi, Marta Kepe, Geoffrey Kirkwood, Sarah W. Denton, David DeSmet, Minami Makino, Ella Guest, Sina Beaghley, Suzanne Genc, Michael Miller, Skye A. Miner, Barbara Del Castello, Forrest W. Crawford, Ying-Chiang Jeffrey Lee, Clay Strickland, Sunny D. Bhatt, John Vahedi, Lydia Grek, Vanya Barrer, Ramiro Insuasti, Jr., Jack Lashendock, Derek Roberts, Aleksandr Esparza Hartunian, Shannon Walsh, Will Shumate, Elliott Brennan, Tyler Liggett, Kara Jia, Ajay K. Kochhar, James Smith, and James Ryseff, Mitigating Risks at the Intersection of Artificial Intelligence and Chemical and Biological Weapons. Homeland Security Operational Analysis Center operated by the RAND Corporation, **2025**. https://www.rand.org/pubs/research_reports/RRA2990-1.html. **Read pages 75 – 88 (50 min read) and pages 95-109 (60 min read)**

Additional reading

- Nazish Jeffery, Sarah R. Carter, Nazish Alexanian, Oliver Crook, Samuel Curtis, Richard Moulange, Shrestha Rath, Sophie Rose, and Jennifer Clark. Bio x AI: Policy recommendations for a new frontier, 2023. URL <https://fas.org/publication/bio-x-ai-policyrecommendations/> **(32 min read)**
- Cloud Labs and Other New Actors in the Biotechnology Ecosystem: Export Control Challenges and Good Practices in Outreach. Kolja Brockmann, Lauriane Héau and Giovanna Maletta. May 2025, Stockholm, SIPRI https://www.sipri.org/publications/2025/eu-non-proliferation-and-disarmament-papers/cloud-labs-and-other-new-actors-biotechnology-ecosystem-export-control-challenges-and-good-practices?utm_source=phpList&utm_medium=email&utm_campaign=New+SIPRI+Partner+Publication—Cloud+Labs+and+Other+New+Actors+in+the+Biotechnology+Ecosystem%3A+Export+Control+Challenges+and+Good+Practices+in+Outreach&utm_content=HTML **(50 min read)**