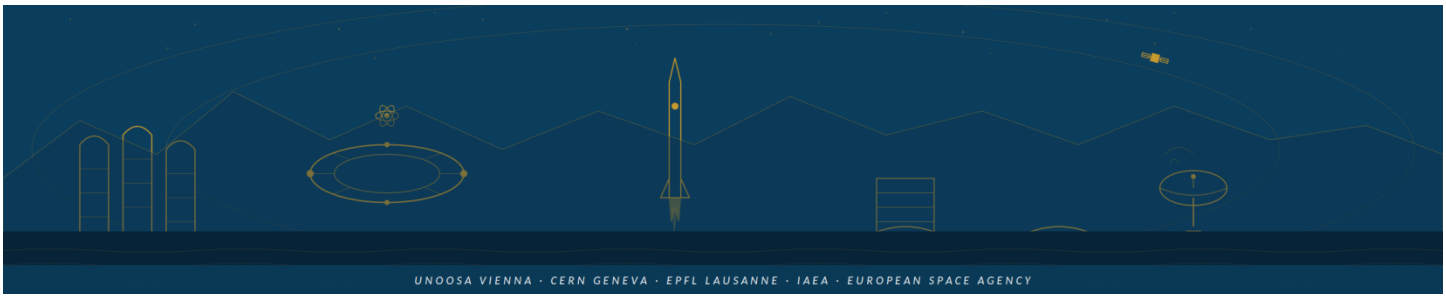


Space & Frontier Tech Programme • Vienna • Geneva • Lausanne

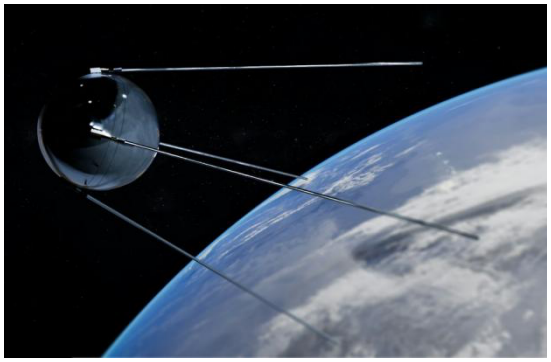
Where humanity's frontier technologies are governed — an undergraduate immersion at the intersection of space, science and the SDGs

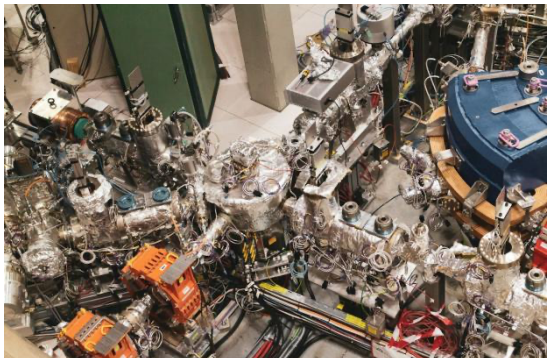
The technologies that will define the second half of the twenty-first century — orbital infrastructure, satellite Earth observation, particle physics, next-generation nuclear energy — are being simultaneously invented, governed and standardised within a single 500-kilometre corridor: Vienna to Geneva to Lausanne. Nowhere else on Earth are the space and frontier-tech dimensions of the Sustainable Development Goals so densely institutionalised.

The Space & Frontier Tech Programme · Vienna · Geneva · Lausanne places undergraduate delegates inside this corridor for ten days. Delegates engage directly with the United Nations Office for Outer Space Affairs, the International Atomic Energy Agency, the European Space Agency and CERN — the institutions that will shape how humanity conducts itself in space and at the frontier of physical science.

This is a genuine differentiator within the GYLDC portfolio. Few undergraduate programmes anywhere in the world offer this combination of space governance, frontier science and multilateral institutional access. Delegates leave with credentials that distinguish them for graduate study, career pathways and future participation in international scientific institutions.

PROGRAMME AT A GLANCE	
PILLAR	Climate & Frontier Science
PRIMARY TIER	Undergraduate
AVAILABLE FOR	All tiers (separate cohorts)
DURATION	10–12 days
NEXT ITERATION	August 2027
LOCATION	Vienna · Geneva · Lausanne
LANGUAGE	English
COHORT SIZE	25–30
CERTIFICATION	GYLDC + GSLDC





◎WHAT PARTICIPANTS EXPERIENCE

The programme opens in Vienna with immersive engagement at UNOOSA, the IAEA and the Moon Village Association. Delegates then travel to Geneva for structured programming at CERN — including a visit to the ATLAS or CMS experiment and a working session on how the world's largest scientific collaboration is governed — and at UNITAR's Operational Satellite Applications Programme (UNOSAT). The final phase in Lausanne engages the École polytechnique fédérale de Lausanne (EPFL), Europe's leading technical university, on frontier applications of space technology in climate science and sustainable engineering.

◎WHY GYLDC

This programme is one of GYLDC's most institutionally demanding to deliver. The access it offers — UNOOSA, IAEA, CERN, EPFL, ESA-linked partners — is the product of GSLDC's long-standing relationships with the Vienna and Geneva UN clusters. Very few undergraduate programmes worldwide can assemble this partner roster; among those in the Chinese-speaking market, we believe none can.

◎WHO THIS IS FOR

This programme is designed for undergraduate students whose intellectual curiosity and career trajectory intersect with space, frontier science, international scientific cooperation or the governance of high-technology systems. Delegates need not be technical specialists — but they should be prepared to engage substantively with technical content.

◎LEARNING OBJECTIVES

By the conclusion of the programme, participants will have:

- Developed a working knowledge of the global space governance architecture — the UN Committee on the Peaceful Uses of Outer Space, the five UN space treaties, and the emerging norms on orbital debris, spectrum, and dual-use technology.
- Established direct professional relationships with officials at UNOOSA, IAEA, CERN and EPFL, and with peer delegates from partner universities across Europe and Asia.
- Produced and defended a capstone project applying space or frontier technology to a defined SDG — evaluated by UNOOSA and IAEA specialists.
- Acquired the interdisciplinary fluency — moving between engineering, policy, ethics and international law — that distinguishes effective participants in twenty-first-century scientific institutions.

◎COMPETENCY FRAMEWORK

The programme develops six core competencies:

✓ **Creativity** ✓ **Decision-making** ✓ **Communication**
✓ **Scientific Reasoning** ✓ **Collaboration** ✓ **Interdisciplinary Thinking**

◎CURRICULUM ARCHITECTURE

The programme's architecture takes delegates progressively from governance to science to applied engineering — Vienna's institutional and legal frameworks, then Geneva's frontier physics and applied Earth observation, then Lausanne's engineering and integration. Each phase feeds the delegates' capstone: an applied proposal defended before UN officials and university faculty.

PHASE 1	PHASE 2	PHASE 3
Pre-Programme Online Module	*On-Site Immersion — Three Cities*	*Capstone Project*
≈ 3 hrs / week · 3 weeks (8–10 hrs)	**10–12 days on-site · 3 cities**	**Day 10 · capstone defence**
▸ The UN space governance architecture and COPUOS ▸ The five UN space treaties in practice ▸ Applied Earth observation for the SDGs ▸ Frontier science governance — CERN and the IAEA model ▸ Delivered by UNOOSA affiliates, IAEA specialists, and university faculty ▸ 8–10 hours across three weeks, culminating in a pre-arrival briefing pack	▸ Vienna: UNOOSA, IAEA, Moon Village Association ▸ Geneva: CERN — ATLAS/CMS visit and governance session ▸ Geneva: UNOSAT — applied satellite Earth observation ▸ Lausanne: EPFL — Space Center and frontier engineering ▸ Cross-city travel by rail — a working exchange en route ▸ Cross-cultural evening programme in each city	▸ Team-based capstone: space or frontier tech applied to an SDG ▸ Coaching by UNOOSA and IAEA specialists ▸ 10-minute defence before a mixed UN–academic panel ▸ Winning proposals nominated for UN Space4Youth programming ▸ Selected teams invited to the International Astronautical Congress

◎SIGNATURE INSTITUTIONAL PARTNERS

UN Office for Outer Space Affairs (UNOOSA)

The UN body charged with promoting the peaceful use of outer space; hosts a dedicated multi-day engagement covering COPUOS, the space treaties, and current negotiations on orbital debris and space traffic management.

International Atomic Energy Agency (IAEA)

The UN agency for peaceful use of nuclear technology; delegates engage on nuclear applications for the SDGs — medicine, agriculture, energy — and on the IAEA's dual model of promotion and safeguards.

European Organization for Nuclear Research (CERN)

The world's largest particle physics laboratory; delegates visit the ATLAS or CMS experiment at the Large Hadron Collider and receive a working session on the governance of the world's largest scientific collaboration.

◎SAMPLE ITINERARY

DAY	FOCUS	SIGNATURE ACTIVITIES
Day 1	**Arrival — Vienna**	Arrival in Vienna; check-in; welcome briefing on the space governance architecture; opening dinner.
Day 2	**UN Vienna & UNOOSA**	Full-day at the Vienna International Centre (VIC); UNOOSA plenary on space governance; introduction to COPUOS negotiations; UN campus tour.
Day 3	**IAEA & Moon Village**	IAEA briefing on nuclear applications for the SDGs; Moon Village Association session on lunar governance; evening cultural programme.
Day 4	**Vienna to Geneva**	Rail transfer to Geneva; en route working session on the CERN model of scientific collaboration; arrival and orientation in Geneva.
Day 5	**CERN Immersion**	Full-day at CERN: ATLAS or CMS experiment visit; senior physicist session on collaboration governance; hands-on demonstrations.
Day 6	**UNOSAT & Applied EO**	UNOSAT session on applied satellite Earth observation; case studies on humanitarian response and SDG measurement; capstone team formation.
Day 7	**Geneva to Lausanne**	Transfer to Lausanne; opening at EPFL; introduction to the Space Center; campus orientation and evening programme.
Day 8	**EPFL Frontier Engineering**	EPFL Space Center — CubeSat design workshop; satellite propulsion session; space-based climate observation demonstration; capstone coaching.
Day 9	**Capstone Development**	Capstone teamwork day; UNOOSA and EPFL faculty coaching; rehearsals; expert critique; final refinement of proposals.
Day 10	**Finals & Closing**	Capstone project defence before the UN–academic panel; awards ceremony; certification; farewell dinner; departure preparations.

◎WHAT PARTICIPANTS RECEIVE

Formal Certification

Certificate of Completion co-signed by GYLDC and GSLDC, valid for academic and professional credit recognition.

Letters of Recommendation

Selected participants receive personal letters of recommendation from UNOOSA officials, IAEA specialists or EPFL faculty.

UN Space4Youth Pathway

Winning teams nominated for UN Space4Youth programming and the International Astronautical Congress youth track.

Publication Opportunities

Winning capstone proposals published in the International Journal of Youth & Sustainability (ijys.org), with editorial support from GYLDC faculty.