

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

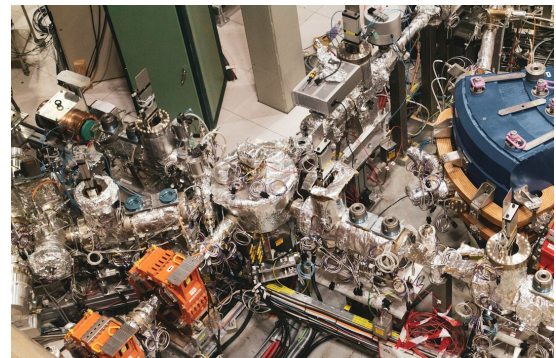
The technologies that will define the second half of the twenty-first century — orbital infrastructure, satellite Earth observation, particle physics, next-generation nuclear energy — are being simultaneously invented, governed and standardised within a single 500-kilometre corridor: Vienna to Geneva 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
FEE	On application



PROGRAMME OVERVIEW

©The Global Moment

Human activity in space is entering an unprecedented phase. Commercial launch capacity has multiplied. Low-Earth orbit is being populated with satellite constellations at a scale unimaginable a decade ago. National and commercial actors are planning permanent lunar infrastructure. The governance frameworks that will regulate this expansion — orbital debris, spectrum allocation, planetary protection, dual-use technology transfer — are being negotiated right now, primarily inside UNOOSA in Vienna. Delegates in this programme are not merely learning about these processes; they are in the rooms where they happen.

©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 GYLDC'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.

Suitable participants typically include: undergraduates in aerospace engineering, physics, computer science, mechanical engineering, or applied mathematics; students in international relations, space law, science and technology policy, or environmental studies with a space-technology dimension; participants preparing for graduate study in space policy, science and technology studies, or international scientific institutions; and student leaders active in space, robotics or physics societies on their home campuses. English working proficiency is required. A general familiarity with orbital mechanics or particle physics is welcomed but not required — the programme is calibrated to introduce non-specialist participants alongside those with prior grounding.

©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.
- Formed a lasting connection to GYLDC and clear pathways into UN Space4Youth programming and the international space community.



©COMPETENCY FRAMEWORK

The programme is structured against the six global-competency dimensions of the United Nations Youth Leadership Development Programme:

CREATIVITY	LEADERSHIP	DECISION-MAKING
COLLABORATION	COMMUNICATION	EXECUTION

©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
<i>Pre-Programme Online Module</i>	<i>On-Site Immersion — Three Cities</i>	<i>Capstone Project</i>
▶ 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

Note — Named partners are indicative. Delivery partners are curated on a case-by-case basis per cohort.

The programme is anchored in direct engagement with the institutions that govern and advance humanity's frontier science and space activities. Every partner below hosts a substantive session — a briefing by senior officials, a working meeting on live policy files, or a structured tour of active experiments and facilities.



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.



UNITAR Operational Satellite Applications Programme (UNOSAT)

UN training and research on applied satellite Earth observation; delegates engage on how satellite data is deployed for humanitarian response, climate monitoring and SDG measurement.



École polytechnique fédérale de Lausanne (EPFL)

One of Europe's leading technical universities; delegates visit the EPFL Space Center and engage on frontier applications of space technology, including CubeSat design, satellite propulsion and space-based climate observation.



Moon Village Association

The international non-governmental organisation coordinating civil-society engagement in lunar activities; provides delegates with an entry point into the emerging governance of permanent lunar infrastructure.

©FEATURED FACULTY

Note — Named faculty are indicative. Delivery faculty are curated on a case-by-case basis per cohort and confirmed approximately 60 days prior to commencement.

The programme's faculty combine current UN officials, sitting agency directors and named academic specialists from Europe's leading technical universities. Named faculty may vary between iterations; the profiles below are representative of the calibre confirmed for each cohort.

[PHOTO PENDING]

Director-level Official, UN Office for Outer Space Affairs

United Nations Office for Outer Space Affairs (UNOOSA), Vienna

A director-level UNOOSA official delivers the programme's opening plenary on the state of global space governance — including current COPUOS negotiations on orbital debris, spectrum, and space traffic management. UNOOSA specialists also adjudicate the capstone project and provide follow-on engagement to standout delegates.

[PHOTO PENDING]

Senior Physicist, CERN ATLAS Collaboration

European Organization for Nuclear Research (CERN), Geneva

A senior CERN physicist delivers the programme's session on the governance and operational realities of the world's largest scientific collaboration. Delegates receive a working introduction to how a global project involving 5,000 physicists across 40 countries actually functions — material with no equivalent in any textbook.

[PHOTO PENDING]

Professor, EPFL Space Center

École polytechnique fédérale de Lausanne (EPFL), Lausanne

A senior EPFL faculty member delivers the programme's session on frontier engineering applications of space technology — from CubeSat design to satellite propulsion to space-based climate observation. EPFL faculty also serve on the capstone project adjudication panel.

©SAMPLE ITINERARY

Note — Itinerary shown is illustrative. Actual programme is curated on a case-by-case basis per cohort.

The schedule below is illustrative. The exact 2027 programme will be released four months prior to commencement. Delegates receive a fully detailed handbook upon confirmation of enrolment.

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

Every delegate completing the programme leaves with a defined package of credentials, professional relationships, and pathways into further international engagement. These are structured to deliver durable value beyond the programme itself.

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.

Follow-on Access

Introduction to the Moon Village Association, ESA outreach programmes, and adjacent scientific communities — a rare gateway for undergraduates.

Alumni Network Membership

Automatic entry into the GYLDC global alumni network — several hundred fellow participants across cohorts and geographies.



©APPLICATION

Applications are reviewed on a rolling basis until each cohort fills. Cohort size is deliberately limited to preserve access quality at UNOOSA, CERN and EPFL. Schengen visa processing requires a minimum of six weeks; early application is strongly advised.

Eligibility

Undergraduate students (Years 1–4). Working English required. No specific technical prerequisites.

Cohort

25–30 delegates, curated for balance of technical and non-technical background.

Fee

On application. Fee covers programme delivery, ground programme, inter-city rail, materials and certification. International travel and accommodation are separate.

Contact

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