

Genesis Mission Consortium:

University Membership



U.S. DEPARTMENT
of **ENERGY**



Genesis Mission

GENESIS MISSION CONSORTIUM: UNIVERSITY MEMBERSHIP

The integration of artificial intelligence (AI) and advanced computing into research workflows represents one of the most consequential opportunities of our time to impact the future of science and innovation. AI has the potential to dramatically accelerate discovery – from predicting plasma instabilities in fusion reactors, to designing new molecules and materials for energy technologies, to simulating quantum systems that are currently intractable. Realizing this potential requires building integrated infrastructure spanning data, algorithms, hardware, and agentic control, while also establishing the policies, partnerships, and workforce that allow researchers to fully harness this infrastructure.

The Genesis Mission is a national effort to meet this challenge and requires capabilities, resources, and expertise drawn from across the nation—from universities, national laboratories, and industry.¹ It will build the world's most powerful scientific platform, dramatically accelerating energy innovation and discovery science and applying these capabilities to national S&T challenges. Further, it will foster the development of a future workforce required to lead the world in AI-for-science.

The university community has a central role to play in the Genesis Mission—training the next generation of AI-for-science researchers, generating foundational and applied knowledge, stewarding research datasets, and operating laboratories and experimental facilities that produce highly valuable scientific data and insights. Many universities have already established strong AI initiatives and have developed partnerships with industry and DOE's national laboratories.

To facilitate partnerships needed to reach the goal of the Genesis Mission, the Genesis Mission Consortium has been formed.² This document outlines an engagement plan for university participation in the Genesis Mission Consortium and is based on input from both the Genesis Mission University-Philanthropy Summit³ and the RFI on Workforce Development.⁴ This initial plan will be refined by the Consortium as needed.

Two interconnected tracks are envisioned for university engagement with the Genesis Mission Consortium: (1) building an integrated platform of computing, models, data, and

¹ <https://www.energy.gov/undersecretaryforscience/genesis-mission/genesis-mission>

² <https://genesismissionconsortium.org>

³ <https://www.energy.gov/sites/default/files/2026-07/Genesis-University-Summit-Breakout-Summaries-Report.pdf>

⁴ <https://www.energy.gov/sites/default/files/2026-07/Genesis-Mission-RFI-Analysis.pdf>

experimental resources needed to apply AI at scale, and (2) establishing an ecosystem, including talent, ideas and partnerships, to support AI-for-science R&D activities.

Consortium membership carries specific institutional opportunities and shared responsibilities, as outlined in the table below.

Opportunities for University Participation in the Genesis Mission Consortium	
Standards and Leadership	Serving on technical working groups to define priorities, set standards, define best practices, and produce outputs that shape the field
Platform Integration	Contributing to the Genesis Mission platform, including federated computing, data, and experimental resources at national scale
Cross-sector Collaborations	Connecting to a national network of national laboratories, industry partners, and peer institutions working at the frontier of AI-for-science
Curriculum Innovation	Creating a community of practice for curriculum innovation in AI-for-science, with opportunities to co-develop academic programs, share best practices, and get input from national labs and industry
Workforce Development	Shaping and participating in AI-for-science training via fellowships, internships, and exchange programs with national labs and industry
National Advocacy	Elevating the strategic case for America's S&T future and informing national science policy

Core Engagement

At a minimum, all Consortium members are expected to contribute meaningfully to the Genesis Mission's primary goal of advancing national R&D capabilities through AI, advanced computing, and quantum technology. Core university membership is defined by two elements, where each university member contributes to *at least* one of these elements:

1. Connection of High-Value Resources to the Genesis Mission Platform

University members may connect (federate) one or more high-value resource(s) to be linked to the Genesis Mission platform. Eligible resource types include:

- Data repository of scientific significance
- Experimental or laboratory resource
- High-performance or specialized computing resource

The connected resource(s) must be discoverable and accessible to Consortium members. A more complete definition, including how workflows can be triggered, what access controls apply, and how cost recovery might work, will be defined by the relevant Consortium working groups.

2. Commitment to AI-for-Science Workforce Development

University members may make a meaningful, institution-level commitment to preparing their students and researchers to work at the intersection of AI and science or engineering. This commitment should consist of visible activities with a clear tie to the Genesis Mission. These activities could include, for example, applications of the Genesis Mission platform in graduate research, co-development of innovative curriculum with consortium partners, or establishing Genesis Mission internship opportunities with member national laboratories or industry partners.

The specific form of this commitment will vary by institution and is expected to be described as part of the membership agreement. The consortium will provide guidance and examples, but institutions are encouraged to propose contributions that fit their needs and build on their existing strengths.

Additional Engagement Opportunities

Beyond core membership, universities may choose to participate in a range of additional activities. While not required for membership, these activities represent high-value opportunities for institutions wishing to engage more deeply. By actively supporting and participating in these activities, the Consortium will provide a vibrant, interconnected community that makes transformative Genesis Mission R&D possible.

Talent & Workforce Development: Consortium members will have the opportunity to actively shape the next generation of AI-for-science researchers that will benefit the university, its students and faculty, and the nation. This may include working with other Consortium members to design novel undergraduate and graduate training focused on the intersection of AI with scientific and engineering domains, establishing experiential training programs at national laboratories and industry facilities, and establishing faculty exchanges, among other activities.

Strategic & Collaborative Initiatives: Institutions may choose to engage in broader, high-impact activities that leverage the full power of the consortium network. This could include organizing or hosting Consortium symposia and conferences, connecting university researchers with private sector and philanthropic funding sources, and establishing reciprocal agreements, such as receiving access to computational resources and expert support in exchange for conducting research and providing student fellowships or research commitments.

Leadership: Institutions may take on leadership roles within the consortium by nominating representatives to serve on a governing board, strategic planning groups, and organizing committees for major events. For example, a university representative could assume a leadership role in one of the foundational working groups (see below), setting its agenda and driving its collaborative projects.

Foundational Working Groups: An initial set of working groups have been defined to support the Consortium. The Consortium working groups are member driven and the number and scope of the working groups will evolve over time based on member interests and priorities. Each working group will be responsible for producing substantive outputs — documents, standards, or recommendations — on a defined timeline.

Initial Set of Genesis Mission Consortium Foundational Working Groups	
AI Model Development & Validation	Advance foundational and domain-specific AI models for applications in energy, discovery science, and national security. Ensure rigorous model validation and reliability for scientific use cases.
Data Integration & Standards	Harmonize data formats, create metadata standards, and promote data interoperability across DOE labs, industry, and academic organizations. Address secure data governance and compliance standards.
High-Performance Computing & Cloud Infrastructure	Integrate supercomputing resources with the American Science Cloud (AmSC) to enable scalable, AI-driven research and real-time collaboration. Enable federated data sharing for rapid AI model training.

Robotics & Automation	Design and deploy robotics and automation systems for use in innovation labs and research facilities to accelerate research throughput and reduce operational bottlenecks.
Workforce Development & Training	Define best practices for training, including AI models (both applications and limitations), data, security, and workflow integration. Define standards for internships and other experiential training.

Administrative Support for Consortium Members

RTI International serves as the Consortium Operator and Facilitator in its role as Partnership Intermediary and provides neutral, third-party management and administrative support.

How to Become a Member of the Genesis Mission Consortium

Universities interested in joining the Genesis Mission Consortium should visit <https://genesismissionconsortium.org/membership> and fill out the membership interest form, describing one (or more) high-value resource that your institution will contribute to the Genesis Mission platform **AND/OR** providing a description of your institution's commitment to developing an AI-for-science workforce. Please also list any of the additional engagement opportunities to which your institution may be interested in contributing.