

Updated Course Goals

8/14/26 18:00 - 20:00 ET



Yohn Jairo Parra

Mentor 1: Felicia Doswell- Norfolk State University

Home Institution: Florida A&M University

Target Course: Artificial Intelligence

Target Course Number: CAP-4620

Anticipated Enrollment: 12 in the fall.

Science Gateways Resource Needs/Questions:

- *How many students will be active simultaneously?*
- What are memory and storage quotas per user?
- When and how frequently is this course offered?

Project Goals:

- Evaluate open-weight large language models (LLMs) that students can deploy, fine-tune, and benchmark on HPC systems through science gateway interfaces.
- Curate domain-relevant datasets and pre-configured computing environments (Jupyter/containerized) that can be published and reused on science gateways.
- Map gateway-hosted datasets across domains (environmental, health, geospatial) to specific course modules — clustering, computer vision, NLP — creating a reusable crosswalk that shows instructors which gateway data assets support which AI competencies.

Science Gateway Goal:

Extend Access to Cyberinfrastructure (Growing the Community) :Using NRP to compare unsupervised models versus Google Colab" puts students on the National Research Platform.



Joseph Aneke

Mentor 1: Sabrina Perry - Austin Peay State University

Home Institution: Hampton University

Target Course: Introduction to Python Programing

Target Course Number: CSC 291

Anticipated Enrollment: 22-30 Offered every Spring

Science Gateways Resource Needs/Questions:

- *What Science Gateways AI tools are available and easily usable in classrooms ?*
- *What training and computing resources are available?*

Science Gateway Goal: Use classroom-friendly Gateway resources (Jetstream2, Cornell Virtual Workshop, HPC Carpentry) to experience computing beyond the desktop

Project Goals:

- *Goal 1: Introduce students to Programming with HPC Perspectives*
- *Goal 2: Explore resources e.g Data sets with a view to produce reproducible projects*
- *Goal 3: Train students to integrate and visualize results from science gateway platforms.*



Mary K. Beals, PhD

Mentor:Subil Abraham - Oak Ridge National Lab

Home Institution:Southern University A&M College

Target Course:Ecology (404B)

Enrollment:15 Students

Course Offered:Fall and Spring (as needed)

Science Gateway Resource Needs / Questions

- *What practices ensure student CURE workflows are accessible, reproducible, and sustainable beyond the Hackathon?*
- *How can Gateways best guide students through the full ecological research process in Louisiana ecosystems?*
- *What support helps biology majors new to computational tools feel confident using Science Gateways?*

Project Goals

ECOLOGICAL COURSE INTEGRATION

- Develop a beginner-friendly **CURE** module in Ecology 404B that guides biology majors through ecological question development, data exploration, visualization, and interpretation.
- Use Louisiana-focused ecological and environmental datasets to connect course concepts to wetlands, biodiversity, climate change, water quality, and coastal change.
- Build student confidence with computational ecology through guided **CloudBank/Jupyter notebook** activities, structured tutorials, and reflection checkpoints.

Science Gateway Goal

Use **NAIRR CloudBank Classroom** as the primary student-facing cloud workspace for Ecology students to store project files, access guided **Jupyter notebook** activities, and explore ecological datasets in a browser-based environment at no cost.

- *Student access and storage through CloudBank*
- *Guided Jupyter notebook activities*
- *Cornell Virtual Workshop onboarding tutorials*
- *HPC Carpentry reproducible workflow support*
- *Low-bandwidth backup datasets and worksheets*

Tanganika Johnson, Ph.D.

Southern University and A&M College | UFOR 271 Environmental Science

Mentor 1: Mohammed Elmellouki - Mississippi Valley State University

Mentor 2: Not assigned

Home Institution: Southern University and A&M College

Target Course: Environmental Science

Course Number: UFOR 271

Enrollment: 10-15 students

Course Offered: Spring or Fall semester

Science Gateway Resource Needs / Questions

- Which SGX3 support will help us launch CloudBank Classroom through ACCESS and onboard students equitably?
- Which Baton Rouge urban-heat datasets and mapping tools best support discovery, visualization, and interpretation?
- What scaffolded notebooks and instructor guides will support four CURE activities without relying on mentors?
- What SGX3 practices will keep notebooks and data accessible, reproducible, reusable, and sustainable?

Project Goals

FROM THE BLUFF TO THE BAYOU

- Develop four scaffolded CURE activities centered on urban heat and environmental resilience in Baton Rouge and South Louisiana.
- Guide students through Discovery, Visualization, Analysis, and Interpretation using gateway datasets and student-collected field data.
- Use HPC Carpentry's Introduction to HPC to prepare students for shared computing, remote resources, and responsible data practices.
- Produce reusable notebooks and authentic products: a research report, accessible poster, and community-facing environmental brief.

Science Gateway Goals

- Establish ACCESS CloudBank Classroom as the managed course JupyterHub
- Select accessible gateways, tools, and Louisiana datasets with SGX3
- Provide equitable, low-barrier onboarding for 10-15 students
- Sustain reproducible, reusable workflows across future semesters

Oyebade Kunle Oyerinde

Mentor 1: Dr. Elijah MacCharty - Oak Ridge National Laboratory

Home Institution: Clark Atlanta University

Target Course: Economics and Data Science for Public Administrators

Target Course Number: CPAD 504

Anticipated Enrollment: 20Fall & Spring as needed

Science Gateways Resource Needs/Questions:

- *Need/Question 1: What Gateways AI tools to use?*
- *Need/Question 2: What are available Gateways sources?*
- ...

Project Goals:

- **Goal 1:** Identify and explain the principles and concepts of microeconomics, macroeconomics, and data science that are applicable in decision-making by organizations
- **Goal 2:** Analyze economic data using software programs and programming languages, such as R, Python, and Excel in Jetstream2 and CloudBank Hubs.
- **Goal 3:** Communicate through storytelling about data visualizations in R and/or Python.
- **Goal 4:** Construct alternative policy options to remedy a market failure through problem.

Science Gateway Goal:

Kristine Christensen

Mentor 1: Dr. John Holmen, ORNL

Mentor 2: Charlie Dey, TACC

Home Institution: Moraine Valley Community College

Target Course: IoT Fundamentals (no prereqs)

Target Course Number: LAN 120.300 (Freshman/Sophomore)

Anticipated Enrollment: 24

Offered: Fall & spring, with at least one section offered each semester



Science Gateways Goal:

Develop a Science Gateways-based learning experience that enables introductory community college IoT students to analyze authentic and student-generated sensor data using Jupyter notebooks and Jetstream resources, helping them understand how IoT data can be visualized, analyzed, secured, and scaled beyond a single device.

Science Gateways Resource Needs/Questions:

- Guidance selecting an appropriate science gateway, cloud, or HPC environment.
- Help creating a beginner-friendly, browser-based Jupyter environment and recommendations for introductory IoT, sensor, cybersecurity, and critical infrastructure datasets.
- Support adapting or developing scaffolded notebooks for data exploration and visualization.
- Guidance for allowing students to upload and analyze data collected from their own sensors.

Project Goals:

- Introduce entry-level IoT students to science gateways, public datasets, Jetstream 2, Jupyter notebooks, cloud computing, and HPC resources.
- Develop foundational notebook and visualization skills through scaffolded activities designed for students with no prior Python or HPC experience.
- Help students run prepared code, modify selected variables, visualize authentic IoT and industrial data, and interpret the results.
- Introduce AI-assisted anomaly detection, cybersecurity, and critical infrastructure applications in an approachable manner.
- Guide students in transferring these skills to a sensor-based final project in which they collect, analyze, visualize, and report on their own data.

Antigone Anthony

Mentors

Mentor 1: Ahmad Al-Omari (Our Lady of The Lake University)

Mentor 2: First Last Name - Affiliation

Home Institution: Southern University A&M College

Target Course: Anatomy & Physiology

Target Course Number: SBIO 221B

Anticipated Enrollment: 25 Fall & Spring semesters

Science Gateways Resource Needs/Questions

- *How can science gateways support our courses and research?*
- *What training and computing resources are available?*

Science Gateway Goal

*"Integrate accessible Science Gateway, computational, and AI tools such **BioDigital Human** and **Jupyter** into the Anatomy & Physiology laboratory to improve students' understanding of complex biological concepts through visualization, data analysis, and interactive learning."*

Project Goals

- Integrate science gateway resources into teaching and research activities.
- Expand student access to computing tools, data, and hands-on learning.
- Provide faculty and students with training and technical support.

Cheryl A. Swanier

Mentor 1: Anas AlSobeh - Utah Valley University

Home Institution: Voorhees University

Target Course: Intro to Computing

Target Course Number: CMP 224

Anticipated Enrollment: 12 Fall & Spring Semesters

Science Gateways Resource Needs/Questions:

- *Need/Question 1: Which Gateway Resources can be used to assist students with AI?*

Project Goals:

- **Goal 1:** Increase access to computing resources with Jetstream2 virtual computing environments
- **Goal 2:** Integrate generative AI into programming instruction for code generation, debugging, explanation, and problem solving.
- **Goal 3:** Develop authentic computational projects using Jetstream2 and AI that mirror real-world computing applications.

Science Gateway Goal: Integrate Science Gateway resources, including Jetstream2 cloud computing infrastructure and AI-enabled tools, into an introductory programming course to provide students with accessible, authentic, and scalable computing experiences that strengthen computational thinking, programming skills, and AI literacy.

Joshua Gbadebo

Mentor 1: Prof. Sajida Faiyaz- Austin

Home Institution: Voorhees University

Target Course: Computer Architecture

Target Course Number: CMP 334

Anticipated Enrollment: 15 Fall and Spring semesters

Science Gateways Resource Needs/Questions:

- *Need/Question 1: How does JetStream2 map onto computer architecture concepts.*
- *Need/Question 2: Understanding how AI has enabled modern computer architectures evolution.*
- *Need/Question 3: Which other Science Gateway AI resources can help students understand architecture in Cloud Computing*

Project Goals:

- *Goal 1: Understand the concept of Computer Architecture.*
- *Goal 2: Integrate the concept and understanding of cloud architecture as it relates to traditional computer architecture.*
- *Goal 3: Analyze how computer architecture principles support artificial intelligence workloads by examining the interaction between processors, memory systems, storage, parallel computing, and specialized AI hardware accelerators.*
- *Goal 4: Prepare students to understanding the importance of computer architecture in traditional on-prem and modern cloud computing models in IaaS, PaaS, SaaS.*

Science Gateway Goal:

My goal is to leverage Jetstream2 to provide students with cloud-based access to real CPU, GPU, memory, storage, and networking resources, allowing them to **experiment with and measure how computer architecture components affect AI workload performance.**



Agbeli Ameko

Mentor 1: Dr. Mohamed Elbakary, ECSU

Mentor 2: First Last Name - Affiliation

Home Institution: Howard University, Applied Data Sci & Analytics

Target Course: Intro to Open Source Future: Decolonizing Technology & Data Sovereignty

Target Course Number: DATA 500

Anticipated Enrollment: 15-25 Spring or Fall semester

Science Gateways Resource Needs/Questions:

- *Jetstream2: VMs, JupyterHub, Docker, metabase, Ollama/AI*
- *Backup classroom server & remote compute*
- ...

Project Goals:

- *Understand local open-source tools, OS, automations, and ethical computing vs digital colonialism*
- *Tour of useful open source data skills via JupyterLab, Metabase, Python for Environmental Justice analysis*
- *Critical analysis of big tech power and building confidence to utilize open source solutions*
- *Add additional goals from the poster*

Science gateways Goals:

- *Jetstream2 JupyterHub*
- *VMs and Guacamoe emulation*