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SCHEDULE

https://hackhpc.github.io/facultyhack-gateways23/schedule.html

The Hack.

- ~~10/19, 5pm ET - Kickoff~~
  - ~~Project Eureka! - Boyd Wilson, CEO, Omnibond~~
- 10/20, 5pm ET - First Check-In
- 10/21, 5pm ET - Second Check-In
- 10/22, 5pm ET - Final Check-In
  - Faculty Programs - Elijah Macarthy, ORNL

Poster Presentation.

- 10/30, 6:40pm ET - Science Gateways 23
  - Exit Interview, Alex Nolte

Deliverables

Outcomes:

1. A completely revised course description with implementation schedule.
2. Assignment of a Gateways community mentor to provide use cases, resources and next step suggestions.
3. Robust access to HPC resources for research and instruction.
4. Opportunities to collaborate with other HPC educators and technical personnel.
5. Understanding of how to collaborate with an educator at their institution on HPC course revisions.

Challenges:

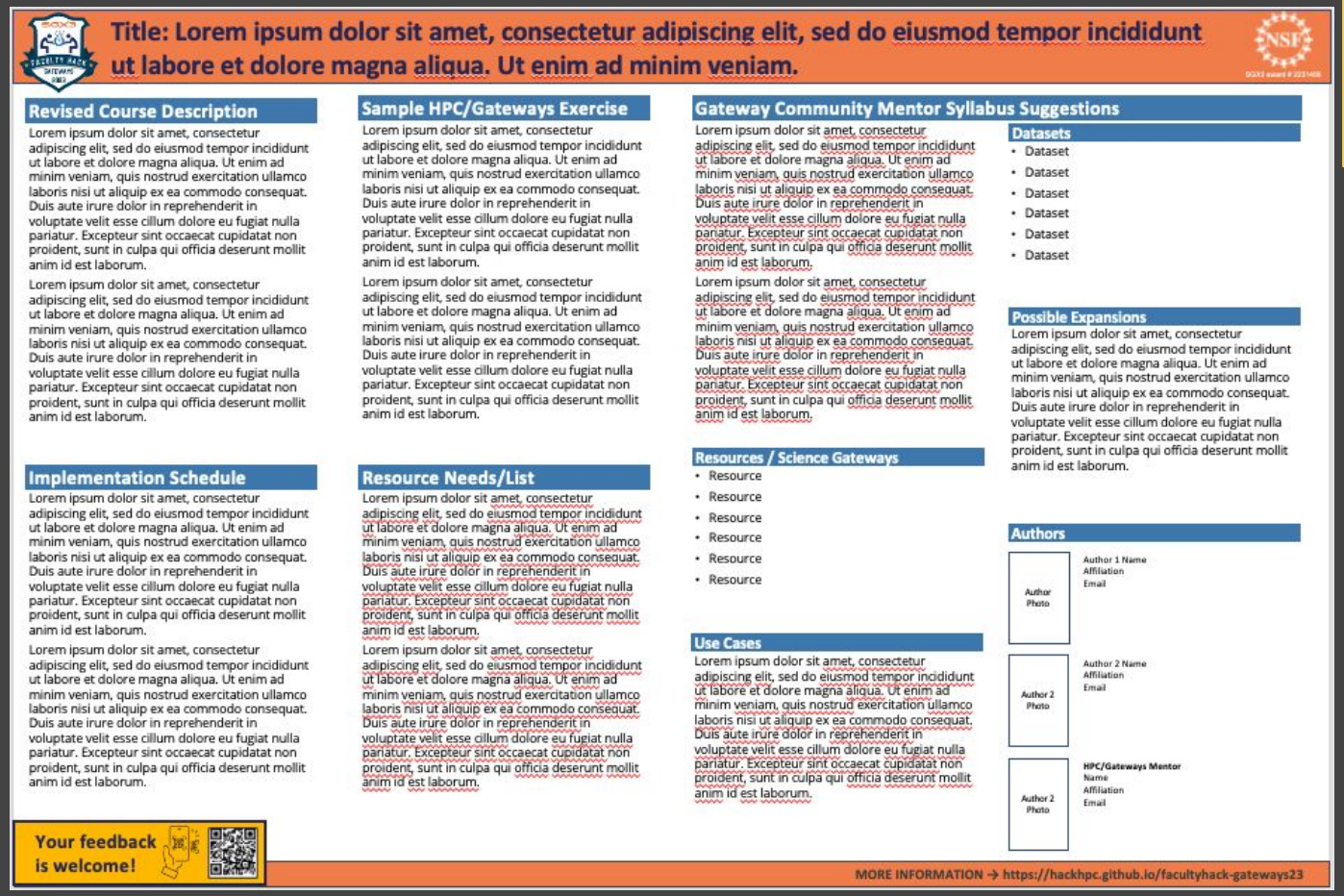
1. Attending all Hackathon training sessions For updates see https://hackhpc.github.io/facultyhack-gateways23/
2. Attend the Gateways 2023 Conference in Pittsburg, PA ($2000 Travel stipend is provided- make your own travel arrangements)
3. Poster presentation of revised courses at Gateways 2023. Poster Session is Monday Oct. 30th 6:40: PM - 9:00: PM EST
4. Produce a Blog Post on your SGX3 Curriculum project which will be uploaded to sciencegateways.org/networking-community/blogs

Your GitHub Repo

Your GitHub should contain the following:

- Contact information for the faculty and the mentor
- A headshots of the faculty and the mentor
- HPC support / accounts for your course (include URL and a brief description)
- A List of 3-4 Gateway references (include the URL of the Gateway and a brief description)
- A List of HPC tools used (include URL of tutorials or training)
- The revised course syllabus
- The next step suggestions from the community mentor
- The 2-year Course implementation schedule (Spring 2024 - Fall 2025)
- Your Poster, which conforms to the template provided
- The 2-page blog post (Include specific HPC resources and Gateways usage).
- Description of your ongoing needs from SGX3.

YOUR POSTER



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Revised Course Description

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Implementation Schedule

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Sample HPC/Gateways Exercise

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Resource Needs/List

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Gateway Community Mentor Syllabus Suggestions

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Resources / Science Gateways

- Resource
- Resource
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- Resource

Use Cases

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Datasets

- Dataset
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- Dataset

Possible Expansions

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Authors

Author Photo — Author 1 Name, Affiliation, Email

Author 2 Photo — Author 2 Name, Affiliation, Email

Author 2 Photo — HPC/Gateways Mentor, Name, Affiliation, Email

Your feedback is welcome!

MORE INFORMATION → https://hackhpc.github.io/facultyhack-gateways23

HTT


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GATEWAYS
2023
FACULTY HACK
@GATEWAYS 23
Cloudy Cluster!
Presented by: Boyd Wilson
CEO - Omnibond Systems
HTTPS://HACKHPC.GITHUB.IO/FACULTYHACK-GATEWAYS23
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CHECK-IN PRESENTATIOIN TIME

FACULTY HACK @GATEWAYS 23

Team Introductions & Goals

HTTPS://HACKHPC.GITHUB.IO/FACULTYHACK-GATEWAYS23

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Instructions

1. Create a slide
2. Add your team information to the slide
   a. Team Members names and Pictures
   b. Team Mentors names and Pictures
   c. Team Theme Song
      i. Song name
      ii. Artist
      iii. URL Link to the song
   d. Your Goals
   e. Url to your team GitHub repository

Team Altair

Bernie Boscoe, Southern Oregon University

Team Mentors : Veronica Vergara & Mohamed Elbakary

Team Theme Song: New Order, Thieves like us remix (1987)
https://soundcloud.com/markaymufc/new-order-thieves-like-us-mk-instrumental-cover-kleptomaniac-mix

Goals:

To add a module to an undergraduate Intro to Data Science course that demonstrates how to use Jupyter Notebooks in the cloud, with a large dataset, and if I can, GPUs to train an ML model that would not be possible to do without a GPU-enabled device. Outcomes would be an understanding of accessing cloud interfaces, basic terminal commands, an overview of the Jupyter notebook as both a local and cloud tool, and if possible, how to test if GPUs are being seen. Update: possibly using JetStream2

What I need help with: what resources have Jupyter notebooks with GPU option? How can we all share a space, for example for 25 students? How do I handle accounts? How can we load/make available a dataset for them to access?

https://github.com/bboscoe/gateways23

Jarvis Bulldog Team

Team Members: Widodo Samyono,
Jarvis Christian University

Team Mentors: Je'aime Powell

Team Theme Song

i. Song name : Hey Bulldog
ii. Artist : The Beatles
iii. URL Link to the song: https://www.youtube.com/watch?v=M4vbJQ-MrKo

Jarvis Bulldog Team

Our Goals:

1) Redesigning MATH 3390: Computational and Mathematical Biology, using HPC Open Sources from Science Gateways.
2) Building a website for MATH 3390: Computational and Mathematical Biology, using the HPC Open Sources.
3) Piloting the redesigned course in Spring 2024.
4) Conducting surveys and evaluations for the course.

Url to our team GitHub repository:
https://github.com/wsamyono/BulldogTeamFacHackGA23

Team Tech Tigers

Team Theme Song

i. Song name : Weird Science
ii. Artist : Oingo Boingo
iii. URL Link to the song: https://soundcloud.com/oingo-boingo-official/weird-science-album-version?si=e08c2d1f6ce54be18aa649d1ea08556c&utm_source=clipboard&utm_medium=text&utm_campaign=social_sharing

Team Tech Tigers

Target Course:

ECE 101 - Introduction to Electrical & Computer Engineering

Our goals:

- Expand the Introduction to Computers Module to include an introduction to High Performance Computing
- Introduce students to cloud services including GitHub and AWS
- Expand students' understanding of the need for HPC professionals

Url to our team GitHub repository:

https://github.com/jackson820/TeamTechTigers

Bulldogs Team

Team Member: Dr. Rui Zhu
(Kettering University)

Mentor: Dr. John Holmen
(Oak Ridge National Laboratory)

Mentor: Yvonne Phillips
(Morehouse College)

- Target Course(s): CS425 Parallel Programming and Algorithms, CS457 Wireless and Mobile Security
- Goal:
  - Integrating HPC with Cybersecurity, Cryptography, and Machine Learning to develop curriculums
  - Identify applicable HPC resources from ORNL/wider HPC community and develop course descriptions
  - Create and refine course schedules, hands-on labs, etc.
- GitHub Repo: https://github.com/ruikobe/KetteringTeamFacHack23
- Theme Song: George Thorogood & The Destroyers - Bad To The Bone

@MacCarthy@Kanampiu@Alsmadi

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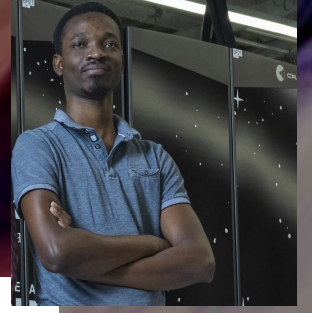

WorkFlow Labs in HPC CAMSA Team

Something that always work (Reproducibility)

Goals:
1. Integrating HPC within CSCI 5306 (Computer Networks) Workflows lab
2. Produce introductory material to all other majors

Ballad of the Alamo, R.W. Hampton, https://soundcloud.com/r-w-hampton/ballad-of-the-alamo?in=user-470827170/sets/normal

HTTPS://HACKHPC.GITHUB.IO/FACULTYHACK_GATEWAYS23

https://github.com/alsmadi/CAMSA_Gateways_2023

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Team Name: ThreatTracker

Course Objective:

In CYB 4900 Cybersecurity Capstone Project, student integrates deep learning with cybersecurity threat intelligence to address the specific challenges posed by Internet-of-Vehicles, particularly in the context of emergency vehicles using synthetic cyber knowledge graphs to represent and analyze cyber threat intelligence and relationships, and they will employ deep learning algorithms such as Autoencoders, RNNs, and CNNs for anomaly detection within this graph data.

Goals/tasks:

1. Build SCKGs with frontends.
2. Create STIX objects and store them.
3. Generate interconnected threat graphs and visualization.
4. Implement deep learning algorithms.
5. Preprocess and format data.
6. Train and evaluate models for anomaly detection.
7. Simulate cybersecurity scenarios.
8. Discuss ethical considerations.

GitHub Repo: https://github.com/Shan-Reddy/FacultyHack2023

Course Planning:

- Week 1-4: Goals 1, 2, 7
- Week 5-8: Goals 3, 4, 7
- Week 9-12: Goals 5, 6, 7
- Week 13-16: Goals 7, 8

Course Implementation Schedule

- Spring 2024
- Fall 2024
- Spring 2025
- Fall 2025

Computing Tools/Environment

- GitHub (to store code and data) (optional)
- Python 3.8+ with packages (faker)
- Oasis stix2-generator, stix2-validator, stix-visualizer
- Synthetic Data Vault
- MITRE ATT&CK STIX Data

Skills/Knowledge/Abilities

- Python
- Statistics
- Databases
- Basic cyber intrusion knowledge

Course Assessment

- 25% of the overall grade: Create frontend for Identity, Malware, and Threat Actor objects
- 25% of the overall grade: Generate STIX objects from user input, Finish STIX objects and store them in the database
- 25% of the overall grade: Generate/visualize a graph using three STIX objects Identity, Malware, and Threat Actor
- 25% of the overall grade: Anomaly detection using Deep Learning Algorithms.

Theme Song:

https://soundcloud.com/alsyn/synesthesia?in=sc-playlists/sets/brainwaves

Time to hack.

We're going to be opening breakout rooms very soon

- Your task for tomorrow's check-in is:
  - The Course Description
  - Potential Resource Needs
  - Sample Datasets
- And be ready to present, 3 minutes, 3 slides.

Supported by:

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What's coming up tomorrow

10/21, 5pm ET
The Second Check-In

Except for Je'aime: