HPC Driver's Ed

RCC Education for Research Support

ITS

SEMINOLE SHOWCASE

What is the FSU Research Computing Center? (RCC)

- A unit of the FSU Information Technology Services
- Originally a division of Scientific Computing in 2013
- The team that hosts and administers the main supercomputing resource at FSU: the High Performance Computing system (HPC)

What is High Performance Computing?

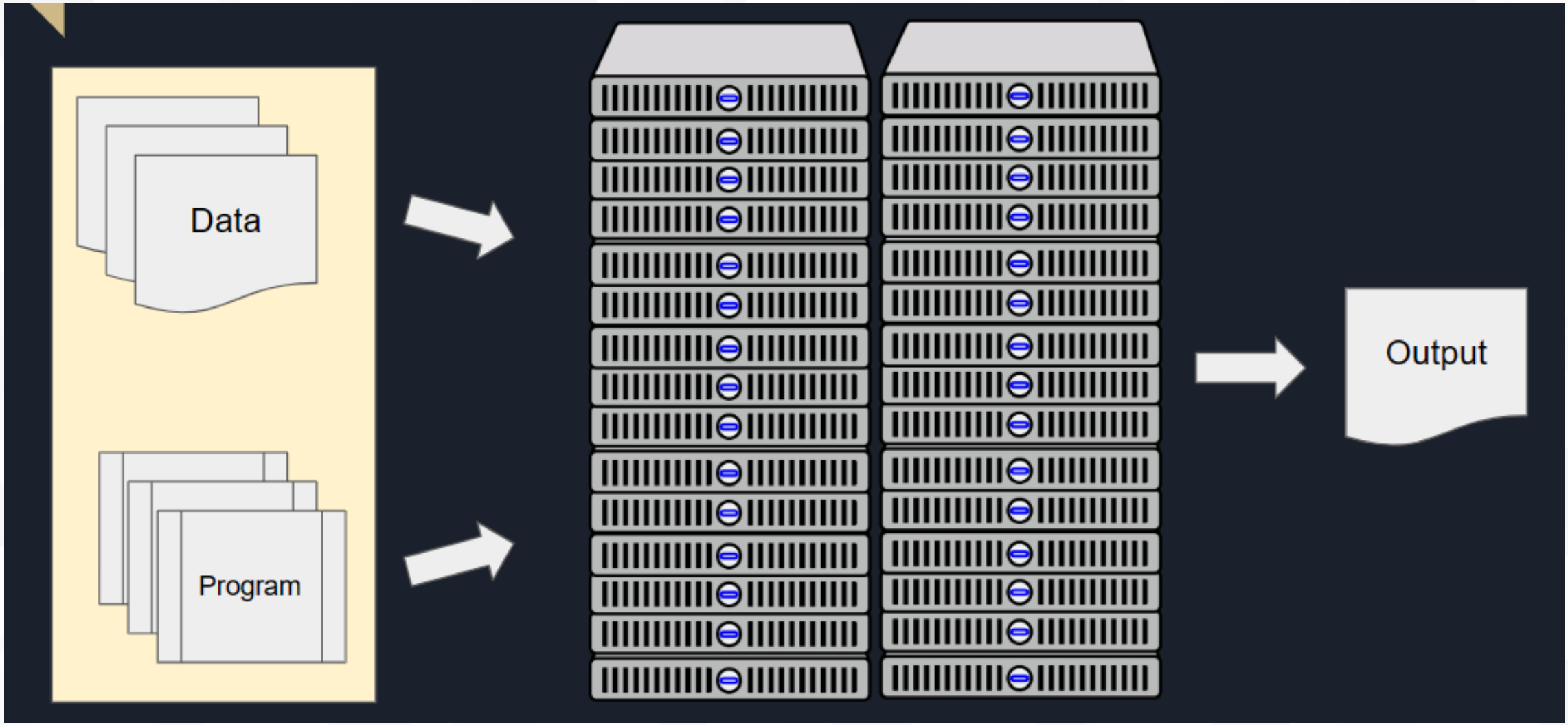
Specialized Hardware

- Contains more processors than the average home computer
- Can house custom machines (via a research grant) with specialized hardware

Offload your work

- Takes pressure off your regularly used desktop, laptop or other devices
- Run tasks that need to be repeted many times over long periods of time

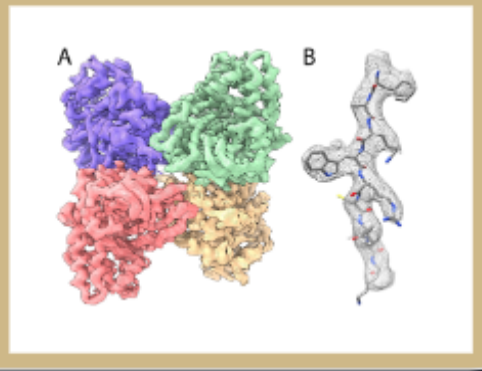
What is an HPC job?



Examples of RCC Enabled Research

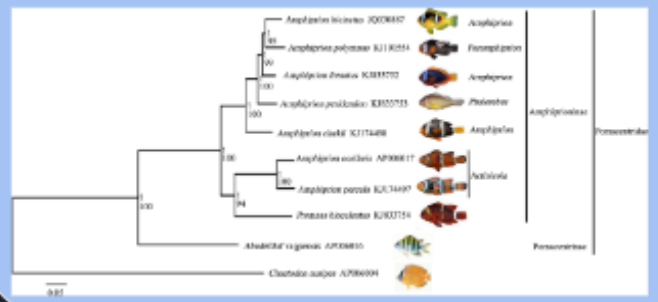
Molecular Biophysics
3D Image Processing of Molecular Structures

Dr. Scott Stagg & CryoEM Group



Population Genetics
Scalable Inference of Population Phylogenetic Parameters

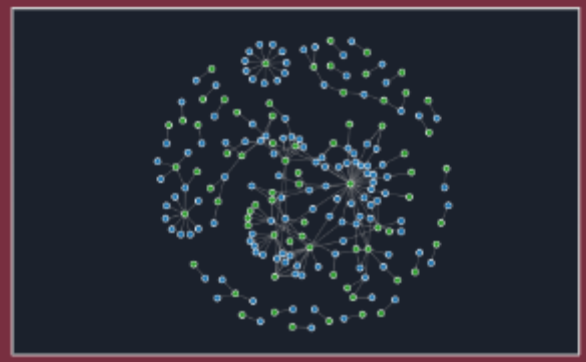
Dr. Peter Beerli



By Jianlong Li, Xiao Chen, Bin Kang, Min Liu - Li J, Chen X, Kang B, Liu M (2015) Mitochondrial DNA Genomes Organization and Phylogenetic Relationships Analysis of Eight Anemonefishes (Pomacentridae: Amphiprioninae). PLoS ONE 10(4): e0123894. doi:10.1371/journal.pone.0123894 http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0123894, CC BY 2.5, https://commons.wikimedia.org/w/index.php?curid=49428069

Criminology
Extremism in Online Forums

PhD Candidate Willis Shaw



RCC Infrastructure

665 Nodes

- Beowulf Cluster
- AlmaLinux 8.6

46 GPUs

- NVIDIA: GTX 1080 Ti and A4000s

17,904 Processors

- AMD, Intel Massively Scalable and Parallel

524,762 GigaFLOPS

- Very Fast Maximum Speeds

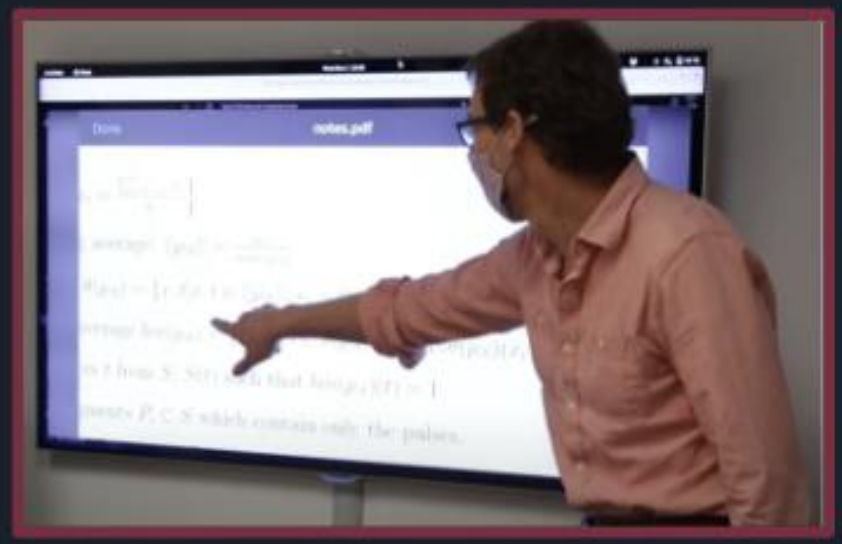
28,499,798 jobs submitted

RCC Education and Outreach

Instruction Types

Traditional Workshops

Intro to HPC
Intro to Linux
Intro to R
Intro to SLURM
Python Bootcamp

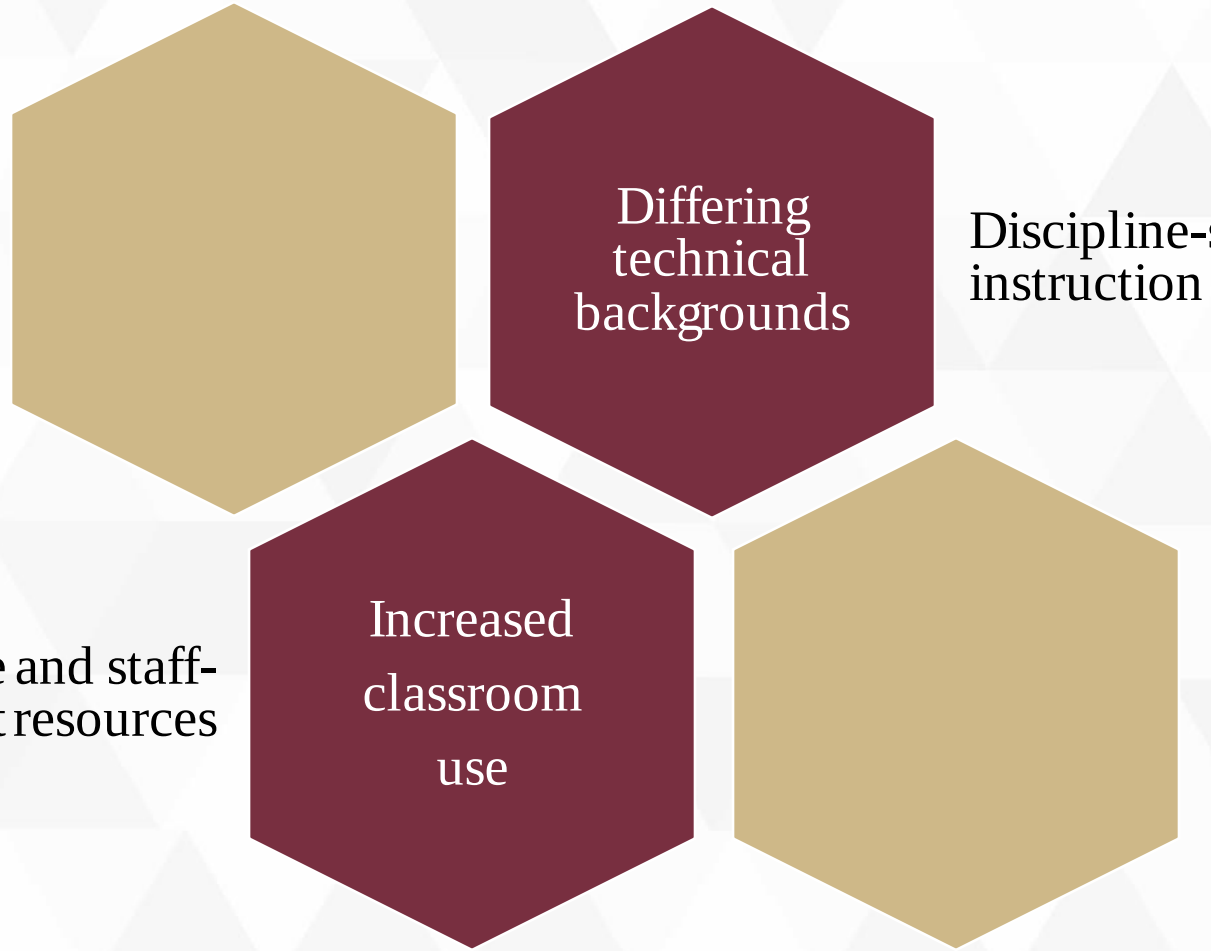


HSSA Workshops

Intro to OpenRefine
Intro to OCR/Tesseract
Intro to IDHI

Most traditional workshops can be modified for HSSA workshops

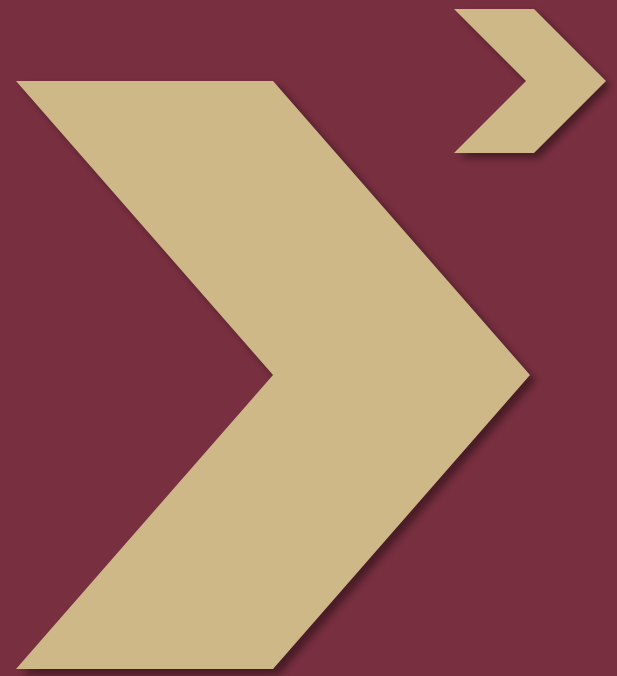
The need for additional Research Instruction



Discipline-specific instruction

Reusable and staff-independent resources

HPC Driver's Ed



Goals of HPC Driver's Ed

- Developed for New HPC Users and asynchronous troubleshooting referrals
- A video guided introduction to High Performance Computing at FSU
- Increase educational offerings outside of our synchronous workshops offered every semester

Convergence with Parallel Initiatives

- FSU General Events
- Specialized Humanities, Social Sciences, and Arts Instruction

FSU | EVENTS CALENDAR

Intermediate Python Workshop

This workshop builds on fundamentals from our Python Bootcamp. We will cover intermediate Python topics for users that know Python basics and are interested...

3/21 3pm
Stone Building (STB), STB 1301-E (Learning Resource Center)
Stream Available

I'm Interested

Python Bootcamp

We invite you to join RCC for a free, all-day, hands-on Python programming boot camp. Python is a programming language used across diverse tech industry...

3/28/2023 9am
Stone Building (STB), STB 1301 E
Stream Available

I'm Interested

INTERDISCIPLINARY DATA HUMANITIES INITIATIVE

Project Stages

Stage 1

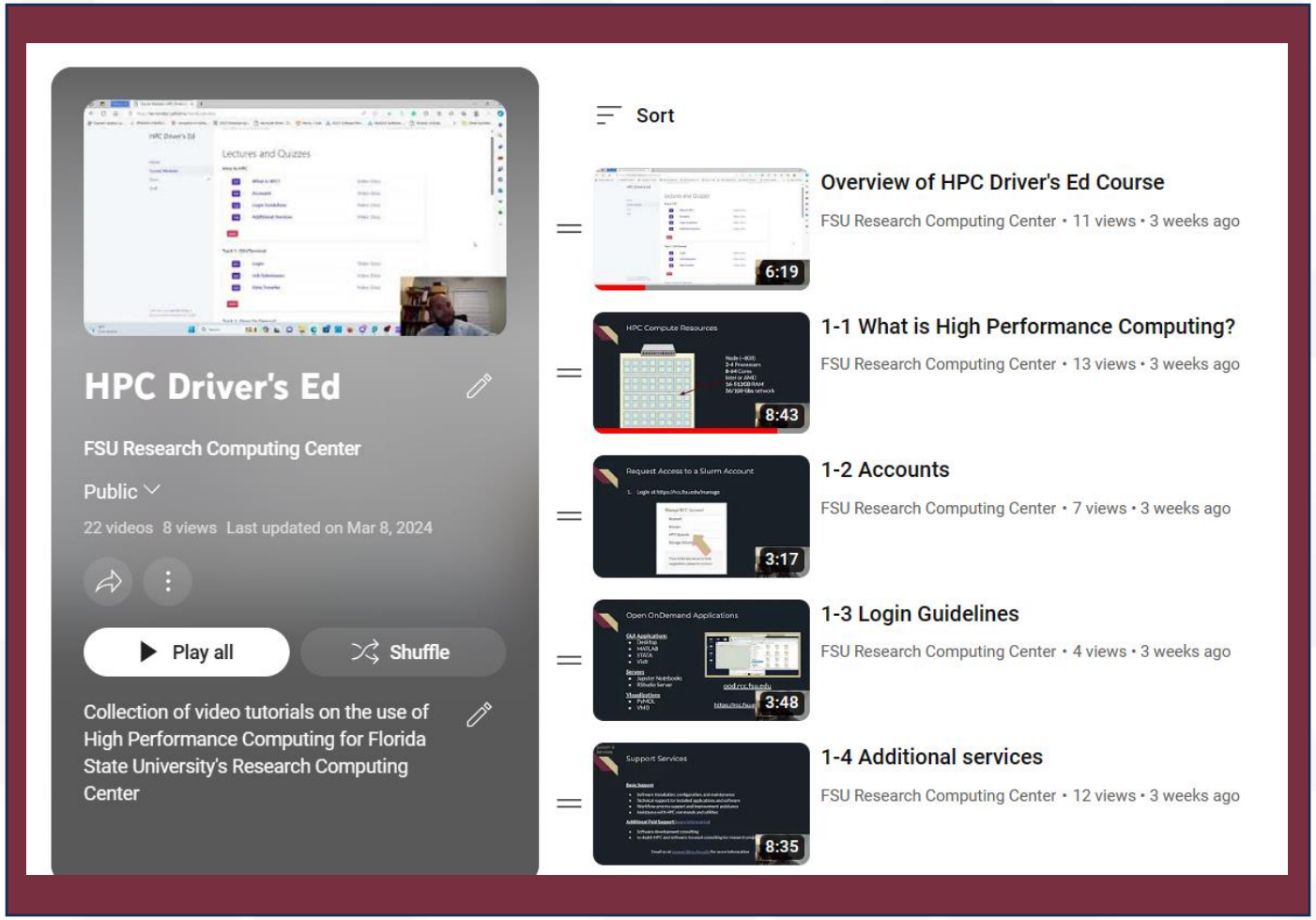
- **Completed-** Creation of Educational Videos, Examinations, & Certification
- **Completed-** YouTube Deployment
- **Completed** –Webpage Deployment & Docs Linking

Stage 2

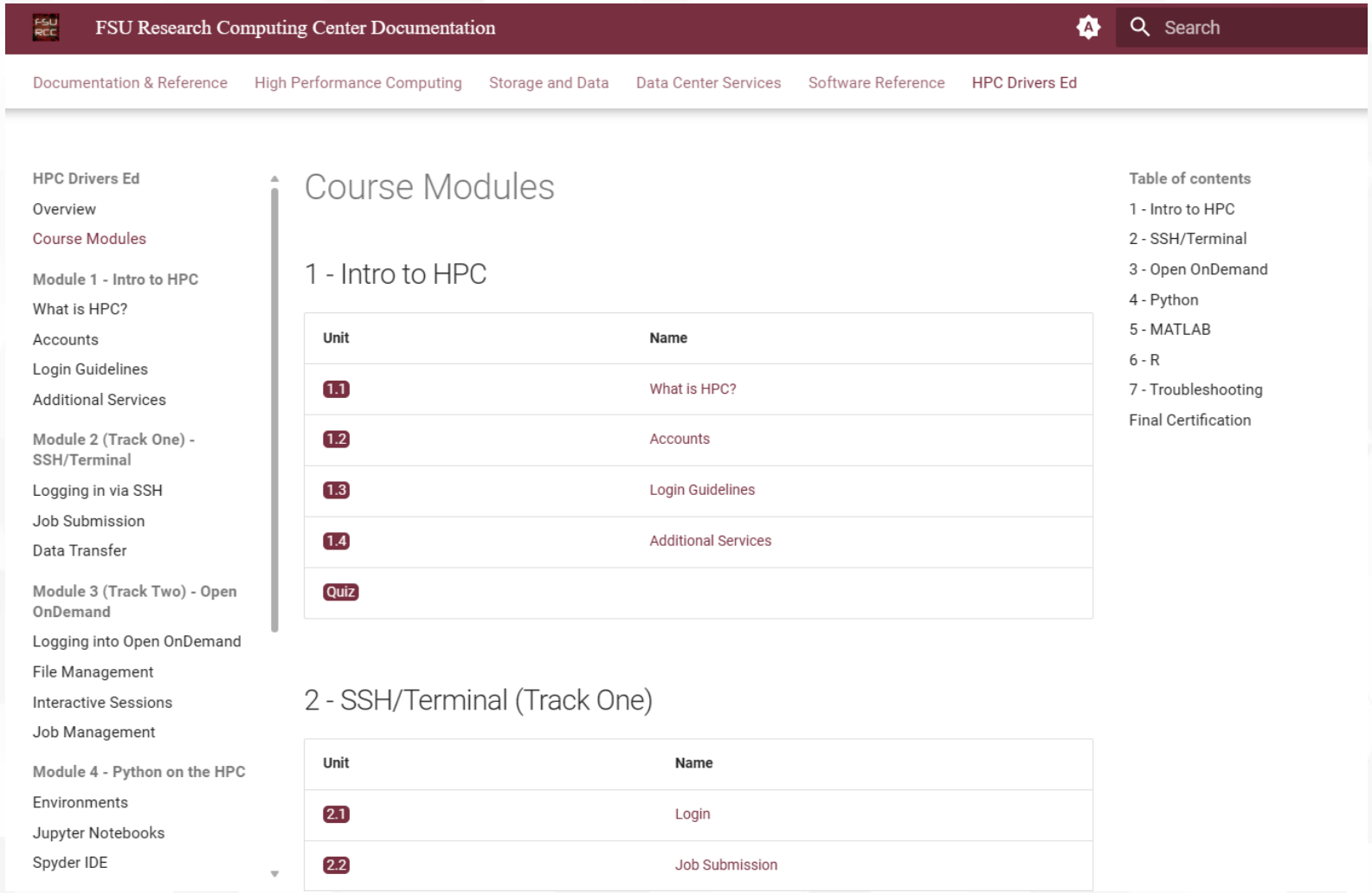
- *In progress*-Development of Canvas Modules
- Outreach to Faculty, Research Staff, and Students
- Integration into Office of Research Available Resources

Instructional Materials

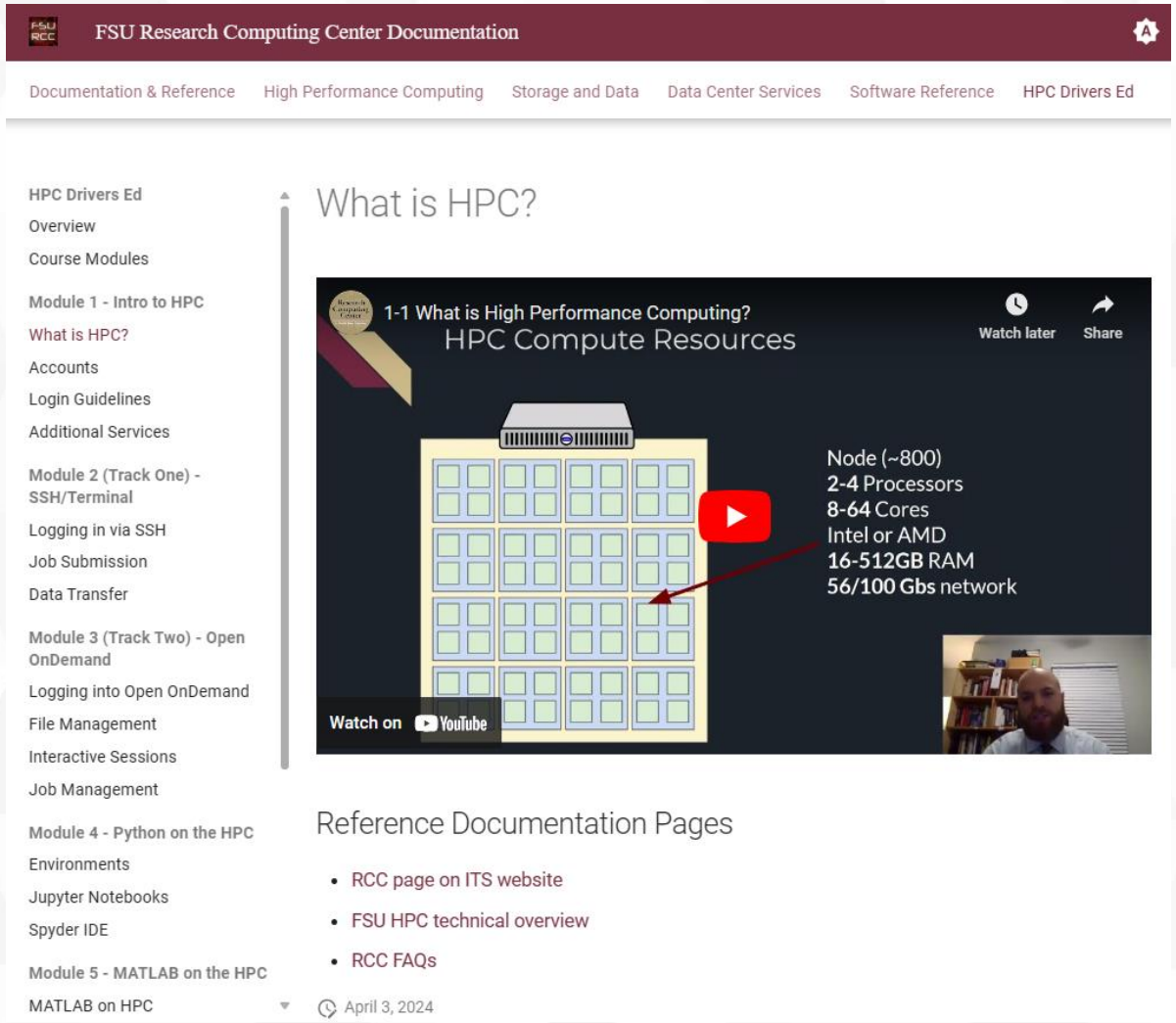
- 2 hr + of Instructional Videos
- Provided code samples and appropriate documentation with each video



RCC Docs Structure



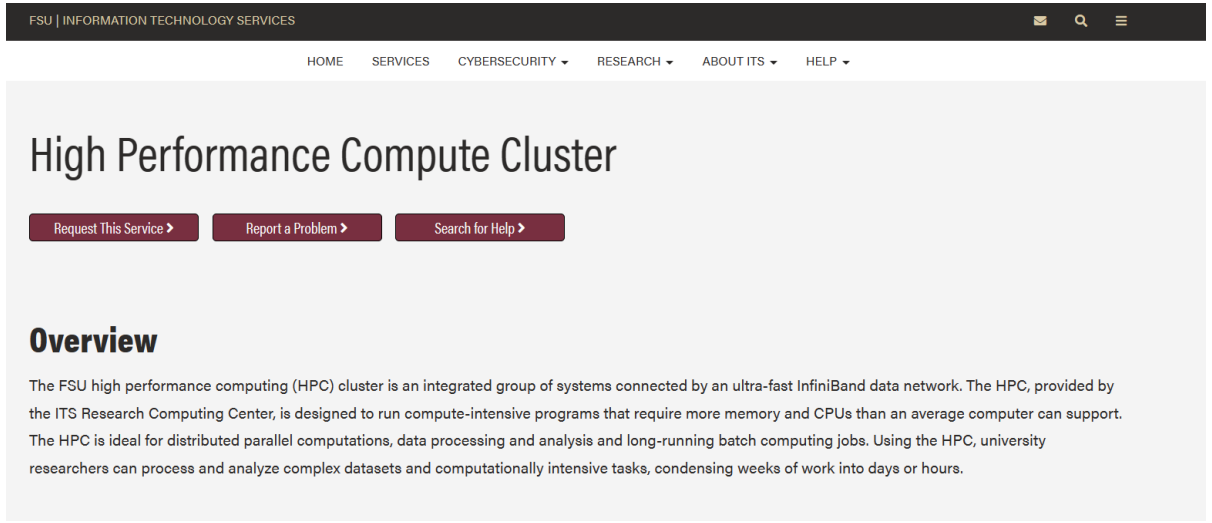
Structure of Lectures

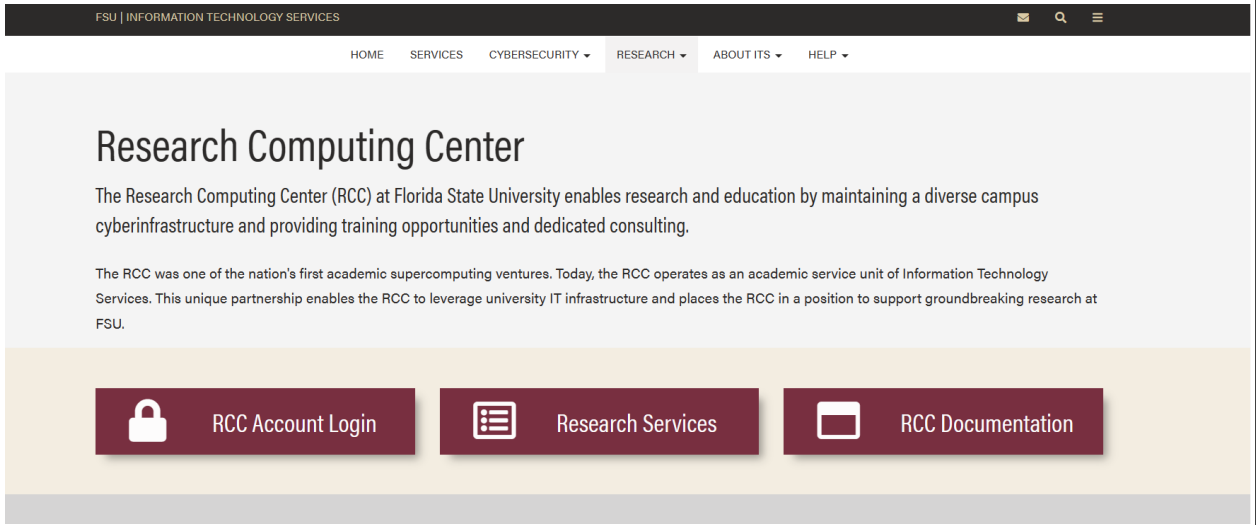


- Video
- Reference Links
- Related Modules

Curriculum Development

Track 1	Track 2	Additional Modules
Designed for users that have Terminal/CLI experience	Targeted to all users that need to submit Interactive Jobs and/or have no CLI experience	Created for the specific high use softwares at FSU's RCC, namely: Python, R, and Matlab





Docs Collections

Articles

How do I connect to the HPC from MobaXTerm on Windows?
46 Views • Jan 31, 2024 • Knowledge

How do I connect to the HPC (or other RCC resources) from off-campus?
681 Views • Nov 6, 2023 • Knowledge

How do I troubleshoot my RCC user account?
34 Views • Sep 22, 2023 • Knowledge

How do I connect to Open OnDemand?
132 Views • Aug 25, 2023 • Knowledge

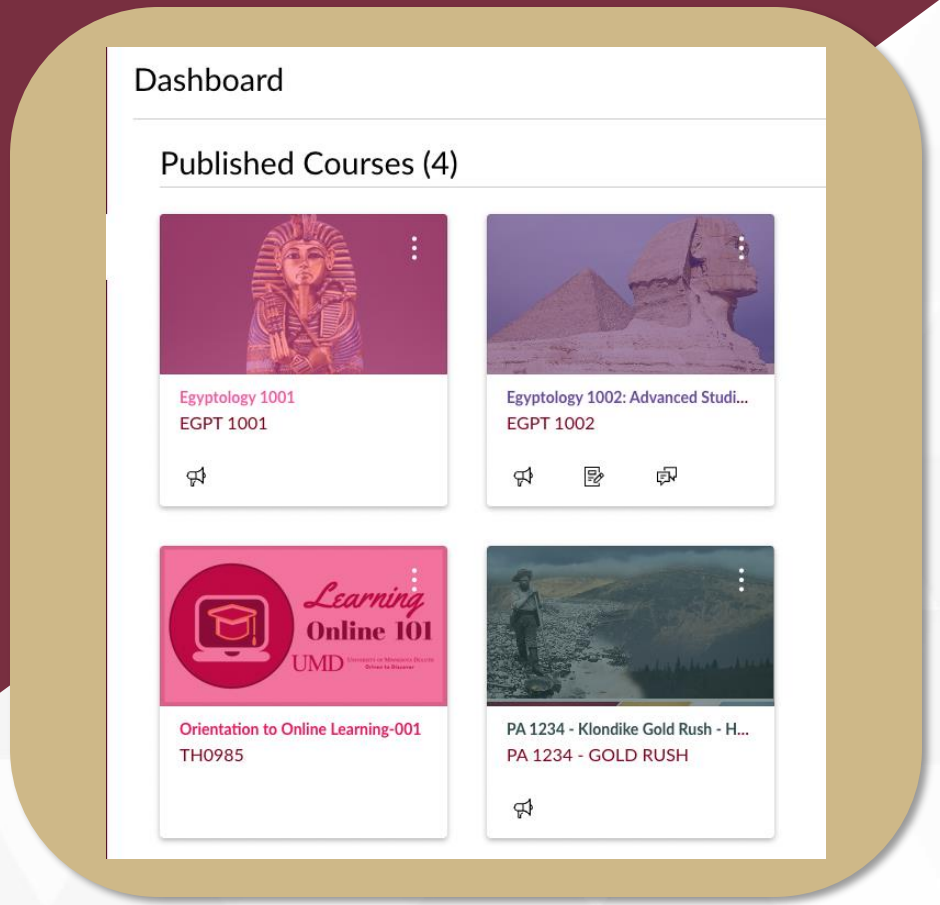
How do I compile software on the High-Performance Computing Cluster?
138 Views • Aug 21, 2023 • Knowledge

How do I request an RCC user account?
95 Views • Aug 21, 2023 • Knowledge

How do I reset my RCC user account password?
44 Views • Aug 21, 2023 • Knowledge

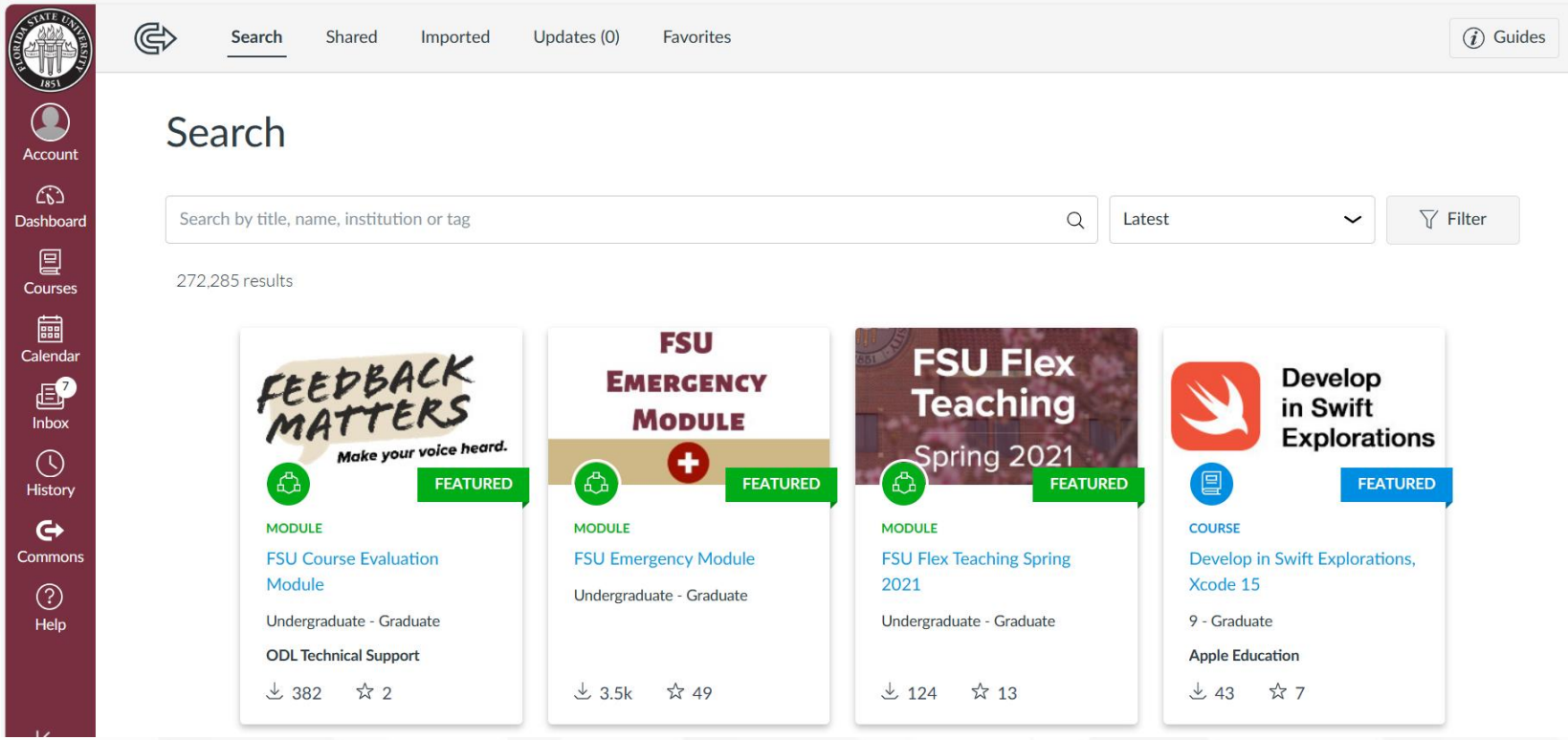
What do I do if I'm having trouble connecting to HPC (or other RCC resources)?
38 Views • Aug 18, 2023 • Knowledge

Future Steps



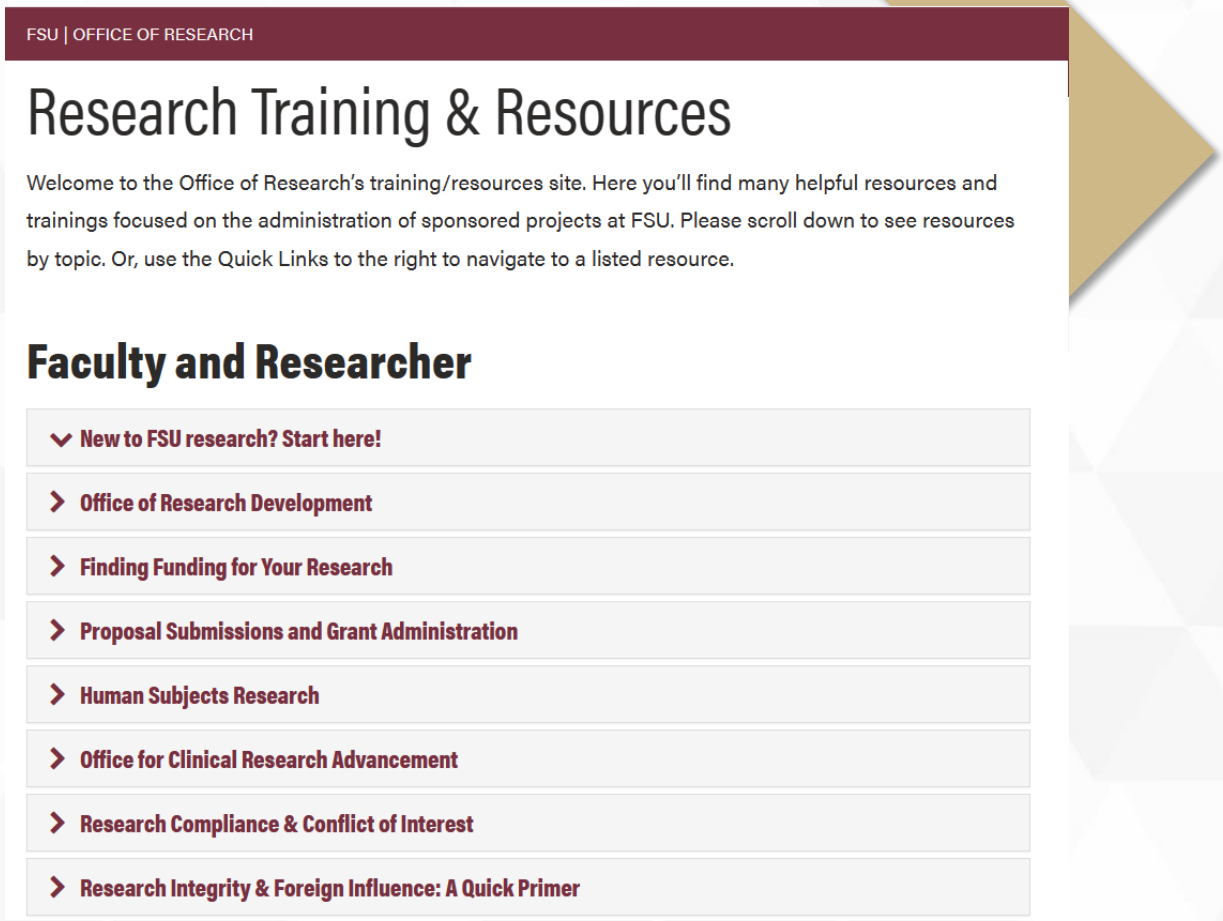
Canvas Deployment

1. By Module
2. By Course



Local Integration

- Link integration for:
  - ITS website
  - Office of Research
- Become a part of Required Researcher modules (Module 1.1)



International and National Integration

- HPC-ED National Catalog Inclusion
- Our course was designed to the HPC certification forum standards

HPC Certification Forum

HPC ED
HPC-ED.GITHUB.IO

Cornell University
Center for Advanced Computing

SDSC
SAN DIEGO SUPERCOMPUTER CENTER

KEAN

THE UNIVERSITY OF CHICAGO

Argonne
NATIONAL LABORATORY

TACC
TEXAS ADVANCED COMPUTING CENTER

Thank you for attending!!

All questions or suggestions are welcome