Things to do while you are waiting

- Course slides are available at:
  https://hprc.tamu.edu/training/applying.html

- Read the information at:

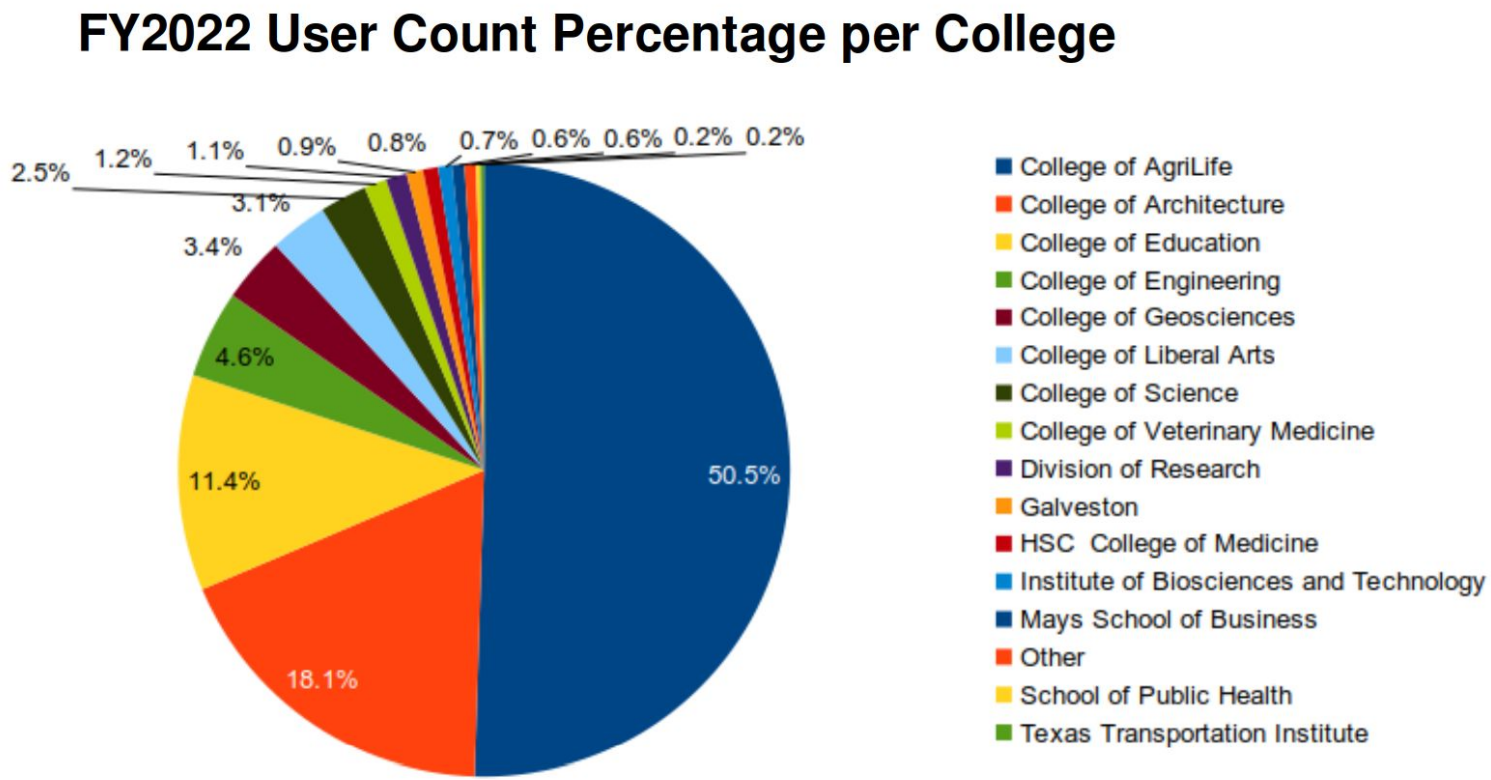
  https://hprc.tamu.edu/policies/allocations.html

Applying for Accounts on HPRC Clusters

Sandra Nite & Sheri Stebenne

Spring 2023

Who Uses HPRC Resources?



Definitions of Terms

Term	Definition
Allocation	An amount of SUs assigned to a specific PI.
Condo	Researchers provide funds to purchase a large supercomputing cluster or data storage maintained in a centralized way by HPRC.
Fiscal Year (FY)	A time period that starts on September 1, and ends on August 31 next year.
HPRC	High Performance Research Computing at TAMU.
Principal Investigator (PI)	A faculty member or research staff qualified to apply for allocations.
Project Account	A 12 digits number used by users to submit jobs on machines.
Service Unit (SU)	The equivalent of 1 hour of wall clock time running on one processing core.
User	A user with a login account on one or more of the resources.

Current Clusters Available

- Terra
- Grace
- FASTER
- ACES
- Lonestar6

Basic, Start Up, and Research Allocation Applications

Terra, Grace, FASTER, Lonestar6

https://hprc.tamu.edu/apply

Three Types/Levels of Allocations

Basic allocations

Users can apply for an account with basic allocations at any time, subject to approval of their PI. Basic allocations are approved by HPRC staff. A user can have only one basic allocation per fiscal year.

Startup allocations

Startup allocations support low intensity projects (e.g., small scale analyses used on teaching, benchmarking to assess the SU needs for a future research allocation). Startup allocations are approved by HPRC staff.

Research allocations

Research allocations are for medium to high intensity projects. PIs can have more than one research allocation, but are limited by the per-machine SU cap per fiscal year.

Accounts expire at the end of the fiscal year.
All users must apply each fiscal year.

Principal Investigator (PI) Eligibility

Only active faculty members and permanent research staff (subject to allocation committee review and approval) of Texas A&M System Members headquartered in Brazos County can serve as a *Principle Investigator* (PI).

Adjunct and Visiting Professors do not qualify independently but can use HPRC resources as part of an eligible PI's research group.

Note that:

- A user can work on more than one project and with more than one PI

Allocation Availability on Machines

Machines	Basic Allocation	Startup Allocation	Research Allocation
Grace	Available	Available	Available
Terra	Available	Available	Available
FASTER	Available	Available	Not Available
Lonestar6	Not Available	Available	Available

Basic Applications

Allocation Type	Who can apply?	Minimum SUs per Allocation per Machine	Maximum SUs per Allocation per Machine	Maximum Total SUs per Machine	Maximum Number of Allocations per Machine	Reviewed and approved by
Basic	Faculty, Research Scientists, Post-Docs*, Research Associates*, Students*, Visiting Scholars/Students*, Qualified Staff†	5,000	5,000	5,000	1	HPRC Staff

* Requires a PI
† PI required if not PI Eligible

Basic Allocation Applications

Applications for Basic Allocations must include the following:

- Eligible Principal Investigator (PI) - Choose someone who knows you and meets the criteria (see previous slide); be sure to ask your advisor or research professor first.
- Summary of your research, include the purpose of your research, how the allocation will be used and the software you will use in your work.

Research Summary Examples

- Geothermal energy systems simulations using TOUGH+ code (fortran language). The simulations have to be with very fine discretization (100,000+ elements/gridblocks), therefore solving more than 300,000 equations for transport in porous media. The work being performed is fully implicit, using Jacobian matrices and Newton-Raphson iterations with high degree of accuracy, this require high computational effort.
- For a course* - Account access is requested in order to participate in the course STAT 624: Computing Tools for Data Science. Activities will consist of uploading small datasets, developing Python scripts and Jupyter notebooks, and using SLURM with shell scripts to execute simple Python scripts that require basic parallel processing.

*Ask your professor if you do not know what to write for the research summary.

Application Example

SUBMISSION DATE	STATUS	VERSION	APPLICATION ID
2022-08-01 15:23:38	approved	current	31774
APPROVAL DATE		**FISCAL YEAR**	**ORIGINAL APPLICATION**
2022-08-01 15:25:20		2023	This is the original application
NAME	**NET ID**	**USER TYPE**	**ALLOCATION TYPE**
Sandra Nite	s-nite	r-scientist	Basic
CONTACT INFO.		**ALLOCATION REQUESTED**	**COURSE**
Official Name Nite, Sandra Bonorden Daytime Phone Official Email s-nite@tamu.edu Alternate Email snite@math.tamu.edu Department HPRC		terra (5000 SUs) grace (5000 SUs) faster (5000 SUs)	
PI NET ID	**PI NAME**	**PI PHONE**	**PI EMAIL**
s-nite	Nite, Sandra Bonorden	(979) 862-3931	s-nite@tamu.edu
RESEARCH DESCRIPTION			
I am conducting research on.....			

Startup Allocations

Allocation Type	Who can apply?	Minimum SUs per Allocation per Machine	Maximum SUs per Allocation per Machine	Maximum Total SUs per Machine	Maximum Number of Allocations per Machine	Reviewed and approved by
Startup	Faculty, Research Scientists, Qualified Staff‡	5,000	200,000	400,000	2	HPRC Staff or Executive Director

‡ Subject to PI Eligibility

Startup Allocation Applications

Applications for Startup Allocations must include the following:

1. Research Description
2. Justification for the machines requested
3. Justification for the service units (SUs) requested
4. Additional Researchers to whom SUs will be allocated (optional)
5. Funding (if any) sponsor and annual amount

NOTE: Startup accounts are commonly used for PIs to learn about the number of SUs required for tasks they perform so that the justification for a Research Account will be accurate and reasonable to the research allocation committee.

Example

PI NET ID	PI NAME	PI PHONE	PI EMAIL
s-nite	Nite, Sandra Bonorden	(979) 862-3931	s-nite@tamu.edu

RESEARCH DESCRIPTION

I am studying the sequences of DNA in bird flu to search for solutions to the current bird flu epidemic. I will be using Python based machine learning classification tools.

JUSTIFICATION (for machines requested)

Grace has the xxx capabilities that I need to process the xxx.

JUSTIFICATION (for hours requested)

I plan to run 2000-4000 sequences that require 20-40 SUs each

ADDITIONAL RESEARCHERS

Name	Hrs	Email
Jane Doe	200,000	jane.doe@tamu.edu

FUNDING

Sponsor	Annual amount
NSF	400,468

Research Allocation Applications

The High Performance Research Computing Resource Allocation Committee (**HPRC-RAC**) reviews all proposals for allocations exceeding 200K SUs/academic year. The merit criteria to evaluate each proposal is based on the scientific rationale for the proposed work, the proposed methodology and research plan, the careful analysis of the computational needs as well as prior (if relevant) performance, including actual usage, agreement to acknowledge the High Performance Research Computing (HPRC) group in publications and other vehicles for scientific dissemination.

Research Allocations

Allocation Type	Who can apply?	Minimum SUs per Allocation per Machine	Maximum SUs per Allocation per Machine	Maximum Total SUs per Machine	Maximum Number of Allocations per Machine	Reviewed and approved by
Research (Terra)	Faculty, Research Scientists, Qualified Staff‡	300,000	5,000,000	5,000,000	Determined by HPRC-RAC	HPRC-RAC
Research (Grace)	Faculty, Research Scientists, Qualified Staff‡	300,000	10,000,000	10,000,000	Determined by HPRC-RAC	HPRC-RAC
Research (Lonestar6)	Faculty, Research Scientists, Qualified Staff‡	300,000	2,000,000	2,000,000	Determined by HPRC-RAC	HPRC-RAC

‡ Subject to PI Eligibility

Research Allocation Applications

Applications for Research Allocations must include a PDF project description with the following:

1. Problem Statement – up to 1 page, describing the desired outcomes of the project.
2. Background – up to 1 page, describing how resources will be used.
3. Methodology – up to 1 page, describing the computational methodology & applications.
4. Research Plan – up to 1 page, describing the research schedule, with expenditure of resources. If allocations are not used uniformly over the year, an estimate by quarters is required.
5. Requirements Analysis - up to 2 pages, detailing the basis for the requested computer time. Large allocations must exhibit an understanding of application efficiency, scaling, and provide accurate estimations of time requirements.

The total length of the project description should be up to 5 pages, excluding required reports of results of prior support (required for renewals), references, and attachments.

Common Application Errors

What will cause my application to be rejected?

Basic Applications

- An ineligible sponsoring PI
- Poor research description

Startup Applications

- Applicant is not an eligible PI
- Poor research description
- No justification for machines or hours requested

Research Applications

- Insufficient justification for hours requested
- No report filed for prior allocation(s)

Lonestar6 Additional Instructions

The Lonestar6 startup and research allocation application is the same as that for Grace, Terra, and FASTER. However, the account setup process is a little different. Watch your email for additional instructions after being awarded SUs on Lonestar6.

HPRC Premium Service Packages

1. $1000: 200K SUs ($0.005/SU), 2TB scratch space for one year.
2. $2500: 500K SUs ($0.005/SU), 5TB scratch space for one year.
3. $5000: 1.1M SUs ($0.0045/SU), 10TB scratch space for one year.
4. $10,000: 2.5M SUs ($0.004/SU), 10TB scratch space for one year.
5. $20,000: 5M SUs ($0.004/SU), 20TB scratch space for one-year, higher priority access.
6. $50,000: 12.5M SUs ($0.004/SU), 50TB scratch space for one-year, higher priority access and dedicated reservation.

Allocation Applications

ACES Phase I

ACES Phase I Allocation Applications

ACES is the newest computing platform being developed by TAMU. ACES Phase I allocation applications are submitted through the link below:

ACES Phase I Application

Questions

Resources

- Resource Allocation Policies
- Account Information/Requirements
- Cluster Information
- Cluster Account Application (Terra, Grace, FASTER, Lonestar6)
- ACES Phase I Account Application
- HPRC Wiki
- HPRC YouTube Channel

Thank you

Contact: help@hprc.tamu.edu