

## High-Performance Computing (HPC) Systems Administrator

The College of Science and Mathematics (CSM) is seeking a full-time High-Performance Computing (HPC) Systems Administrator to build, design and support primarily Linux-based research computing environments. The CSM has a wide range of computational needs, with faculty spread across five departments. The CSM has also added a new, interdisciplinary data analytics program, which will add to the diversity of the college's HPC requirements. This position represents an opportunity to build and design new computational infrastructure to support these current efforts and to help drive expansion into new areas by keeping the CSM on the cutting edge of computational science. Additionally, the candidate will manage, maintain, configure, and operate the current HPC and storage resources for the CSM and collaborating partners.

### Duties and Responsibilities:

- Install, build, and maintain HPC software infrastructure
- Install, tune, patch, upgrade, and maintain Linux-based operating system installations.
- Maintain HPC software infrastructure for computing and storage (including compiling, maintaining, and debugging of scientific computing packages).
- Install and apply firmware patches and upgrades to all components.
- Perform system builds, deploy system software, perform software integrations, work with vendor technical resources, and monitor server, network, and storage performance.

Install, diagnose, and repair hardware including coordinating efforts with vendors. Installation includes lifting and racking of servers.

- Select, configure, and install hardware (including lifting and racking of servers).
- Repair hardware and subsystems, working with vendor field engineers to resolve hardware or subsystem problems.
- Coordinate with vendors, assisting in the procurement and purchase of new software and hardware, including the resolution of problems that may arise with new purchases.
- Proactively administer the monitoring and diagnostics of hardware and HPC system performance, contacting users when necessary to preserve system integrity and availability for all users.

Document development of support structures and changes to hardware and software systems to improve research community access and workload efficiencies.

- Document and coordinate all changes to hardware and systems software.
- Document and coordinate the development and use of software support structures for the collection and tracking of HPC system utilization statistics.
- Create and maintain documentation to improve research community access to HPC resources and to improve system and workload efficiencies.

Work with administration, faculty, and students to design new computational resources, maintain and expand existing resources, and facilitate research projects while balancing HPC system use.

- The successful candidate will enjoy working in a team building environment alongside administration, faculty, and students.
- The successful candidate will share the college and university's commitment to sustaining an inclusive work and learning environment.
- Work with administration to balance HPC system usage and priorities.
- Consult with members of the research community and facilitate projects using HPC resources.
- Lead JMU faculty and technical affiliates in the planning and design of new research computing clusters and expansions for existing clusters.
- Assist in development of designs for specialized HPC computing clouds.

Work with university IT and administration to ensure security, connectivity, and disaster recovery, and to build future capacity as needed for the university's research needs

- Develop effective intra-campus and external network connectivity options to expedite data communication to and from HPC systems and servers.
- Work with college IT, university IT, and affiliates to ensure the cybersecurity, confidentiality, and authentication needs of the college and institution are met.
- Stay current on enterprise storage architectures, systems, and software tools, and evaluate these to identify future acquisition objectives.
- Lead or provide technical oversight in the evaluation of new HPC technologies (e.g., processors, accelerators, mass storage, interconnect, cloud computing) to identify future acquisition objectives.

- Participate in the development and implementation of security measures and disaster recovery procedures at all levels of a system.
- Lead system troubleshooting, debugging, trigger monitoring, and development of an emergency management plan for systems.
- Patch and upgrade software in alignment with security best practices and ensure completion within a timely manner to minimize University exposure to vulnerabilities. Communicate system down time with administration, faculty, and students.
- Perform other duties as assigned.

**Qualifications:**

Bachelor's degree in a related field and a minimum of two years of related work experience or an equivalent combination of education and experience. Knowledge of computer operations, functions, and related peripherals. Knowledge of scientific programming languages such as C/C++, Fortran, CUDA, Python, R, etc. Working knowledge of software packages related to cluster computing, such as Slurm, PBS/TORQUE, OpenMP, OpenMPI/MPICH, Intel Parallel Studio, etc. Experience using and administering Linux systems. Ability to utilize and develop tools within the technology field. Ability to document existing and new processes. Ability to establish and maintain effective working relationships. Knowledge of applicable computer applications and basic computer functions. Knowledge of applicable computer software and operating systems. Willingness to work with and train undergraduate students and researchers.

Preferred candidates will have a Master's degree or Ph.D. in an appropriate area of specialization and have demonstrated experience with research computing environments. Experience with server design and administration is preferred. The ideal candidate will have 3 or more years of experience with management and maintenance of Linux systems, preferably in an HPC environment.

The College of Science and Mathematics is committed to increasing the diversity of its faculty, staff, and students and sustaining an inclusive work and learning environment. All applicants should demonstrate their commitment to contributing to this environment.

To apply visit <http://joblink.jmu.edu/postings/7161> or go to [JobLink.jmu.edu](http://JobLink.jmu.edu) and reference posting number **F1447**. Candidates will complete the application and attach a cover letter and resume. In the cover letter, applicants should describe their experience and commitment to supporting a diverse and inclusive work and learning environment.

*James Madison University is an equal opportunity employer committed to creating and supporting a diverse and inclusive work and educational community that is free of all forms of discrimination. This institution does not tolerate discrimination or harassment on the basis of age, color, disability, gender identity or expression, genetic information, national origin, parental status, political affiliation, race, religion, sex, sexual orientation or veteran status. Anyone having questions concerning discrimination should contact the Office for Equal Opportunity: (540) 568-6991.*