

## Manager, High Performance Computing - Physics and General User Support

### Position Purpose

*Why does this position exist? Provide a two-to-three sentence summary of the overall primary purpose of the position, including the position to which it reports.*

- 1) Support Rutgers researchers in utilizing high performance computing facilities at the National Supercomputer Centers and distributed high performance computing facilities at Rutgers University, including consultation for users, development of non-credit courses for user training, and liaison to National Supercomputer Centers
  - 2) Develop a distributed high performance computing node in Physics, in collaboration with other Rutgers units, and incorporates it into the distributed Rutgers system.
- Reports to designated faculty supervisor in Department of Physics.

### Description of Position Responsibilities, Duties and Tasks

*List in order of importance the major responsibilities, tasks and duties that comprise the means of accomplishing the position's purpose. Starting with an action verb, use task statements to explain what is done, what action is being performed, and what is the purpose of the task. Estimate the approximate percentage of time that each duty requires of the total working time, which should total 100%.*

- Provides high-level consultations on software and hardware to Rutgers user community for high performance computing (40%)
- Implements distributed high performance computing environment in Physics in collaboration with other Rutgers units to facilitate multi-disciplinary collaboration on high performance computing (40%)
- Develops and implements non-credit training courses on high performance computing software (e.g., MPI) (10%)
- Provides liaison to National Supercomputer Centers (NSC), including consultation to users on development of proposals for external computing resources, information on new opportunities at the NSC for users, representation of Rutgers at NSC user group meetings, etc (10%)

### Contacts

*List below any contacts that you have as a routine function of this position. Indicate the frequency (e.g., daily, weekly, monthly), the nature or purpose (e.g., obtain or provide information, negotiate contracts) of the contact, and any human relation skills and behavior (e.g., tactful, diplomatic, even-tempered, levelheaded, courteous) that are routinely expected as part of the normal conduct for these contacts.*

The incumbent will be in contact with:

- One or more Rutgers high performance computing users on a daily basis
- High performance computing staff in other Rutgers units on a daily to weekly basis
- National Supercomputer Centers on a weekly to monthly basis

The incumbent must be able to work effectively with users from a wide range of disciplines in computational science and engineering. The incumbent must be tactful, diplomatic, even-tempered and courteous at all times.

### **Authority**

*Describe the level of authority routinely allowed in the position. What are the most difficult decisions to be made? What are the controls or rules limiting the incumbent's ability to make final decisions and take action? Provide examples of work actions and/or decisions that are made without prior approval. To what extent is advice and guidance provided by the supervisor?*

The incumbent is expected to exercise independent judgment in fulfilling the job responsibilities under the guidance of the faculty supervisor. The most difficult decisions are likely to be the apportionment of the incumbent's time among the requests for user consultation. The faculty supervisor will provide direction when required to prioritize the incumbent's workload.

### **Challenges**

*Describe the typical problems to be encountered by the incumbent in performing the position responsibilities. Describe any exceptional problems the incumbent may encounter in performing the job under normal conditions and explain the steps taken by the individual to resolve the problem.*

The incumbent faces several major challenges:

- Apportioning his/her time among the competing requests for user consultation. The faculty supervisor will provide direction when required to prioritize the incumbent's workload. The faculty supervisor may request advice from the High Performance Computing Project committee in determining priorities.
- Maintaining knowledge of the hardware and software at the National Supercomputer Centers
- Maintaining knowledge of state-of-the-art in distributed high performance computing hardware and software, and maintaining the Physics node as a robust and potent facility

### **Expected Outcomes**

*Describe the accountable or end results for the responsibilities of the position, particularly as they relate to the duties on the front page. These are the end results which the incumbent is expected to successfully achieve in performing the job functions of the position and that could be used to establish performance standards for the appraisal process.*

The performance of the incumbent will be measured by the following:

- The ability of Rutgers users to effectively utilize the National Supercomputer Centers

- The satisfaction of Rutgers users in the consulting support provided by the incumbent
- The satisfaction of Rutgers users in the distributed high performance computing systems at Rutgers
- The successful operation of designated distributed high performance computing systems in Physics
- The level of the incumbent's knowledge of high performance computing

## **Qualification Standards**

### *Education*

A Master's degree in science or engineering or higher.

### *Experience*

A minimum of five years experience in scientific computer programming (*i.e.*, Fortran and/or C).

A minimum of two years experience in high performance scientific computer programming.

A minimum of two years experience in computational science research using high performance computing.

A minimum of two years experience in preparing and delivering technical presentations.

### *Certifications and Licenses*

None.

### *Knowledge, Skills and Abilities*

Excellent communications and interpersonal skills.

Excellent record of follow-through on projects and tasks.

Advanced programming capability in C and Fortran.

Good writing and presentation skills.

Ability to manage multiple projects.

Ability to prioritize and solve problems independently.

Experience as user with UNIX operating system, both as user as with systems administration.

Experience as user with High Performance Computing systems.

### *Preferences*

The ideal candidate will possess all or most of the skills and experience described above.

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