

**Review of Computer and Information Science and Engineering Cluster  
Rutgers, The State University of New Jersey  
Charge to the External Reviewers**

1. Current Issues in the Field.

What are the ongoing issues and debates in the field of computer and information science and engineering, nationally and internationally, that should be attended to as Rutgers moves forward with a plan for enhancing its excellence?

  - a. Are there topics/areas that seem to be in decline nationally?
  - b. Where are the likely areas of growth?
  - c. What trends do you see in how computer science at other universities is relating to and interacting with other units or fields of study?
  - d. How can the severe under-representation of women and minorities be addressed?
  
2. Reputation of Rutgers Computer and Information Science and Engineering.

In which areas are Rutgers' programs in computer and information science and engineering best known nationally and internationally, and what is the basis for their reputation? Please comment on the strengths, weaknesses, and distinctive areas of Rutgers' departments/programs/schools in these areas.

  - a. Given your assessment, in what two or three areas is Rutgers best positioned to improve its excellence and stature?
  - b. *How* can Rutgers best leverage its strengths in these two or three areas to make significant advances in computer and information science and engineering and related areas?
  - c. What resources and actions are needed to make significant advances in these areas?
  - d. What key strategic decisions should Rutgers consider as it decides how to advance excellence in computer and information science and engineering?
  
3. Learning From Others.

Can you identify other universities that have recently made major improvements in the excellence and stature of their computer and information science and engineering programs?

  - a. What factors were most important to the ability of the universities to make major improvements?
  - b. Does Rutgers have the key factors needed to make major improvements?
  
4. Interdisciplinary Research Activities.

One difficulty with a discipline-centered cluster review is delimiting the cluster. The cluster for computer and information science and engineering focuses on units of the University with significant concentrations of scientists involved in computer science research (rather than on research which makes use of computing). However, computer science is an interdisciplinary science, and it is important for the departments/units involved in this review to develop appropriate

connections to the rest of the university and exploit the opportunities arising from these connections.

- a. Would enhanced relationships with other units help computer and information science and engineering attain greater excellence?
- b. What are the most important interdisciplinary clusters of computer and information science and engineering activity that the units involved in this review should focus on?
- c. What barriers currently restrict or interfere with Rutgers' computer and information science and engineering interdisciplinary activities, if any? What are some realistic approaches to dealing with these barriers?

5. Teaching.

What are the issues to consider when deciding how much to invest in and grow the undergraduate, masters, and doctoral programs?

- a. How should graduate education in computing and information sciences and engineering be structured?
- b. How well are the educational needs of truly interdisciplinary areas (e.g. bioinformatics) served?
- c. To what extent should the "service" needs for computing and information fluency be addressed?

6. Computing Infrastructure.

By the nature of the discipline, computer and information science and engineering have a special relationship to the computing and communications infrastructure of the University.

- a. What role should computer and information science and engineering units play in institutional decision-making about computing and communications infrastructure?
- b. Is the computing and communications infrastructure in the University appropriate to support the research activities of the computer and information science and engineering units?

7. Administrative Structures.

In light of your answers to questions 1-6:

- a. What are the most appropriate roles for centers and institutes in achieving excellence?
- b. What on-going mechanisms could increase success in collaborative work?
- c. Do the administrative structures now in place help (how?) or hinder (how?) Rutgers' ability to leverage its strengths and make significant advances in computer and information science and engineering? What alternative organizational structures should be considered, if any?