On Many Paths Toward Diversity

As you know, diversity of the student population, staff and faculty is one of the top declared priorities at most universities in the United States. Yet, despite significant efforts & resources dedicated to that goal, many groups remain underrepresented – in specific disciplines & scientific fields, and also at leading universities in general.

Part I
Your goal is to design a comprehensive strategy for the University to improve diversity on all levels, both in the university at large and in *one specific field* (choose any department). Keep in mind the following:

- available resources for all diversity-targeting programs are considerable but not unlimited and also change predictably over time;
- tools at your disposal include changing admission criteria, changing graduation requirements (without affecting the overall quality of education), financial assistance and incentives, outreach efforts, academic support services, etc;
- many programs dedicated to this goal are already in place, but not all of them are equally effective + some of them have undesirable side effects & political controversy surrounding them;
- a leading university, which desires to be diverse, needs to be both selective and inclusive at the same time;
- your suggestions should conform both to the university's mission statement and to the laws governing the employment and admission processes;
- your model should distinguish between the immediate and long-term effects of the proposed strategy.

Part II
Looking at the same problem on a national scale, provide recommendations for the U.S. Department of Education on how its resources should be optimally used to facilitate the diversity and competitiveness of the educated workforce.

Judges' note:
The topic of this year's contest is undoubtedly politically charged. However, you are asked to only provide a **mathematical model** rather than a sociological treatise. Mathematicians are often called upon to develop models for controversial problems (e.g., global warming, fairness of various electoral systems, etc.) without themselves taking a political stand on these issues.

Different people have different ideas on what diversity is or is not, how it should be defined and measured, and what are the ultimate (moral, ethical, social, scientific and economic) benefits & costs to the society. We would like to state explicitly that your submission **will not** be judged on the basis of how you answer these tough questions.

Your manuscript should include a short separate section with *your own definition* of diversity goals. You don't need to argue why that definition is better than the alternatives, but you do need to provide a comprehensive and realistic plan for attaining those goals (whatever they might be). We will concentrate on the mathematical & predictive merits and flaws of your models, while ignoring our own personal views on your definition of the goals.