Dear Colleagues,

Next meeting for the computation science program: **Friday February 3rd at 3:30 in lecture room C206 of the Claxton Complex**

Now that everyone is (or very soon will be) returning for the start of the semester, it's time to get started on the next phase of the process in developing our Computational Science program for the University. To get going, I thought I would provide some notes from the December meeting, outline what seems to be needed at the next step, and talk about how we can get that done expeditiously.

As you'll remember, at the meeting I proposed that, to get a campus wide program started, we follow the model of the Intercollegiate Graduate Statistics Program (IGSP) and create a *Intercollegiate Graduate Program in Computational Science* (*IGPCS*), offering a graduate minor in Computational Science at both the Master's and Ph.D. level. (IGPCS is just a working title.) I thought we had a very healthy and positive discussion of some of the issues involved in doing that. Some people spoke in favor of a "Certificate" program that, unlike a Minor, would not be attached to a higher degree from a specific department. Though it seems clear that, under current conditions, a Certificate program would require a higher degree of agreement from all the stakeholders and be harder to get going, there's no doubt that this approach has some real merits, e.g. it could be offered by distance education.

As I'm sure was clear at the meeting, I think the IGPCS Graduate Minor (GM) offers us a best path for getting an excellent, university-wide program officially up and running by the fall of 2007. The responses that I've gotten to it, both during the meeting and in e-mail afterwards, have been very positive and very supportive. There seems to be general agreement that this is a good and progressive thing to do, and that we can actually get it done relatively quickly. But pursuing the Graduate Minor doesn't mean we can't also pursue the Certificate option on a slightly longer time frame; we can work on both in parallel. So let me outline what needs to be done for the GM in the next few weeks first, and then talk about how we can work on the Certificate.

Using the IGSP as our model, the IGPSC program would offer "level A" and "level B" courses, with the A courses being more basic or generic, and the B courses tending to be oriented somewhat more to the needs of different disciplines. Accordingly, Level A courses are a small number, perhaps six, courses from a program-approved group that can be taken without prerequisites, although there may be some pairs of level A courses (101-102) that have to be taken in sequence. "Level B" courses have level A courses (or equivalent) as prerequisites. The IGPSC requirements for the GM would then look something like this:

- Minor in Computational Science with an M.S. degree from a participating IGPCS department:

    o 2 level A courses (6hrs)

    o 1 level B course (3hrs)

- Minor in Computational Science with Ph.D. degree from a participating IGPCS department

- o   2 level A courses (6hrs)

- o   3 level B courses (9hrs)

If you look at what the IGSP does (http://bus.utk.edu/stat/igsp/courses.htm), you'll see that they have diversity in the selection of both Level A and Level B courses. (Note: Level C courses don't apply to their "graduate minor" option).

So for the IGPCS, the thing we need to do -- *as soon as possible* -- is work up a group of proposed level A courses, and then work up a group of level B courses. The A courses would seem to present the bigger challenge because, even though there is a group of them that students can select from, deciding what goes in that group would seem to require more agreement on what the "basics" are that anyone going into this area should know. Examples of a course sequence I would like to see might be called "Introduction to Scientific Computing (3 hours)" and "Advanced Scientific Computing (3 hours);" others might have different ideas. There would be a total of six A Level course listed. The A Level courses would be offered at perhaps three levels; one for CS and Math students (2 courses), one for students from department which require some mathematics and/or computing (2 courses), and one for students with less formal training in mathematics and/or computing (2 courses).

So for starters, we need a relatively small group of faculty representing the CS, Math, and the Domain Science stakeholders to get together to draw up an initial list of level A courses. Obviously, any of the participating departments can propose level A courses.   These can be courses that already exist, repurposed or adapted versions of courses that already exist, or entirely new courses that we think need to be created for this program. (Remember, *every* course proposed must have some home department, even if its cross listed). When we get some reasonably acceptable version of the level A list done, we'll start on level B. The goal is to try to get some starter set of level A courses together so that we can talk about them at our next meeting, which I would like to have in about 3 weeks. Are there any volunteers to help take a cut at this? Please let me know by e-mail ASAP if you want to participate.

I would like to propose that the next meeting for the group is on Friday February 3rd at 3:30 in lecture room C206 of the Claxton Complex for that discussion. I hope you can join us. When we get to the meeting, I would also like to recruit a second committee to start working on a Certificate option for the IGPCS. Vasilios Alexiades has graciously agreed to lead that effort. I believe the work that we do to develop the level A course group can feed into that effort as well.

We have set up a website/wiki to collect information, see
http://citr.cs.utk.edu/wiki/index.php/Main_Page.

Best regards,

Jack

Roadmap

<u>December 2005</u>

- Group meets and agrees on some initial version of the plan (Done)

<u>January – February 2006</u>

- Group members take the initial draft back to departments; iterate on the plan via e-mail and Wiki.

<u>February 2006.</u>

- Updated version of the plan is presented to the Chancellor and/or Dean's meeting

- Group meets to finalize the plan

- Program plan is presented in a letter to Chancellor/Chancellor's staff for approval. That approval would transform our working group into the initial steering committee for the new Computational Science Program.

<u>March - April 2006</u>

- Catalogue copy is developed by each department that wants to offer Computational Science Concentration

- Concentration plans are reviewed and approved by the Computational Science steering committee as meeting program criteria

- Catalogue copy is submitted to each department. At this point, the catalogue copy would begin the normal process up the hierarchy in order to be approved and included in the catalogue for 07-08.