Undergraduate Report

Buster Dunsmore

April 11, 2016
Summer 2015 Bridge Class

• 2015 Bridge Class was sponsored by the Harris Corporation

• 63 students (52 men and 11 women)

• We have found that students who are comfortable in the first CS course and who do well in it
  • usually do well in all their other CS courses
  • usually get the Computer Science degree

• We started the Bridge Program to try to make sure that anyone who wants to can be in the best position to do well in her/his first course
Summer 2015 Bridge Class

- Bridge participants this year came from 14 different states and 4 different countries

- California, Colorado, Illinois, Indiana, Kentucky, Massachusetts, Michigan, Missouri, North Carolina, New Hampshire, New Jersey, Nevada, Ohio, Oregon

- China, India, Indonesia, United States

- Best addition to Bridge Class this year was Administrator of Undergraduate Programs and Services and new Bridge Class Coordinator, Scott Nelson
Summer 2015 Bridge Results So Far

56/63 took CS 18000 in Fall 2015
7/63 took CS 17700 in Fall 2015

CS 18000 Grades of the 56:
  1 A+
  20 A
  3 A-
  10 B
  2 B-
  2 C+
  8 C
  5 D
  2 D+
  3 F

46/56 = 82% had a grade of C or better and have continued into CS 18200 and CS 24000 this semester
Summer 2015 Bridge Results So Far

The 10 students with grades below C:
3 are retaking CS 18000 and are on target for a C or better this time
3 are retaking CS 18000, but are not on target for a C or better this time
We appear to have lost 4 students

The 7 students who took CS 17700 in Fall 2015 are all in CS 18000 this semester
5 are on target for a C or better
2 are not on target for a C or better

One of our 2015 Bridge students took CS 18000 in Fall 2015 and was chosen as a Spring 2016 CS 18000 TA
4 Bridge students have applied for and are receiving scholarships tonight
Summer 2016 Bridge Class

- Goal is 73 students
- That is all the lab seats we have
- We plan to increase the percentage of women in Bridge 2016

- Students will find out about Bridge 2016 via mailings and presentations each day in STAR (Summer Transition Advising and Registration) and from our advisors

- Students will apply and we will once again select those most appropriate
Bridge Class Success Story

• In our first Bridge Class in Summer 2013 there was a young woman who seemed concerned about how she would be able to do in our program
• She was very quiet and not at all self-confident
• But, she did well in the Bridge Class and has continued to excel
• She was a TA for the next year's Bridge Class in 2014
Bridge Class Success Story

• This semester's Software Engineering project Sprint Reviews last Friday
• Presentation from team consisting of six students
• They chose her as their team leader at the beginning of the semester
• She was clearly in charge and knowledgeable about every aspect of their project
• She could answer every one of my questions or point to the team member who could
• Her team obviously respected her and deferred to her on several questions
• I have no doubt that she will have an outstanding career as a software engineer
CS 18000 Fall 2016

• In the spirit of the Gold and Black Computer Science Courses at Harvey Mudd College...

• We will have Gold and Black sections of CS 18000 in Fall 2016

• Gold -- assumes absolutely no programming background, class section taught by Prof. Prabhakar, their own lab sections

• Black -- assumes some familiarity with programming, class section taught by Prof. Dunsmore, their own lab sections
CS 18000 Fall 2016

• The two sections will have identical final outcomes that are the same as CS 18000 outcomes in the past

• The only difference is the level of prior programming knowledge with which the students start the course

• Students will self-select after meeting with their advisor during STAR

• Our primary motivation behind this effort is to increase retention
CS 18000 Fall 2016

• We want to ensure that students with the ability to do well in Computer Science do so even if they have not programmed before

• We want to keep the inexperienced students in CS 18000 from being intimidated by students with a lot more experience than they have

• Vitally important that the messaging on these two sections is given clearly to all students and staff

• If the message somehow is that there is a “remedial” or “weaker” section, then we will have failed
Each lecture section will cover the same material each week

The Gold section will be our standard CS 18000 lecture

The Black section will receive the standard material plus some enrichment and enhancement material at the beginning of the semester

About half way through the semester, there will likely be little difference in the lectures
Experience with the Bridge Class is very useful here

I teach the Bridge students using a subset of the same slides I use in teaching CS 18000

The difference is in how I teach the material and the fact that the Bridge students are together with students with similar experience, similar understanding, and similar questions

Quite likely that all labs, projects, and exams will be identical for both sections
Research Survey

• Research project concerning what kind of graduates our Corporate Partners are looking for when they hire new employees

• Pat Morgan sent a request to each Corporate Partner representative
• Survey prepared by Zhen Chen <chen1725@purdue.edu>, an undergraduate CS student
• Working with me on a research project concerning what kind of graduates you are looking for when you hire new employees
Research Survey

• Questions about...
• What kind of technical skills you are looking for
• Level of importance you assign to:
  • internship experience
  • in-class projects (projects students do as part of their university classes)
  • personal projects (not part of their university classes)
  • whether a candidate has a personal portfolio of the work he/she has done
  • whether a candidate has participated in hackathons
  • GPA
Cooperative Education Program

• Department of Computer Science participates in the Cooperative Education Program
• Because internships and summer jobs are widely available and the Co-op program delays graduation, few of our students do this
• Old program required students to complete five work sessions
• Our department has approved a three work session program to attract more students