

Mathematical and Physical Sciences (MPS) 2013-2014 Assessment Report

I. Executive Summary: MPS met often throughout the year to evaluate students and program. Mainly we focused on the CS (Computer Science) major and students but we kept everyone in mind. Overall we decided to construct an alternative CS minor that might appeal to nontraditional audiences and to seek permanent staffing to help address CS course needs.

II. ASSESSMENT REVIEW AND PLANNING MEETING: Professors Moore and Stiadle met on April 2 from 2:30 to 3:30 pm to review current student progress and to discuss the structure of our majors (Computer Science (CS), Math, and Physics). In addition, of course, all the members of the major met informally numerous times over the course of the year in various combinations, either in person or electronically, to discuss such issues in an ongoing conversation. At the principal meeting, however, we evaluated the progress of senior majors, current underclass majors, and potential majors, identifying individual problems as well as overall issues to address. We also continued the ongoing discussion of structure of the CS major.

III. PLAN FOR NEXT YEAR We identified four major issues to address.

(1) There have been very few CS minors in the last few years. Physics minors go up and down and Math minors are variable but fairly stable. The recent CS pattern seems persistent, however. We believe this is due to a high entry-level cost. Moreover, the minor itself is currently structured as half of a standard major, which may not address students' needs from other majors, e.g. Business, Psychology, and Graphic Design.

(2) Many MPS students including, perhaps especially, among our majors seem impervious to low grades as a source of motivation for tasks, concepts, and skills they do not currently wish to learn. While some of this may be due to maturity issues, it is a departure from recent behaviors.

(3) In light of last summer's unexpected departure of Assistant Professor of CS Adams, we took the opportunity to revisit the structure of the CS major. We considered course offerings, structure, and staffing.

(4) Given the tendency toward more applied offerings, especially as minors, MPS should explore some of these possibilities.

IV. UPDATED ASSESSMENT PLAN

(1) The major plans to develop a second version of the CS minor so as to dovetail effectively with the Business, FMS, and Graphic Design majors, among others. In addition, we hope to get consistent, effective, user-friendly staffing for the introductory programming class, CS 131, even if this is not necessarily the entry-level class for all minors or majors.

(2) Experience shows that students will perform on projects in which they're invested, so we can sometimes address the issue with targeted projects. This is, however, impractical for large classes and for every single concept. Moreover, it does not address the maturity problem relevant for jobs. Finally, it diverges from our liberal arts appeal to "things will change." This warrants our further study and continued consideration this coming year.

(3) A survey of current CS majors revealed no clear pattern of immediate job interest (database, web-development, programming, etc.) This is gratifying in the sense that it's consistent with the liberal arts approach mentioned above as well as the College and major liberal arts goals. Thus MPS recommends no changes in the major requirements at this time other than continuing to keep pace with industry standards. This is, for CS as well as Math and Physics of course, impossible without faculty practice outside academia.

(4) MPS is preparing proposals for a second CS minor in Web Development and a Math minor in Statistics so as to accommodate student interest in applications that will go along with their majors in Business, Economics, Psychology, Natural Sciences, and others.

(5) The department has advocated for and is searching for an additional member who will fill the position vacated by Professor Adams, although not necessarily in an equivalent role. Rather, such a person should be able to teach effectively in an area in addition to CS such as Math or Physics. Not only ought this person be easier to find, since a CS PhD who is a good teacher is a rare commodity for an institution such as ours to attract, but it allows for the flexibility in course offerings that we have traditionally encouraged.

V. SUMMARY OF DATA USED

(1) MPS has evaluated and continues to evaluate standard CS, Math, and Physics major requirements at other, comparable institutions as well as standards articulated by national bodies concerned with these subjects.

(2) As observed above, we polled current majors and have informally spoken with first year students who expressed interest in our area but stopped after one semester. The new policy of assigning students to advisors in the area of initial interest has definitely been helpful in this regard. While it's natural for students to try out a major and then change their minds after a semester or two, knowing the problems of the few who might continue in an MPS major or minor can help us tailor our program to serve all students better.