

C1: Core Knowledge: Know the core ideas and methods in the field of computer science

Although computer science is still a young field with tremendous variations in emphasis, sets of core competencies have been identified by a number of organizations. At Westmont, we look to the guidelines created for computer science in the liberal arts (see [Walker & Kelemen, 2010](#); and [A 2007 Model Curriculum, 2007](#)). Although not ideally suited for the liberal arts model curriculum, we have used the Major Field Test in computer science for the six years prior to 2014 as a means for measuring our students' mastery of the core ideas and methods in computer science.

1) What we learned about students' learning

For 18 students taking the MFT, 13 scored above the 50th percentile and 8 scored above the 70th percentile. As a program, we score in the 65th percentile among 217 other institutions using the Major Field Test. As of 2010, our benchmark has been 50% of our students score at or above the 70th percentile. The results for these 18 students do not quite satisfy that benchmark.

student	score	percentile
1	132	10
2	159	70
3	164	75
4	154	60
5	160	70
6	141	30
7	156	60
8	162	75
9	121	1
10	181	95
11	170	85
12	143	35
13	159	70
14	149	50
15	165	80
16	164	75
17	157	65
18	140	25

If we look at the sub-section scores for the three areas *programming, discrete structures and algorithms*, and *systems: architecture/operating systems/networking/database*, our students collectively score above average in first area and below average in the other two areas.

2) Changes made or planned to improve student learning

During the last several years, we have modified our core curriculum. For reasons related to the liberal arts model curriculum mentioned above, we added CS045, Computer Organization and Architecture, to the core requirements. Although this change was made prior to obtaining the sub-section scores, we expect that it will improve our programmatic score in the third area. We also removed from the core a seminar course, CS050 Morality, Information, Logic and Knowledge, that duplicated functionality with an institution-wide GE course in order to allow students to spend more of their major units on the core content of computer science.