

Panel Discussion: Assessment of Undergraduate Computer Science

Abstract

Nearly any measure can be deemed an assessment. For example, an institution can assess classroom utilization; if all classrooms are in use and even overcrowded on Mondays, Wednesdays, and Fridays from 10:00 am until 2:00 pm and practically empty at other times, that should dictate the need for some change in policy or practice relative to scheduling. Thus at its most generic level, assessment is the process of collecting data to inform decision-making and/or to verify and validate current practice.

For this panel, the focus is on the assessment of learning. The term assessment can be used as either a noun (where it describes an instrument, typically a standardized test) or a verb (where it describes the activity of collecting the data). The distinction is an important one, especially when trying to clarify the roles of all stakeholders in the process. For the purposes of this discussion, the verb form is the one to be used. In particular, assessment can be viewed as the process of using a variety of tools and data to identify strengths and weaknesses in curricula, at the course, program, and departmental levels.

Upon dissection, there are 3 key elements in this definition. First, the process of assessment of learning outcomes should be multidimensional. Multiple measures should be used to provide broader, deeper, and more verifiable results. Second, the results of the activity will help to develop a better understanding of curricula. In other words, the activity of assessment is as much about capturing strengths that can be built upon as it is about finding weaknesses that need to be addressed. Finally, assessment should occur at multiple levels. In software development, the corollary to this process is referred to as integration testing. Various components of a system are first tested in isolation; they are then added to the larger system to ensure they properly fulfill the desired function.

This panel will be convened to describe and discuss various ways in which computer science can be assessed, at the unit, course, and program level. Where possible, these assessment tools will be aligned with curriculum standards (e.g., ACM) and accreditation standards (e.g., ABET).