Best Strategies for Recruitment and Retention in Foundational Physics Courses

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STAIRSTEP is a NSF – sponsored program for STEM majors, which allows the Physics Department at Lamar to involve students from all levels in research and outreach using a setting similar with the one for advanced special topics. However, our STAIRSTEP students do not receive a grade, but instead they receive a stipend up to $100/week for working along with a group of peers under the supervision of a faculty mentor on various physics topics, including research in physics. As part of the STAIRSTEP program, we develop materials able to better explain certain complex physical phenomena addressed in our foundational courses, with applications in modern technologies which are attractive to our students. These applications are also selected with the goal of showing the value and richness of the knowledge acquired in basic physics courses and therefore, they help us in retaining and inducting more students in the physics program. For efficiency and closer interaction among students, we use a peer-instructional environment having STAIRSTEP students lead certain lab activities or physics demos, as well as to give PPT presentations for younger colleagues. This strategy became a way to advertise the richness of the knowledge which can be acquired in the foundational physics courses, helping in retention of students in the physics program and recruiting new students. Increasing the retention and recruiting rates is a major task for solving the problem of being considered a low-producing program by the THECB. As result of our efforts in STAIRSTEP along with other strategies implemented recently in our program, in 2012 we had 35 physics majors, which is 3.5 times more students as compared with 2009 (with only 10 physics majors), which is the year STAIRSTEP program started.