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Factors Affecting STEM Retention Inside and Outside the Physics Major GAY STEWART, West Virginia University — The University of Arkansas – Fayetteville implemented changes in its undergraduate physics program beginning in 1994 that dramatically increased the number of students graduating with a major in physics from an average of 1-2 students per year for most of the years from 1990-1998 to 27 graduates in 2012. With the selection of the department as a PhysTEC program in 2001, the number of physics students entering high school teaching also began to dramatically increase. Upon joining the West Virginia University physics department, we began to quantitatively investigate the effect of physics classes on the retention of STEM (Science, Technology, Engineering, and Mathematics) majors. Exceptional variation between instructors in the introductory physics sequence produced strong fluctuations in final grade distributions and conceptual learning. Differences in physics classes were also related to changes in students' beliefs about their own abilities, their self-efficacy, and their feelings of belonging within the university, the major, and within study groups. Happily, and counter to public expectations, the personality profile of STEM students was consistent with that of the general population.

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