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Equity and inclusion by design in calculus-based introductory physics

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Extended Analytical Physics (EAP) at Rutgers University is a large-enrollment introductory calculus-based mechanics course for mathematically underprepared engineering students - many coming from socioeconomically disadvantaged New Jersey school districts. EAP is offered in parallel with, and as an alternative to, the mainstream calculus-based course. It was designed to help close degree completion gaps for female and under-represented minority students in engineering while holding all students to the same standards as the mainstream course. This talk describes the history, the development and the mistakes made along the way. EAP was designed from its outset to empower students who may feel they don't belong by developing community, valuing naive ideas, creating a collaborative social climate, and broadening access through scaffolded activities and targeted interventions. The curriculum and community structure has helped drive more equitable graduation rates for over 20 years, in addition to helping realize significant gains on the Colorado Learning Attitudes about Science Survey (CLASS) and the Force Concept Inventory (FCI). The talk will highlight the features of EAP that are transferrable to typical large-enrollment introductory physics courses.