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## The Choice

Demystifying College Admissions and Aid

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### Brown University Creates Online Course for High School Students

By [MICHAEL A. WILNER](#)

When Yaser S. Abu-Mostafa, a professor of electrical engineering and computer science at the [California Institute of Technology](#), began promoting his online course on machine learning, one person he turned to was Caltech's dean of admissions. Dr. Abu-Mostafa believed that prospective Caltech students would benefit from learning what it actually takes to be an engineer — something that high schools, on the whole, fail to teach adequately.

National Science Foundation statistics lend credence to his worries: while one in 10 students in the United States enter college with the intention of majoring in engineering, [nearly half](#) of those students fail to complete their degree requirements.

Caltech admissions officials agreed wholeheartedly, and promptly sent out an e-mail blast to applicants suggesting Dr. Abu-Mostafa's course, Learning From Data, on iTunes U.

“University is a mystery to these students, and they really don't know what they're getting into a lot of the time,” said Dr. Abu-Mostafa, whose course ultimately attracted 100,000 subscribers. He estimates that one in 10 were in high school, based on the number of e-mails he received from different age groups.

“The class crystallized their interests,” he said, “and gave them some confidence going into the field.”

Now, in what seems to be the first major effort by a university to tailor a massive open online course, or MOOC, specifically to high school students, [Brown University](#) is preparing to offer a free online engineering class with the aim of teaching high school students about the merits and challenges of the field.

If the program is truly unprecedented, as Brown's team has come to believe, it could start a trend of directly advising high school students and their teachers on specific curriculums, motivated in part by the hypercompetitive college admissions process.

“The real goal here is to get students interested in engineering to better understand engineering, so that they can make good decisions about what they do in the next step,” said Wendy Drexler, director of online development at Brown. “If they decide that they're interested in engineering and they want to apply to different engineering schools, we want them to have all the information they need.”

The course is based more on activities and research assignments than on video lectures, in an effort to challenge students to actually build something, Dr. Drexler said. Students will also receive guidance on what types of courses they should look for when applying to colleges.

“This is the kind of innovative leadership that can be a game changer for students,” said Josh Coates, chief executive of Instructure, the software company that provided the platform for Brown’s project. “We all know we need more STEM education, and bridging the gap between college and high school with an open online course is a great way to get more kids into these kinds of fields and more interested in the college experience.”

The 500-person cap for the first course section, which began April 1, was met in December. Teachers have also expressed interest in incorporating the course work into their own classes, Dr. Drexler said.

“Students who are considering taking these courses should know it’s not going to help them get into Brown. It’s really about learning what it’s like to be an engineer,” said Jesse Schreier, the instructional designer for the course. “There’s absolutely no guarantee that Brown admissions is going to look on an applicant with kinder eyes.”

Still, Brown’s online development team is debating whether to offer a certificate of some kind to students who complete the course, which officials know would be used as yet another college application supplement. Coursera offers such certificates upon course completion, and some students are already [beginning to use them](#) to bolster their college résumés.

“There’s clearly a recognition around the country that American students would benefit from broader engineering literacy,” said Sanjay E. Sarma, director of digital learning at the [Massachusetts Institute of Technology](#), who applauded Brown’s efforts. “Will this play into the application? Certainly. But the last thing that I would want is for parents to have their students sit at home at the computer taking these courses at the expense of other projects.”

The officials behind the Brown initiative said their primary motivation was a larger national concern: the growing shortage of engineering graduates in a job market that demands them, as a result of misinformation, insufficient preparation and fears about the difficulty of engineering. And the idea of offering something free and open — unlike the costly, in-person summer extension programs run by Brown and many of its peers — seemed to have tremendous potential beyond just giving students a glimpse of what Brown, as a single institution, has to offer.

“If a student wants to get into the [University of Michigan](#) and they’ve actually shown that they’re already passionate about this topic, and they’ve taken that extra step to learn more about engineering, and if they have all the other credentials they need, then yes, that definitely is going to set them apart,” Dr. Drexler said. “It’s how you reflect your passion. If you look at it that way, then yes, it can be a positive addition to a college application.”

Based on the success of this course, Brown is likely to expand its MOOC offerings for high school students to other disciplines. But for now, it is approaching the project as many universities are approaching MOOCs: with cautious optimism, a sense of excitement and full acceptance that their initiatives may not succeed.

“If it weren’t for the fact that my father was a professor of engineering, I wouldn’t have known what a creative discipline it is,” said Nick McKeown, a professor at [Stanford University](#) who is teaching an online course for the university’s [Class2Go program](#). “The word ‘engineering’ comes from the root ‘ingenious.’ It’s all about creation and invention. Teaching high school kids about that is wonderful, so I think the Brown program sounds fantastic.”

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