



Innovative Curriculum Lures Students To Georgia Tech

With new threads program, students' computer science degrees are personalized to reflect their particular interests and career aspirations. It must be working: The university's freshman class of computer majors is up by 33%.

By Marianne Kolbasuk McGee, [InformationWeek](#)

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At a time when university computer science departments are battling steep declines in enrollment, the Georgia Institute of Technology saw its freshman class of computer majors climb 33% this fall.

What's the draw? Georgia Tech tore up its one-size-fits-all computer science curriculum and replaced it with a new approach the school calls "threads." Students still learn programming languages and IT architecture, but now those core subjects are blended into eight specialized threads, or subsets, of computing.

The majority of computer science students have a general idea of what they'd like to pursue in the technology field when they enter Georgia Tech, says Richard DeMillo, dean of Georgia Tech's college of computing, who was CTO at Hewlett-Packard before joining the university in 2002. The college helps guide students into the threads that best suit their career goals. So a student pursuing a career related to robotics could combine threads in embodiment and intelligence, while a student interested in computerized animation could combine threads in media and computational modeling. Undergrad students choose two threads, which means there are 28 possible combinations to get a bachelor's degree in computer science.

For freshmen like Nikea Lynn Davis, Georgia Tech's threads were a big selling point. Davis, who wants a career that involves education, children, and computer research, has chosen threads in computers and people as well as internetworking. "I want to study how people use computers, how they find information using internetworking," she says.

In addition to choosing threads, students also select one of four

roles: entrepreneur, inventor, communicator, and master practitioner. Students pick elective classes and extracurricular activities, such as work-study programs or internships, based on these roles. A student interested in computing research who'd like to be an inventor could pursue a summer internship working in a professor's lab.

Career-Minded

Georgia Tech took the real-world workplace into consideration before revamping its curriculum, DeMillo says. Anything that gets more young people interested in technology careers--and a curriculum that can help them hit the ground running after graduation--is surely welcome news for employers worried about a future shortage of tech professionals as baby boomers retire.

"Georgia Tech's program is the most innovative approach to computer science that we've seen," says Stewart Tansley, program manager in external research and programs at Microsoft Research. Microsoft was so impressed with the threads curriculum that it has teamed up with Georgia Tech and the all-women Bryn Mawr College to create a three-year robotics program that the schools will test next year; it includes robotics software and \$1 million in funding from Microsoft.

Universities saw sharp drops in computer science applications after the tech bust, and the numbers haven't recovered even as IT hiring picks up. Other universities have taken more conservative steps to energize their computer science curriculums such as adding newer hot technologies to existing courses or teaching business-critical skills like international project management. The University of Indiana earlier this year aligned with a university in Germany to work on a project involving SAP software. IBM works with schools as part of its Academic Initiative program, giving out free software and supplying IBM professionals to lecture on WebSphere, service-oriented architecture, and other technologies.

Georgia Tech isn't stopping at computer science; it's considering introducing the threads approach into other areas of study. Maybe it should consider building more dorms.



Cool Threads

Georgia Tech offers eight degree tracks for computer science

- >> Embodiment: Computers and the physical world
- >> Computational modeling
- >> Computers and media
- >> Computers and people
- >> Computers and intelligence
- >> Computers and foundations
- >> Computers and platforms
- >> Information internetworking