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**State to require more of grads
4th year of math, science could cut into electives, hurt middling students**

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Texas students soon will need four years of math and science to graduate from high school – and that could make electives an endangered academic species.

The state now requires three years of math and science. With the changes, which take effect with freshmen in 2007-08, Texas will have some of the toughest graduation requirements in the country. Only Alabama requires four years of math and science now.

Teachers, counselors and parents agree the plan makes sense for aspiring engineers and doctors, and for kids shooting for selective colleges.

But it's the future artists and electricians, and the students bound for less selective schools or no college at all, that they worry about.

"Not only do electives give students practical skills – sometimes those are the classes that keep kids in school," said Paula Barnhouse, a counselor at MacArthur High School in Irving.

"I'm really concerned about what will happen with the dropout rate."

Lawmakers added the fourth year as part of the sweeping school finance reform package they passed in May. They upped the math and science credits to better prepare students for college and careers. Too many college students take remedial math classes, they say, and too few pursue math and science majors.

Many Texas universities recommend four years of math and science, but even the top ones don't mandate it. Texas A&M University, for example, requires applicants to have three and a half years of math and three years of science. (One big exception: Students in the top tenth of their high school class are automatically admitted by state law.) Rice University expects students to have at least three years of math and two years of laboratory science.

Science, math grants

More rigor in math and science is a growing state emphasis. Just Thursday, the Texas Education Agency announced \$4 million in grants to create more high school academies focused on science, math, engineering and technology. (Recipients include Berkner High in Richardson and Conrad High, a new school opening in Dallas this fall.) Federal efforts to improve math and science education are under way, too.

As school counselors and teachers see it, students bound for four-year colleges will be OK. Chances are they're already taking extra math, science and other credits.

Struggling students will have a safety valve. With school and parent permission, they can switch to an easier program that requires just three years of math and two of science.

The kids in the middle – the ones contemplating four-year vs. two-year college, or debating whether to head to college right after graduation – stand to get squeezed the most.

Too many kids fail to graduate on time as it is, said Cameron Boone, a rising senior at Lamar High School in Arlington. Demand more math and science, he said, and even more kids will drop out.

Cameron said he struggled in chemistry as a junior and ended up dropping the class. He'll take it again this coming year. If he needed four years of science, he said, he might be in trouble.

Plus, he said, electives are important. "It allows students to express themselves. It allows them time to find a career. ... If they're going to eliminate all of your electives, what's the point?"

To encourage students to keep taking electives, the state could raise the graduation requirement from 24 credits to 26. Board of education members raised the idea last week, after hearing from a long line of music, art and other teachers.

Nina Boothe, president of the Texas Art Education Association, said she hopes the state does require more credits.

"We will always have our bands because we have football, but I fear for orchestras and the smaller groups. I very much fear for all of the visual arts," said Ms. Boothe, who taught art for 30 years at Lake Highlands Junior High in the Richardson school district.

"The arts touch our souls," she said. "Calculus never touched my soul."

Most local high schools follow the state requirement of 24 credits, although a few require more. Mansfield High, for instance, requires 27 credits.

Most high schools offer seven or eight class periods a day, which makes it possible for students to graduate with 28 or 32 credits, respectively. Still, some educators are concerned.

In Irving, students can earn up to 28 credits, but they can graduate with a minimum of 24. Require 26 credits, and "there's absolutely no room for failure," said Ms. Barnhouse, the MacArthur counselor.

"A lot of kids take credits in middle school, but those are your stronger students, and those aren't the ones I'm concerned about here."

Students torn between, say, regular and honors English might opt for the easier class because they don't want to risk failing and not graduating on time, she said.

A dilemma for athletes

It's especially dicey for student athletes in Texas high schools. Typically, one of their class periods is spent practicing their sport. They can take a sport all four years, but the state lets them earn a maximum of two credits.

Kelley Miller, another Lamar senior, plays softball. She'll also graduate with four years of math and science, because she wants to study veterinary medicine or forensic science in college. To fit all that in, she said, she couldn't take some electives, such as an interior design class that interested her.

Still, she said she's got mixed feelings about the extra math and science.

"A lot of high school students, I have to admit, are lazy, especially their senior year." She said she believes with hard work, they can take more classes – and pass them.

College officials, for their part, welcome the extra math and science – and the extra credits.

"We have encouraged students to take more science and math, but when it's not a requirement, you don't get a lot of support for that," said Joneel Harris, associate vice president for enrollment management at the University of North Texas.

She understands concerns about higher standards turning off some kids, but she doesn't believe that will happen.

"Our experience with our kids is that they've found time to do it all. The things they're passionate about, they will make time for it."

GRADUATION REQUIREMENTS

Texas keeps raising the bar for a high school diploma — but how high is too high? Starting with freshmen in 2007-08, students will need four years of math and science to graduate, up from three years of each. But that leaves students with less time in their school day for electives such as drama, dance, auto mechanics or electronics. Texas has three types of high school programs: minimum, recommended and distinguished (not shown). The minimum program used to be the standard in Texas, but starting with the graduating class of 2005, the recommended program became the standard. Students can still take the minimum program, but they need permission from their parents and school counselor or principal. But schools have an incentive to not allow that — their state ratings depend partly upon the percentage of students taking the recommended program or higher. The state also requires students, starting with the class of 2005, to pass the TAKS exit exams to receive their diploma.

	Minimum program	Recommended program – now	Recommended program – freshmen in 2007-08
English	4.0	4.0	4.0
Math	3.0	3.0	4.0
Science	2.0	3.0	4.0
Social studies	2.5	3.5	3.5
Fine arts	-	1.0	1.0
Other requirements	5.0	6.0	6.0
Electives	5.5	3.5	1.5
TOTAL	22.0	24.0	24.0

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