Former se[...]

By Mike Todd
American-Statesman Staff

The City of Austin, which for years has been pinching pennies on recreational facilities, is about to open two golf courses.

One, on the site of the old Williamson Creek sewage treatment plant in Southeast Austin, will cost $3 million — which golfers will repay through fees almost twice as high as at the city's four existing courses.

Professor seeks to even odds of lottery

■ **Class aims to unravel the numerical mysteries of the state's game of chance**

By David Elliot
American-Statesman Capitol Staff

What are the chances of winning the Texas Lottery jackpot if you play 20 times a week for 50 years? Are the numbers 1-2-3-4-5-6 as likely to come up as, say, 6-7-15-20-36-45? Why does the Texas Lottery give $3 prizes to players who match three numbers?

These are some of the sample questions that a local statistics professor hopes to answer when he offers an informal, not-for-credit class entitled, "Lotto Luck," next month at the University of Texas. The class, open to 15 students on a first-come, first-served basis, will be 10 a.m. to noon on Sept. 18 on the UT campus.

Planned by St. Edward's University Professor Larry Lesser, the class is not intended to encourage or dissuade anyone from playing the lottery. Rather, Lesser merely wants people to know the odds they're up against — and perhaps more important, to be able to understand odds and probabilities.

"People talk about illiteracy in our society," Lesser said. "There is at least as much a problem with innumeracy. Most adults would be very embarrassed to admit, 'I don't know how to read.' But many of those same adults almost boast about being innumerate."

Part of the problem, Lesser said, is that many people have trouble comprehending big numbers — a critical function if one's intention is to understand how likely winning the lottery is.

"People don't have a good enough feel for the sizes of very large or small numbers," Lesser said. "Letting someone run free in life without a good knowledge of what probabilities are is sort of like letting a kid run loose in the store with some money, but with no feel for what prices really mean."

The chances of matching all six numbers and winning tonight's

See Professor, B3

Professor seeks to even the lottery's odds

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Lotto Texas jackpot are about one in 16 million. But how much is 16 million? Consider:

■ Suppose you're just over 30 years and two months of age. You break your life into minutes and find you are 16 million minutes old. Choosing one minute of your entire life at random would be like choosing the six winning lottery numbers.

■ Into major league baseball statistics? A big-league hitter who bats .331 gets up to bat 15 consecutive times — and each time, gets a hit. Lesser said the odds of that are about one in 16 million — the same as winning lotto.

■ How about NBA basketball? A player who is an 85 percent free-throw shooter would have to make 102 consecutive free throws to equal the odds of winning the lottery.

Another important part of understanding the lottery is understanding psychology. Lesser admits he is no psychology expert, but he does understand a thing or two about how the game is marketed.

"This course has almost as much psychology as it does probability," Lesser said. "That's important, too. That's part of the whole picture."

Example: Last April, lottery officials unveiled a scratch-off game called "Cactus Cash." The object: rub off three cactuses in a row and you win the hidden prize.

The chances of winning were better than any game announced by lottery officials up to that time: one in 4.87. (By contrast, the first scratch-off game, released in May 1992 had a winning probability of one in 7.9)

It sounded too good to be true. Lottery officials complied with

state law by listing the chances on the back of each ticket. But they didn't list the fact that only 50 million tickets were released, lower than the 70 million tickets normally released these days and much lower than the 300 million tickets released for the lottery's first two games.

"All they [consumers] know is that 'Cactus Cash' seems to be a game that wins more often than usual," Lesser said. "And the next thing you know, they believe that all the lottery games are paying a little more now. The idea is that

they're going to start playing all the games more."

That, Lesser said, causes consumers to buy more scratch-off tickets of any type because of a misconception that all of the lottery games are returning more money. (Thus far, 18 scratch-off games have been offered. One has been retired. Another will end next week.)

Many lottery players have noticed promotional literature in convenience stores touting how many winning tickets are still available for each scratch-off
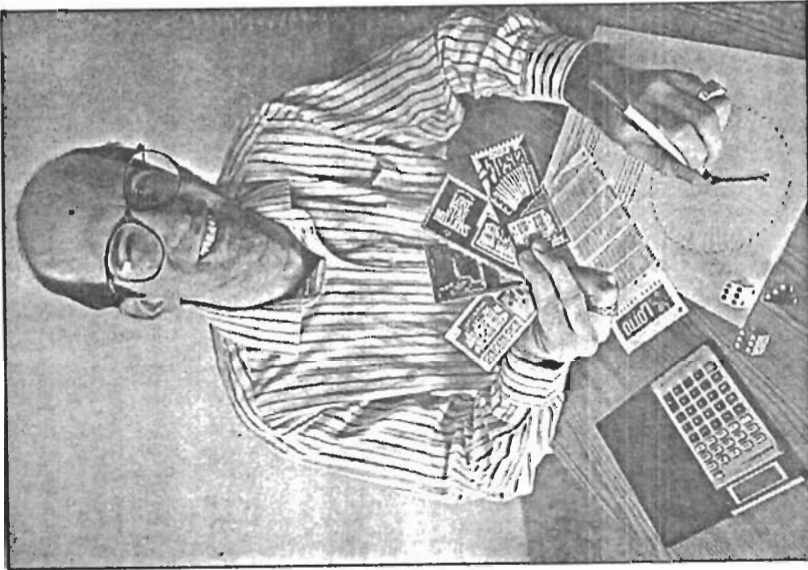
game. Students who take Lesser's class will learn this information is useless because it does not include how many tickets in each game remain to be sold.

"The trouble with the 'winning tickets remaining' poster is they tell you how many grand prizes are remaining, but they don't tell you how many total tickets are remaining," Lesser said. "You have no way of knowing whether your chances of getting one of these remaining prizes among the total tickets still remaining are a little better, a little worse or maybe

about the same."

Lesser stresses that he has no moral qualms about playing the lottery. He does, however, think that people should not spend more than 1 percent of their weekly income on lottery tickets. And they should know what they're doing.

"I want people to make an in-

formed choice," he said. "Before deciding whether to play the Texas Lottery or other games of chance, learn the underlying principles of probability.

"I'm pro-choice," he concludes, "not necessarily pro-chance, but pro-choice."

Staff photo by Lynne Dobson

Larry Lesser, a St. Edward's University professor, hopes to demystify the numbers surrounding the Texas Lottery in a class he will be teaching.

The spin on lottery odds

Statistics professor Larry Lesser of St. Edward's University answers some commonly asked questions about lottery odds.

Q. What are the chances of winning the Texas lottery jackpot if you play 20 times a week for 50 years?

A. Approximately one in 300. Don't hold your breath, though, even if you live that long.

Q. Are the numbers 1-2-3-4-5-6 as likely to come up as, say, 6-7-15-20-36-45?

A. Yes — but people find this confusing. Lesser explains why:

"Our eyes are drawn to the unusualness of numbers that are in sequence just because there are fewer sequence combinations than nonsequence combinations.

"It's like when you have a bridge hand, you would think it unusual if you got an ace of spades, two of spades, three of spades ... all 13 cards being in one suit. And yet any other specific 13-card hand you get is just as unusual. It just isn't noticed because it is not called a straight or a flush or whatever."

Q. Why does the Texas Lottery give $3 prizes to players who match three numbers? (Most states don't.)

A. Lesser thinks this is a marketing technique. The chances of matching three numbers and winning $3 are one in 60. By comparison, the chances of matching four numbers shoot up to one in 1,120. Many players who win the $3 might be expected to reinvest their $3 in more lottery tickets — losers, most likely.

Q. In Lotto Texas, what numbers are best to avoid if you want to win a big jackpot?

A. Of course, the chances of winning a jackpot are the same, regardless of which numbers you pick. But suppose you do match all six numbers. Your winnings will be much higher if you pick unusual numbers.

Lesser said the numbers 1 through 12 and 1 through 31 are common, because many people choose numbers that reflect dates, such as birthdays. Likewise, the number 19 is common because it reflects the first two digits of any year of this century. And players like to choose 7 and 11, as well as any multiple of 7, such as 14, 21 or 28.

Q. If the chances of winning a scratch-off game are, say, 1 in 5, and you purchase five tickets, are you guaranteed one winner?

A. Of course not. "Unfortunately, a lot of people would say 'yes,'" Lesser said. "And that's sort of another misconception I'm hoping to clear up."