

**WEATHER:** Friday, increasing cloudiness. High in the lower 40s. Friday night, partly cloudy with a low in the 20s to low 30s. Saturday, considerable cloudiness with a slight chance of showers. Highs in the 40s to lower 50s.

# Daily Nebraskan

**Inside:**  
 Wire . . . . . Page 2  
 Editorial . . . . . Page 4  
 Sports . . . . . Page 5  
 Classifieds . . . . . Page 6

December 4, 1987

University of Nebraska-Lincoln

Vol. 87 No. 69

## Educators are calculating calculus changes

By Amy Edwards  
 Senior Reporter

Students taking calculus at the University of Nebraska-Lincoln may see changes in the course during the next few years.

One problem with calculus classes at UNL and other U.S. institutions is that about 40 percent of the students who enroll in the courses do not complete the course with a grade of C or better, said Frank Gilfeather, mathematics and statistics professor at UNL.

This poses a problem because calculus is a requirement for business, engineering and science majors, he said.

A few students who are prepared for calculus still have trouble in the class, Gilfeather said. But one of the biggest complaints of faculty members is that students aren't properly prepared for the course, he said.

More than half of the mathematics and statistics professors teach calculus classes to more than 5,000 students each semester, Gilfeather said.

Gilfeather said calculus instructors across the country are looking better

ways to teach the subject.

The National Science Foundation and the National Research Council gave a conference in Washington, D.C., this semester to initiate a debate on how calculus can and should be changed.

Calculus is now a "filter course," Gilfeather said. He said Bob White, a keynote speaker at the Washington conference, summed up the needed changes in calculus by saying, "Mathematics must become a pump rather than a filter."

The conference, "Calculus for a New Century," was the first step in initiating debate, Gilfeather said.

NSF also plans to finance changes in calculus programs with \$2 million a year for the next several years.

Jack Eidswick, UNL associate professor of mathematics and statistics, attended the conference and reported some of the common complaints about calculus courses:

- the classes are too large.
- the students are unprepared and unmotivated.
- texts are too big and are not challenging.
- the failure rate is too high and

standards too low.

• instructors and students are unenthusiastic.

• students don't learn the concepts of calculus, and most of what they do learn is irrelevant to their ultimate work.

Essentially, everything instructors attempt to teach can be done by a computer, and much of that can even be done by a modern calculator, Gilfeather said.

Very few students are sufficiently inspired by their calculus experience to major in mathematics. The best students usually are lost to other areas, he said.

Eidswick said that so far debate about calculus curricula has presented major problems and no solutions.

But UNL math professors are working to find solutions, he said. Gilfeather said a link with Dartmouth College and Prairie View University in Texas will be proposed to NSF for a project on calculus course evaluations. Gilfeather said officials hope to obtain the \$2 million NSF financing for the proposal.

The proposal will examine calculus courses in concept and teaching.

Dartmouth College is a selective college, Prairie View is a successful minority college, and UNL is an open-admissions, land-grant university. Gilfeather said the diversity in these universities could provide a successful link.

Gilfeather said a new calculator, the Hewlett Packard-28C, may be used in classrooms to "free calculus from tedious computations and make it less of a cookbook course and more of a concept course."

Gilfeather said this would probably make calculus harder for most students.

Ronald G. Douglas, dean of physical sciences at the State University of New York at Stony Brook, will present the benefits of the new calculator and possible changes in calculus programs at UNL on Dec. 7.

The discussion, "Calculus: Opportunities and Challenges," will be in Oldfather Hall 309 from 2:30 to 3:15 p.m. Gilfeather said faculty members and other people who are interested in curriculum development are urged to attend.

Douglas' efforts to bring about a change in calculus curricula led to a

conference at Tulane University in January 1986. Eidswick reported five main points concerning curriculum changes that came from the Tulane conference:

- New emphasis should be placed on the concepts of calculus.
- New emphasis should be placed on modeling techniques.
- Less emphasis should be placed on routine problems and drill work.
- Modern technology, especially computers and calculators, should be put to good use in teaching calculus.
- Calculus should be made "exciting."

Eidswick said new programs do not need to make calculus more difficult. There should be a shift in programs away from routine work to conceptual work.

Whether courses teach from the abstract to the particular or from the particular to the abstract, Eidswick said, they should eventually focus on the concepts of calculus.

"This is not a revolution, but an evolution," Eidswick said. "Calculus will not change overnight. The changes will probably be gradual over the next 100 years."

## Abel resident charged for snowfight damages

By Victoria Ayotte  
 Staff Reporter

A University of Nebraska-Lincoln student has been charged with third-degree assault and two counts of vandalism in connection with Monday night's snowball fight.

John Barbee, an 18-year-old resident of Abel Hall, was charged Wednesday in Lancaster County Court.

Barbee allegedly assaulted another student Monday night, resulting in an eye injury, said John Colborn, deputy Lancaster county attorney. Barbee also is allegedly responsible for damage to split-rail fences at Delta Upsilon and Sigma Alpha Mu fraternities, Colborn said.

The suspect will go to a docket call on Jan. 4, Colborn said. Barbee and his attorney will advise the court whether he wants to go to trial or plead guilty, Colborn said.

The penalty for the assault could be a year in jail, a \$1,000 fine or both. Each vandalism charge could have a penalty of three months in jail, \$500 or both.

Three other suspects will be

charged on Dec. 18, Colborn said. One suspect was arrested for obstructing an officer, one for vandalism, and one for shooting off fireworks, he said.

Colborn said he has not reviewed the reports yet and has not decided what he will charge the suspects with.

UNL police have interviewed 15 to 20 suspects in connection with the snowball fight, but have made no other arrests yet, said Gail Gade, UNL chief of police.

Police will conduct more interviews this week and possibly next week, Gade said. Some arrests could be made after police review videotape and pictures taken Monday night, he said.

Police took names of 144 students as they returned to residence halls from the snowball fight Monday night. Gade said officers also visited fraternities after the fight to get students' names.

The videotape and pictures will be used to identify those responsible for damage resulting from the fight, Gade said. It has not yet been determined if the videotape or pictures will be admissible evidence in court, he said.

## Mother Goose float to lead Star City Holiday Parade

By Kim Beavers  
 Staff Reporter

The Star City Holiday Parade is scheduled to travel Lincoln's downtown streets Saturday, with Mother Goose in the lead and Little Bo Peep not far behind.

The parade, called "Nursery Rhyme Holiday," is part of activities planned throughout the weekend.

The activities will begin tonight at 6 with a kickoff celebration at the Hilton Hotel, 141 N. Ninth St., followed by a "lighting" of the Haymarket District at 6:30. Proceeds will go to the Folsom Children's Zoo.

The parade is scheduled to begin at 11 a.m. Saturday at 10th and O streets. The floats' themes range from

"Little Bo Peep" and "The Old Woman in the Shoe" to "Pat a Cake." And, of course, Santa and his sleigh will travel the parade route. There are more than 20 floats in the third annual Star City Parade.

Barb Hager, executive director of the Downtown Lincoln Association, said she expects more than 60,000 people to attend the parade Saturday, even more than last year.

"This is a more balanced parade this year in that the quality is better, the balloons will fly higher and the floats will be more creative. I definitely think it's more professional," Hager said.

Hager said parade policies allow

See **PARADE** on 3



Eric Gregory/Daily Nebraskan

Kevin Aylesworth, a graduate student working toward a doctorate in condensed-matter physics, puts a condom on a vacuum-pump pressure regulator in Behlen Laboratory.

## Condom use stretches to science



By Mick Dyer  
 Staff Reporter

Traditionally, condoms have always played a role in campus life at the University of Nebraska-Lincoln. The first condoms used on campus, during the sexually repressive Victorian era, were made from the intestines of sheep or pigs. They were uncomfortable and required careful maintenance since they were intended to be reusable.

World War I brought a revolu-

tion in the elastic materials industry, as nations searched for a cheaper source of rubber to power their war machines. Latex rubber was accidentally discovered by a scientist experimenting in Thomas Edison's Fort Myers, Fla., laboratory. This made condoms cheaper to produce, and they became available after the war.

In addition to the traditional use of condoms — to prevent unwanted pregnancy or disease — the condom began playing new roles in campus life. Students filled them with Milk of Magnesia and threw them off the roofs of their houses at unsuspecting passers-by below. They were stretched over the exhaust pipes of cars, causing great embarrassment to the driver when the car back-

fired.

Condoms also have been standard features on some scientific research instruments at the university for several years.

Kevin Aylesworth and Dave Billesbach, doctoral students in condensed-matter physics, use a machine called a light-scattering cell to scatter laser light through a crystal. By analyzing the way the crystal scatters the light, they can determine things about the forces that hold the crystals together.

They use condoms on the light-scattering cell to create a flexible vacuum seal. The condom helps them take more accurate measurements when they vary the amount of pressure being applied to the

See **CONDOMS** on 3