THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

DEPARTMENT OF MATHEMATICS
BUILDING #89

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(NOTE: This statement to be filed as an addendum to the minutes of the Faculty Senate meeting of February 7, 1983.)

In the February 7, 1983, meeting of the Faculty Senate, Senator Charlotte Jones presented a report on Math 116-117, Intermediate and College Algebra. Although I question the validity of a few of the assertions made by Senator Jones, I certainly agree with the thrust of the report: That many students do not like the so-called "independent study format" in these courses, and that it would be good to have more and smaller lecture sections. I would like to describe briefly how the current situation arose and what we are doing about it.

During the 1970's, there was a dramatic increase in the number of students enrolling in our Intermediate and College Algebra courses, from about 2000 in the Fall of 1970 to over 4000 near the end of the decade; during the same time period, the number of faculty and graduate assistants in the Department declined. About ten years ago, largely in order to cope with this situation, but also for pedagogical reasons, the Department introduced what was originally called the Individual Learning System (ILS) for these courses. This program has developed into what is now somewhat misleadingly referred to as the "independent study" program. The program is more accurately described as tutor-based instruction, in contrast to traditional lecturer-based instruction. The program currently offers about twenty-seven hours per week of tutoring by graduate and undergraduate assistants. Students may come in whenever they want as often as they want during the scheduled hours and get individual, one-on-one assistance with their algebra studies. In addition, we offer approximately the same number of hours per week of quiz review, in which a graduate assistant discusses a sample quiz with a group of up to about 25 students. Thus, although there is not the traditional three-times-a-week schedule of lectures in this program, there is a considerable amount of instructional help available to students who are willing to take advantage of it.

We are aware that many students are dissatisfied with this less-structured mode of instruction, and we have taken several steps to deal with this. The fundamental problem is that too many students come to the University with insufficient or inadequate preparation in mathematics; we have begun several programs in cooperation with area high schools to improve the preparation of college-bound students. To help students at the University, we have introduced readiness and placement tests to assist students in deciding which mathematics courses they are prepared for. Several years ago, we received support from the Administration for additional faculty and

graduate assistants, and, in order to help satisfy the wishes of those students who prefer the traditional lecture, we were able to begin offering some standard lecture sections for Intermediate and College Algebra. These sections have enrollments of up to one hundred students each, and during the 1981-82 academic year we had two lectures for Intermediate Algebra and four for College Algebra. It has been our goal, not yet reached, to make available sufficiently many traditional lecture sections of College Algebra to accommodate all students who prefer this instructional mode. We will also be exploring the use of computer-based instruction for these courses.

Why don't we offer more and smaller lecture sections? The major impediment is that we do not have enough faculty to do so. Our faculty is relatively much smaller than that at most other institutions. The Department conducted surveys in 1979 and 1981 of the student/faculty ratios in the mathematics departments of Pac 10 and other competitive western universities, and in both years we found that our student/faculty ratio was the worst of all universities polled. For example, the Department's student/faculty ratio was 80% greater than that at the University of Utah. The Department would of course like to decrease the number of students per section and increase the amount of instructor-student contact in many of its courses. We expect that a combination of improved high school backgrounds for our students and an increase in the number of faculty in the Department would enable us to do so.

I appreciate the interest of the ASUA and the Faculty Senate in this problem. I am unable to be here to speak to you in person because I teach a lecture section of College Algebra at 3 on Monday, Wednesday, and Friday.

Ted Laetsch
Head, Department of Mathematics