



PERFORMANCE AUDIT

**THE UNIVERSITIES:
THE STUDENT EXPERIENCE**

Report to the Arizona Legislature
By the Auditor General
October 1994
Report 94-7



STATE OF ARIZONA
OFFICE OF THE
AUDITOR GENERAL

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October 13, 1994

Members of the Arizona Legislature

The Honorable Fife Symington, Governor

Members, Arizona Board of Regents

Dr. Lattie Coor, President
Arizona State University

Dr. Clara Lovett, President
Northern Arizona University

Dr. Manuel Pacheco, President
The University of Arizona

Transmitted herewith is a report of the Auditor General, A Performance Audit of **The Universities: The Student Experience**. This audit was conducted pursuant to the provisions of Sessions Laws 1993, Second Special Session, Chapter 1, Section 79. This audit is the first performance audit of the universities to be conducted by this Office.

Arizona's universities need to do more to raise graduation rates and lower the time it takes to graduate. Currently, one-half of the students who enroll in Arizona's universities do not graduate from the university where they first enroll. Of particular concern is the fact that, compared to other universities, too few of Arizona's **top** students graduate. In addition, those students who do graduate often need more than the traditional four years to do so. Only about 17 percent of students starting as full-time freshmen graduate in four years.

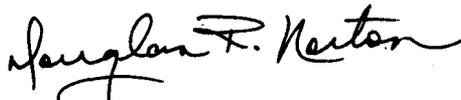
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To increase the graduation rates and decrease the time to graduation, the universities must continue to increase course availability and improve academic advising. Perhaps even more important, the universities need to become more student centered in their decision-making. With some notable exceptions, many administrators and faculty simply do not view students as customers of the universities and, as a result, may not give student needs the priority that is warranted.

My staff and I will be pleased to discuss or clarify items in the report.

This report will be released to the public on October 14, 1994.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas R. Norton". The signature is fluid and cursive, with a large initial "D" and "N".

Douglas R. Norton
Auditor General

SUMMARY

The Office of the Auditor General has conducted a performance audit of the undergraduate student experience in Arizona universities. This audit was conducted pursuant to the provisions of Session Laws 1993, Second Special Session, Chapter 1, Section 79. This audit is the first of two audits to be conducted under these provisions.

The universities' mission includes teaching, conducting research, and providing public service. Over 70,000 undergraduate students were enrolled in the three universities in fall 1993. State General Fund appropriations, tuition, research grants from federal and state agencies and private industry, fees, private donations, and a variety of other revenues finance the universities and their activities. These sources provided the universities nearly \$1.6 billion in fiscal year 1993-94.

Many Students Leave Arizona's Universities Without Graduating (see pages 5 through 15)

Although college graduation provides important benefits to both the student and the state, almost one-half of those who enroll in Arizona's universities as full-time students do not graduate from the university where they began. About one-fourth of entering students do not return for their second year, and almost as many leave the universities later, without graduating. While leaving college without graduating is not a new problem, nor a problem unique to Arizona, comparisons to other universities show Arizona can and should improve graduation rates.

We found that more Arizona students of high ability leave without graduating than similar students at other universities. In addition, a faculty study compared each university's overall graduation rates with rates at 43 universities with analogous admission standards, and found that Arizona's three universities' graduation rates ranked 28th, 29th, and 37th. Further, although some university administrators attribute the low graduation rate to Arizona's broad admission standards, we found many students who leave are passing their college courses. Better information is needed in order to understand and correct the loss of students. Currently, the universities have little data regarding students who leave without graduating.

**Universities Can Do More
To Enable Students To
Graduate More Quickly
(see pages 16 through 23)**

Few students – for example, only about 17 percent of those who entered as full-time freshmen in 1985 – graduate in the traditional four years. In addition, many students accumulate more credits than required by the time they graduate. Delayed graduation prolongs college expenses for students and parents, and postpones the student's entry into the adult job market. A combination of student-related factors and institutional factors causes graduation delay; for example, many students work and attend classes only part-time, and some students lack a coherent plan or select inappropriate majors. On the other hand, grade replacement policies, university curriculum decisions, course availability problems, and poor advisement also contribute to delays. The universities can do more to address the factors under their control.

**The Universities Can Do More
To Address Course
Availability Problems
(see pages 25 through 34)**

For many students, graduation is delayed because they cannot gain admission to required courses. Course availability problems affect more students in the liberal arts colleges than in other colleges, due to both the number of liberal arts majors and the liberal arts colleges' role in providing most general education courses for students throughout the universities. However, other colleges also have availability problems, especially in junior- and senior-level courses in popular majors. The universities have taken some steps to improve course availability, but in some cases, the university responses have not been beneficial to students. For example, one common response, increasing class size, may resolve availability problems but reduce the quality of education.

The universities need to give higher priority to undergraduate course availability. They do not forecast course demand, but make many decisions based on faculty teaching preferences and concern for university academic reputation. Some administrators stated that students should take what is offered; for example, students should take another language if Spanish classes are filled. This is not only a non-student-centered attitude, but often an unrealistic one, as students will wait to get the courses they want. In the long run, the universities will have to take difficult steps, including increasing faculty workload, reallocating faculty to undergraduate courses, and ensuring unnecessary or duplicative doctoral programs do not consume resources needed for undergraduate education.

Student Support Services Need Improvement (see pages 35 through 43)

Support services such as academic advising, orientation, and residence life are important to student success. These services help to integrate students into the social and academic life of the institution, introduce students to university policies and requirements, and help students with specific needs such as class scheduling, career counseling, and tutoring.

- Many students at Arizona's universities are dissatisfied with academic advising. Some students, including athletes and honors students, have access to excellent advising. However, the universities overall have too many students per professional advisor and do not use faculty effectively. The universities should reduce the student:advisor ratio, use computers to handle certain tasks, and reward faculty for good advising.
- Orientation programs do not reach enough students. Participation rates at ASU are much lower than the national average. The universities should consider making attendance at orientation mandatory.
- Students living in residence halls tend to have higher graduation rates than commuter students because they are more involved in campus activities and have more relationships with faculty and peers. The strongest effect on graduation rate is found in residence halls that offer coordinated programs, including a variety of academic and other support services such as academic advising, tutoring, workshops on academic success and study skills, and access to computer facilities. Although many incoming Arizona students initially live in residence halls, few residence halls at Arizona universities offer such comprehensive programs.

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INTRODUCTION AND BACKGROUND

The Office of the Auditor General has conducted a performance audit of the undergraduate student experience in Arizona universities. This audit was conducted pursuant to the provisions of Session Laws 1993, Second Special Session, Chapter 1, Section 79. This was the first performance audit conducted in the universities. Using a variety of methods, we studied graduation rates and some of the factors that affect them, and found several ways the universities could improve. In general, we believe the universities should work to become more student centered in order to improve their success with today's diverse student population.

Arizona's three universities, all established before 1900, operate under the governance of the Arizona Board of Regents. The largest, Arizona State University (ASU), is the fifth largest university in the nation with 30,178 undergraduate students.⁽¹⁾ The University of Arizona (U of A) is nearly as large as ASU, with 26,558 undergraduate students. Even the smallest, Northern Arizona University (NAU), is among the top 10 percent in the nation in size, with 13,931 undergraduate students. All three offer a wide range of baccalaureate, master's, and doctoral degrees. The combined state support for the universities in fiscal year 1993-94 was over \$685 million, and the universities' total budget from all sources for fiscal year 1993-94 was nearly \$1.6 billion.

The universities share a mission to teach, conduct research, and provide public service. In addition, each fills a unique role in the state. ASU meets the educational needs of both full- and part-time students in the state's dominant population center, and has a growing research role. NAU emphasizes undergraduate education on its primarily residential campus, and provides educational opportunities to teachers and others in rural areas statewide. U of A is a well-established research university, and provides cooperative extension and medical school programs.

Universities Need To Be More Concerned About Graduation Rates and Time To Graduate

Arizona's universities lose too many students who leave without graduating, and those who remain take too long to graduate. University administrators attribute much of the

⁽¹⁾ Figures cited in this paragraph are undergraduate student head counts for fall 1993.

poor graduation rate to the academic ability and preparation of the students they admit. However, although today's students are not so homogeneous as in the past and come to the universities with differing levels of preparedness, we believe the universities have an obligation to do the best they can to provide a college education to all who are admitted under the Board of Regents standards. As Ernest Boyer, former U.S. Commissioner of Education, said,

"The face of young America is changing...If our sense of nationhood is to be strengthened, if a generation of new citizens is to be brought into the mainstream of American life, colleges and universities must recommit themselves to the task of equality of opportunity for all."

While we did not conduct extensive work regarding the financial cost of student attrition and delayed graduation, we believe these costs are very high. Since the state subsidizes tuition for Arizona residents, there is a direct cost to delayed graduation. The higher cost, though, is the opportunity cost for students who do not graduate at all, and forgo the higher earnings associated with a college degree.

In addition, throughout the audit, we identified a need for the universities to take a more student-centered approach to decision making. Our observations during the time we spent on the campuses led us to conclude that undergraduate students are often not viewed as customers of the universities. In fact, one administrator explicitly told us that students were *not* customers of the universities. In his opinion, students are not paying for their own education, do not know what they need, and should not be presumed to be "always right." Other administrators and faculty members told us that, although they viewed students as customers, the concept was unpopular among others in the university community. Two examples illustrate the consequences of these views. First, although students complete faculty evaluation forms in each course at the end of the semester, the results are not available to students. Second, when a department participated in an experiment that accepted twice the usual number of students into certain sections of a course and employed a lecture instead of interactive teaching format in those sections, students were not informed of the experiment. Students who found themselves in the large lecture sections were understandably resentful.

Lack of student centeredness seems to be a national problem: John White of the National Science Foundation recently asked educators,

"How long would a firm be in business if it consistently failed to meet its advertised delivery dates by 25 percent? How long would a firm be in business if its products failed to satisfy more than half of its customers?"

Although we found instances where students' needs and desires were respected, our overall sense was that other needs tend to take precedence in decision making.

Recently, the universities responded to a request from the Board of Regents to establish performance measures in seven goal areas and two outcome measures. Several of the goals and both outcome measures parallel problem areas highlighted in this report: class availability, advisement, faculty in undergraduate courses, mentoring by faculty, graduation rates, and length of time and number of credits required to graduate. The remaining items – classroom equipment and technology, graduates properly educated for their chosen fields, and undergraduate research experience – are intended to further enhance the undergraduate experience in Arizona. The university responses, submitted to the Board in September 1994, represent a good first step in making improvements by defining the objectives and target dates for achieving them. These responses should not, however, be viewed as implementable plans; they simply set goals and timetables, and (U of A only) state the general types of actions to be taken. Because these responses were presented after the end of our audit work, we did not have an opportunity to examine the responses to ensure the measures would fully address the issues, or to review the methodology for collecting baseline data and reporting progress.

Audit Scope

Our audit focused on graduation rates, considered both as persistence (proportion of students staying at the universities until graduation) and as length of time and number of credits required to obtain a baccalaureate degree. The complex and interrelated factors influencing graduation rates include course availability, student characteristics, and student support services such as advisement. We conducted in-depth audit work in each of those areas. Findings I and II of this report provide an overview of Arizona's graduation rates, considered in Finding I as the proportion of students who persist to graduation and in Finding II as the length of time needed to graduate and the number of credit hours students have earned at graduation. Findings III and IV discuss some of the primary factors impacting graduation rates. Finally, we present areas where further study is needed.

To ensure broad coverage of the subject matter, we selected the colleges at each university which among them include the majority of undergraduate students and represent a variety of fields of study. Most of our audit work was concentrated in the colleges of business, education, engineering, and the college(s) on each campus that encompass the liberal arts and sciences, including the social sciences. All of our work was conducted on the main campuses in Tempe, Tucson, and Flagstaff; we did not review ASU West, NAU Yuma, or U of A's Sierra Vista campus due to time constraints and the relatively small numbers of undergraduates at those campuses.

Audit Methodology

We used a combination of several methods to study the issues involved in this audit. For example, we

- Reviewed current relevant literature and pertinent studies and reports prepared by universities,
- Met with parents, student leaders, and academic administrators regarding their concerns,
- Surveyed 468 students regarding course availability,
- Interviewed 4 to 5 college deans at each university and 9 department chairs regarding course availability and other issues,
- Surveyed all academic departments regarding student advisement,
- Studied class status reports for fall 1993 to determine how quickly classes were filled,
- Reviewed transcripts of students in the top 10 percent of credit hours at graduation at ASU and U of A, and of NAU students with over 160 credits who were still enrolled,
- Conducted focus groups with seniors at all 3 universities to discover issues they consider important, and
- Spoke with experts at national organizations and with administrators at other universities.

The Auditor General and staff express appreciation to the students, faculty, administration, and staff at all three universities for their cooperation and assistance throughout the audit.

FINDING I

MANY STUDENTS LEAVE ARIZONA'S UNIVERSITIES WITHOUT GRADUATING

Despite the importance of college graduation, one-half of the students who enroll in Arizona's universities do not graduate from the university where they first enroll. About one-fourth of the universities' new full-time students leave before the beginning of their second year, and another one-fourth leave later. Although university officials have pointed to Arizona's broad admission standards as one explanation, we found that many students who have high college aptitude test scores (suggesting they are academically prepared for college work) leave without graduating. Further research is needed to determine the causes of student attrition and what additional steps are needed to address it.

When a student persists through college to graduation, both the student and the state receive important economic and social benefits. A college degree provides advantages throughout the graduate's working life, including enhanced earnings, increased likelihood of stable employment, and generally higher levels of career mobility and attainment. College students learn to think critically and reflectively, develop cultural and artistic interests, and expand their intellectual and interpersonal horizons and their general psychological maturity and well-being. The state needs a well-educated work force to attract relocating businesses, to increase its taxable revenues, and to meet the needs of a changing society and the challenge of global competition.

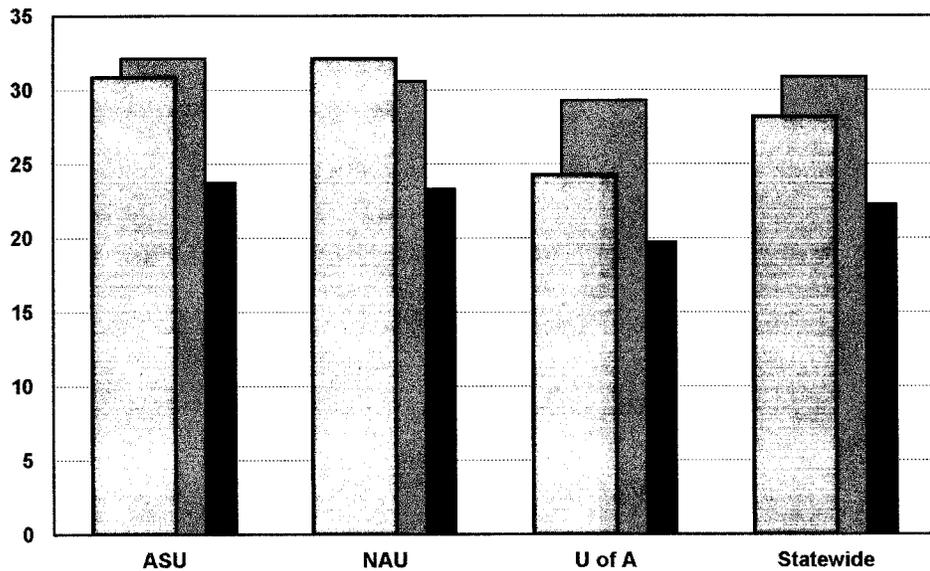
One-Half of Students Leave Without Graduating

Only about one-half of the students who enter Arizona's universities as full-time students graduate from the same university within six years. Approximately one of every four students leaves after completing a year or less of college, and almost as many leave later, without graduating. In fact, 6,689 of the 14,580 students who enrolled full-time in Arizona's universities in 1985 left without graduating.

Many students leave college within the first year of enrollment. For example, nearly 110,000 students enrolled for the first time as full-time undergraduate students in the three Arizona universities from fall 1985 through fall 1991, and over 30,000 of those students did not return the next year. Table 1 (see page 7) shows the first-year attrition rates by university and by category of student.

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Table 1
First Year Attrition:
Percent of Full-Time Undergraduate Students
No Longer Enrolled After First Year
Average For Students Who First Enrolled In 1985 to 1991



Freshmen		30.9%	32.1%	24.3%	28.2%
Lower-Division Transfer(a)		32.1%	30.6%	29.3%	30.9%
Upper-Division Transfer(b)		23.7%	23.3%	19.7%	22.2%

- (a) Lower-division transfer students have obtained 12 to 55 credit hours before enrolling at the university.
- (b) Upper-division transfer students have obtained 56 or more credit hours before enrolling at the university.

Source: Arizona Cohort Survival Study prepared by the universities for the Arizona Board of Regents, 1991 enrollments (prepared December 1992).

Overall, nearly as many full-time students leave their original university without graduating as graduate from Arizona's universities. As shown in Table 2, of the students who began as new freshmen in 1985, 49 percent left without graduating by the end of 6 years. Fewer transfer students in the 1985 cohort left without graduating: 45 percent of those who transferred in as freshmen or sophomores, and 33 percent of those who transferred in as juniors or seniors. (The lower rate for transfer students is partly explained by the fact that many have already survived the critical first year of college, when one-half of the total attrition takes place.)

Table 2

**Overall Persistence:
Percent of Students Who Left
Without Graduating After Entering in 1985 As
First-Time, Full-Time Students**

	<u>Starting Number of Students</u>	<u>Percent Who Graduated Within 6 Years</u>	<u>Percent Still Enrolled After 6 Years</u>	<u>Percent Who Left Without Graduating</u>
Freshmen				
ASU	3,762	45.93	6.73	47.34
NAU	1,662	37.06	3.49	59.45
U of A	<u>3,699</u>	<u>47.42</u>	<u>6.11</u>	<u>46.47</u>
Statewide	9,123	44.92	5.89	49.19
Lower-Division Transfer Students (13 to 55 Transfer Credits)				
ASU	1,759	55.03	3.47	41.50
NAU	561	51.52	4.10	44.39
U of A	<u>979</u>	<u>44.84</u>	<u>4.09</u>	<u>51.07</u>
Statewide	3,299	51.41	3.76	44.83
Upper-Division Transfer Students (Over 55 Transfer Credits)				
ASU	1,162	64.29	2.15	33.56
NAU	314	59.87	3.50	36.62
U of A	<u>682</u>	<u>66.72</u>	<u>1.47</u>	<u>31.82</u>
Statewide	2,158	64.41	2.13	33.46
Total				
ASU	6,683	51.52	5.07	43.41
NAU	2,537	43.08	3.63	53.29
U of A	<u>5,360</u>	<u>49.40</u>	<u>5.15</u>	<u>45.45</u>
Statewide	14,580	49.27	4.85	45.88

Source: Arizona Cohort Survival Study prepared by the universities for the Arizona Board of Regents, 1991 enrollments (prepared December 1992).

Leaving college without graduating is not a new problem, nor is it unique to Arizona. The U.S. Department of Education's National Longitudinal Study of the high school graduating class of 1972 found that 27.8 percent of those who enrolled in four-year colleges or universities did not return for their sophomore year. More recently, a national study of 28,000 1980 high school seniors found that 19.7 percent of those who enrolled in four-year colleges or universities did not return for their third semester. The study of 1980 seniors found 45 percent of those who went to college left without graduating by the end of the sixth year.

Graduation Rates Can Be Improved

Even though graduation rates are a national problem, Arizona's graduation rates can be improved. Too many of the best students in Arizona's higher education system are not graduating from the university where they initially enrolled.

Low Graduation Rates Among Top Students

Some university administrators told us that Arizona's low graduation rates can largely be explained by the state's broad admission policies. They suggest too many students are not prepared to succeed academically. However, we found that when compared to other universities, it is the top students with whom Arizona may be failing most.

Methodology – We compared six-year graduation rates for students of varying academic ability, measured by college entrance exam scores, within the Arizona universities with the graduation rates at universities with similar average scores. We asked each university to divide their 1987 entering freshmen into ten groups of approximately equal size, according to their Scholastic Aptitude Test (SAT) scores, or American College Test (ACT) scores converted to SAT equivalents.⁽¹⁾

⁽¹⁾ College entrance exam scores such as SAT and ACT are not perfect predictors of college success. A combination of test scores and high school grades is considered a better predictor, but a comparative study using high school grades would require information that is not published (and indeed, is not retained or tracked by all universities). SAT scores do, however, have a .56 correlation with college freshman grade point average, and thus provide a reasonably good indication of student preparedness for college-level work.

Implications of the study – As shown in Table 3 (see pages 12 through 14) , students with higher SAT scores do graduate at a somewhat higher rate than students with lower SAT scores at the same schools. However, many students whose SAT scores indicate they are fully capable of university work do not graduate from our universities within six years of beginning as full-time students. Far too many students in the top decile, whose SAT scores are high enough to suggest they might be successful in the most selective universities in the country, leave our universities without graduating. In this group, over one-half of NAU's students, one-half of ASU's, and nearly one-half of U of A's leave their original university without graduating. Although some of these students may be transferring to other universities, we believe the loss of these students diminishes our universities and indicates a possible loss of talent to the state. Thus, the loss of so many capable students should be a cause for concern to the universities, the Board of Regents, and the Legislature as well as to parents of good students in Arizona.

When compared with other universities, Arizona universities do relatively well with students in the lower and middle ranges, but increasingly poorly as student exam scores increase. U of A had higher graduation rates than the comparison universities in the six groups with the lowest test scores, and NAU had higher than average rates in three midrange groups. However, NAU and U of A's graduation rates for the four groups with the highest test scores were lower than the average rates of the comparison universities. ASU's graduation rates for the six groups with the highest scores were lower than the averages at the comparison universities. Thus, many universities below the highly selective top tier group are also graduating students at a higher rate than our universities.

Another implication of the study is that, if the best students are leaving at fairly high rates, simply raising admission standards would not automatically raise graduation rates to an acceptable level.

Limitations of the study – First, the study does not explain why the graduation rates are at the current levels. Instead it raises further questions as to why some of Arizona's brightest students leave and where they go to after leaving our universities.

Second, the comparisons to other universities are subject to greater limitations at the top and bottom ranges of the table than in the middle. Because there are fewer universities with very low average SAT scores, the comparisons for the lowest ranges are less meaningful. On the other hand, the comparison universities for the very top range include not only such highly regarded public institutions as the University of California at Berkeley and the University of Michigan, but many prestigious private universities including Stanford and Harvard. If one is willing to concede that Arizona's universities cannot, or should not, be expected to compete with the nation's top schools, then comparisons from the top decile may be unfair.

Administrators suggest only a partial explanation – When presented with the results of our study, university administrators could not explain the loss of talented students but suggested that higher per-student funding contributes to the other universities' higher graduation rates. For example, in the 33 universities that form the comparison group for ASU's and U of A's top deciles, average spending per student ranges from \$9,248 (William and Mary, a public university with an 87 percent graduation rate) to \$60,623 (California Institute of Technology, a private university with an 82 percent graduation rate), with a mean spending per student of \$24,967. By contrast, U of A reported per-student spending at \$9,732, ASU reported \$7,835, and NAU reported only \$6,045.

Results of comparisons in the seventh, eighth, and ninth tiers suggest, however, that the differences in universities' financial resources do not fully explain Arizona universities' loss of students with above-average test scores. The comparison universities in these groups include numerous state universities, where per-student spending is much lower than in the top tier. Although our research suggests there is a relationship between higher spending per student and higher graduation rates, we found that some universities with lower spending reported higher graduation rates than our universities. For example, in comparison group 8, two State University of New York campuses spent less per student than U of A (\$8,801 and \$8,050), but reported graduation rates of 70 and 75 percent, respectively, compared to U of A's rate of only 50 percent. Similarly, the University of Georgia spent less than ASU (\$7,174) and reported a graduation rate of 60 percent, compared to ASU's rate of 45.2 percent. A few universities spent less than NAU, including Mississippi State (\$5,750) which reported a graduation rate of 51 percent, compared to NAU's rate of 45.6 percent.

Other approaches confirm results – Corroboration for our results was provided by a study performed by the Arizona Conference of the American Association of University Professors (AAUP), who studied the *U.S. News and World Report* data with a different method, but with similar results. They compared total graduation rates for Arizona universities with the rates of national universities that were not highly selective and had similar students to Arizona's. U of A ranked 28th in graduation rate out of the 43 universities, ASU ranked 29th, and NAU ranked 37th. The AAUP concluded that low graduation rates were “not the student's fault.”⁽¹⁾

⁽¹⁾ The universities in the AAUP study had midpoint SAT scores between 900 and 1010, a range from 25 points below NAU's midpoint to 25 points above U of A's midpoint. In addition, fewer than 35 percent of their entering freshmen were in the top 10 percent of their high school classes, comparable to U of A's 30 percent, and ASU's and NAU's 23 percent. The AAUP did not include universities that reported ACT instead of SAT scores, did not report the percent of freshmen in the top 10 percent of their graduating classes, or did not report a graduation rate. Our replication of the AAUP study found that one university, the University of Missouri-St. Louis, was apparently inadvertently left out of the published results; the figures in this report reflect our correction of this error.

Further confirmation that poor graduation rates are not entirely due to admitting poorly prepared students comes from an examination of the academic status of students who leave. As reported by the universities in the Cohort Survival Study, many students who leave are in good standing, with a grade point average of 2.00 (C) or higher. Of the students who enrolled as full-time freshmen in 1985 but left without graduating within 7 years, slightly over one-half (53 percent at U of A, 46 percent at ASU, and 55 percent at NAU; or 51 percent systemwide) had a C average. Although students with a C average are not excelling in their schoolwork, they are certainly not failing academically.

Table 3
Six-Year Graduation Rates
By Academic Ability
Comparison With Other Universities

ARIZONA STATE UNIVERSITY

Group No.	Low SAT Score	High SAT Score	ASU Percent Grad. in Six Yrs.	Ave. of Other Schools' 6-Yr. Grad. Percent	No. of Other Schools
(a)			(b)	(c)	(d)
1	440	740	36.3	38.0	1
2	750	800	43.1	42.5	2
3	810	870	45.4	32.0	5
4	880	900	45.3	37.8	15
5	910	950	43.8	49.1	26
6	960	1,000	44.0	48.3	36
7	1,010	1,040	45.7	61.2	23
8	1,050	1,090	49.7	58.4	31
9	1,100	1,170	50.0	66.0	28
10	1,180	1,500	52.5	85.0	33

(a) (b) (c) (d) - Please see page 14 for footnote text.

NORTHERN ARIZONA UNIVERSITY

Group No.	Low SAT Score	High SAT Score	NAU Percent Grad. in Six Yrs.	Ave. of Other Schools' 6-Yr. Grad. Percent	No. of Other Schools
(a)			(b)	(c)	(d)
1	400	590	32.2	N/A	0
2	600	690	37.2	N/A	0
3	700	770	39.9	41.0	3
4	780	830	49.0	36.0	2
5	840	870	53.7	29.3	3
6	880	910	47.8	39.8	19
7	920	960	36.1	49.6	25
8	970	1,020	45.6	50.9	48
9	1,030	1,090	44.6	60.5	39
10	1,100	1,410	47.3	76.3	61

UNIVERSITY OF ARIZONA

Group No.	Low SAT Score	High SAT Score	U of A Percent Grad. in Six Yrs.	Ave. of Other Schools' 6-Yr. Grad. Percent	No. of Other Schools
(a)			(b)	(c)	(d)
1	440	740	42.0	38.0	1
2	750	810	46.0	42.5	2
3	820	870	51.0	32.0	5
4	880	910	46.0	39.8	19
5	920	960	54.0	49.6	25
6	970	1,010	51.0	50.1	42
7	1,020	1,050	51.0	58.6	23
8	1,060	1,100	50.0	61.1	26
9	1,110	1,170	56.0	67.0	24
10	1,180	1,480	56.0	85.0	33

(a) (b) (c) (d) - Please see page 14 for footnote text.

- (a) Students from the 1987 cohort (the most recent for which 6-year graduation rates were available) were divided into 10 approximately equal size groups at each Arizona university, according to their SAT scores. For students who took the ACT test, the ACT scores were converted to SAT equivalents based on a concordance table prepared by Educational Testing Service. The SAT score range in each ranking is unique for the particular university; e.g. NAU's lowest group ranges from 400 to 590, and U of A's lowest group ranges from 440 to 740. Only freshmen, and students who transferred with less than 36 credits (less than 12 at NAU), are required to provide test scores for university admission.
- (b) The universities' institutional research staff provided graduation rate information for each group.
- (c) We grouped the 200 national universities that provided both SAT and graduation rate data to *U.S. News & World Report* by average SAT score to match the SAT score range for each of the groups of students. Because individual SAT scores are all evenly divisible by 10 (e.g., 740, 750, but not 745), comparison universities with odd-numbered average SAT scores were assigned to groups according to 5/4 rounding (e.g., 745 rounded up to 750, and 744 rounded down to 740). We then calculated the mean graduation rate for each group of comparison universities. SAT information reported to *U.S. News & World Report* was based on the entering freshmen class of fall 1992, and the graduation rates were based on an average for the 1983 to 1986 freshmen cohorts.
- (d) Because each university grouped its students independently, the numbers of comparison schools differ. For example, because NAU's top one-tenth of students began at the 1100 SAT score level, and ASU's and U of A's at 1180, the 61 comparison universities for NAU's top group includes 28 with average SAT's between 1100 and 1170, while those universities are in the second or third highest comparison groups at ASU and U of A.

Source: Auditor General's analysis of data provided by ASU, NAU and U of A Institutional Research departments, and data regarding other universities as reported in *America's Best Colleges: 1994 College Guide* published by *U.S. News & World Report*, 1993.

The Universities Should Study the Reasons Students Leave

Better information is needed to understand and reverse the loss of students. Currently the universities have little data regarding students who leave the universities without graduating. University studies to date have focused primarily on predicting success for variously prepared students, instead of on improving graduation rates for all students who enroll. While these studies have been useful, for example, in determining the high school course work that will be required in future for university admission, they have not addressed the question of why students leave without graduating. Until we know why students leave, particularly the better students and students in good standing, needed solutions are difficult to develop. We have identified some of the problems undergraduates encounter in their efforts to earn a degree, and propose some solutions in the remainder of this report. However, the universities will ultimately have to take on the task of discovering and resolving the institutional factors that contribute to attrition.

RECOMMENDATIONS

1. The Arizona Board of Regents should require the universities to study and report to the Board and the Legislature within two years why students, and in particular students of high ability, leave before graduation.
2. The universities should monitor and track on an ongoing basis student attrition (by levels of student ability) as compared to similar students at other universities.

FINDING II

UNIVERSITIES CAN DO MORE TO ENABLE STUDENTS TO GRADUATE MORE QUICKLY

Few students graduate from Arizona's universities in the traditional four years. Most of the students who stay until graduation take longer than four years to complete their studies. Further, many accumulate more credit hours than required by the time they graduate. Although student-related factors, such as attending classes only part-time or beginning college without a clear goal, account for much of the length of time to graduate, the universities can and should take some steps to help students graduate more quickly.

Delayed graduation affects both the student and the state. College expenses are prolonged for students and parents. Even if employed full-time during college, a student typically earns one-third to one-half less than he or she will earn upon entering the adult labor market, and delayed graduation can reduce the student's number of years of peak earnings later on. Both students and parents told us they felt the financial impact of delayed graduation, and the effect on the state's income tax base is obvious. Students still in school after four years also take up enrollment slots, which could result in denying entrance to new students when the universities are at enrollment capacity. Finally, the state subsidy for resident students is extended when the credit hours to graduation are extended.

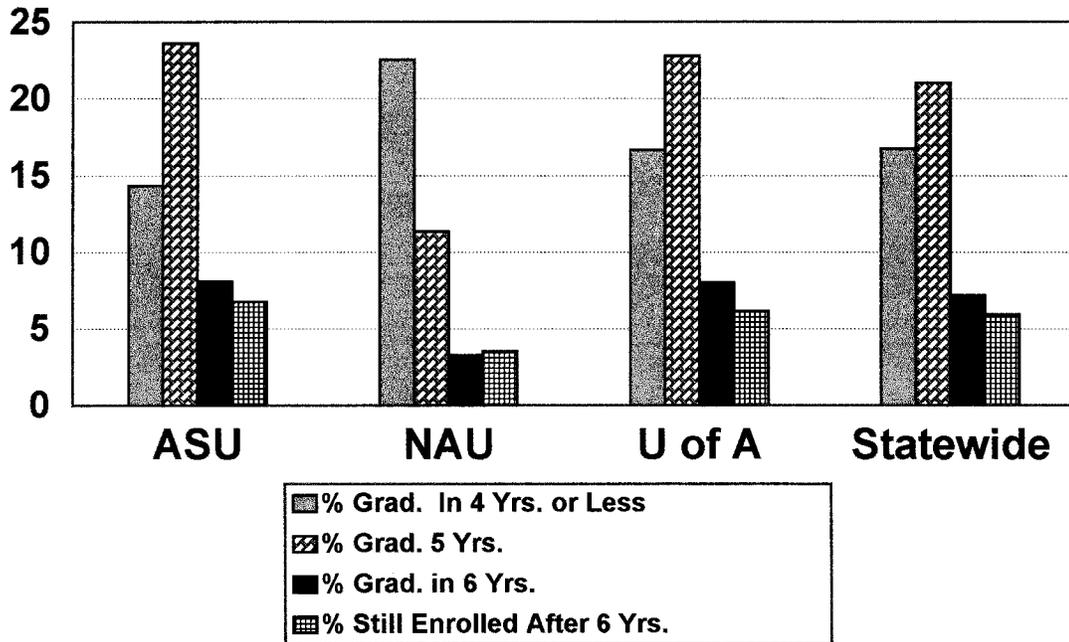
Students Who Remain Take Longer Than Four Years to Graduate

Few Arizona students who enter the universities as freshmen receive their degrees upon completion of the traditional four years, even if they begin their studies as full-time students. In fact, of the students who started as full-time freshmen in 1985, only about 17 percent graduated in four years. As shown in Table 4 (see page 18), a higher proportion of NAU students graduate in four years, while at U of A and ASU, five-year graduation is most common.

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Table 4

**Length of Time to Graduate:
Percent of Students Graduating Each Year After
Entering In 1985 As
First-Time, Full-Time Freshmen**



	Starting No. of Students	Percent Grad. In 4 Yrs. or Less	Percent Grad. In 5 Yrs.	Percent Grad. In 6 Yrs.	Cumm. Percent Grad. In 6 Yrs. or Less	Percent Still Enrolled After 6 Yrs.
ASU	3,762	14.30	23.58	8.05	45.93	6.73
NAU	1,662	22.50	11.31	3.25	37.06	3.49
U of A	3,699	16.65	22.76	8.00	47.42	6.11
Statewide	9,123	16.75	21.01	7.16	44.92	5.89

Source: Arizona Cohort Survival Study prepared by the universities for the Arizona Board of Regents, 1991 enrollments (prepared December 1992).

The length of time to graduation is more difficult to calculate for transfer students, who enter with some credit earned at another institution. These students are an important part of the university picture — 37 percent of all undergraduates statewide who entered in 1985 came in as transfers. As expected, these students spend fewer years at the universities than students who enter as freshmen. However, the universities have no data on how long these students spent at their previous colleges.

Students Earn More Hours Than the Minimum Required

Many graduates of all three universities earn more than the minimum number of credit hours for their degrees. This affects the length of time required to graduate, is costly for both the students and the state, and could result in denying admission to new students if enrollment caps are enforced. A number of factors contribute to the excess hours. The universities should address the factors under their control before any efforts are made to penalize students for earning too many hours.

According to university data summarized in Table 5 (see page 20), many students earn more credit hours than they need to graduate. University records show that 25 percent of their graduates earn at least 145 hours by the time they graduate, and 10 percent earn at least 159 credit hours. For some majors, 159 hours represents about two semesters more credit hours than the number required for the degree. (Some majors, such as Engineering, may require 135 or more credit hours for graduation, but most majors require between 125 and 135 hours.) On average, transfer students earn more total hours, including hours transferred in, than students who enter as freshmen.

Table 5

**Hours At Graduation
By University, By Category**

	<u>No. of Graduates</u>	<u>Aver. Hrs. At Graduation</u>	<u>25 Percent of Grads. Had At Least</u>	<u>10 Percent of Grads. Had At Least</u>
ASU 1991-93(a)				
Freshmen	3,670	135	141	152
Transfer	8,433	144	152	168
All	12,103	141	148	163
NAU 1992-93(b)				
Freshmen	912	135	140	153
Transfer	1,483	142	150	164
All	2,395	139	145	160
U of A 1992-93(c)				
Freshmen	1,926	137	143	154
Transfer	2,466	142	150	164
All	4,392	140	146	159

- (a) ASU provided information for a two-year period instead of one year. Figures include all accepted transfer credits. Includes architecture majors.
- (b) Excludes students earning dual degrees. Includes all accepted transfer credits.
- (c) Excludes architecture majors (because the degree requires 166 credits) and students earning dual degrees. Includes maximum of 72 transfer credits per student.

Source: Data provided to auditors by ASU, NAU, and U of A Institutional Research departments. Differences in nature of data provided by each university are due to differences in the universities' data systems.

However, the university data shown above, and similar data provided previously by the universities to the Board of Regents, actually *understates* the number of classes a student takes. In reviewing student transcripts, we found that when a student withdraws from a class, retakes it for grade replacement, or audits it, the student records do not reflect the credits for that class. Because NAU has an extremely liberal grade replacement policy, we found the greatest discrepancy there. When we reviewed the transcripts of the students identified by NAU as still enrolled after earning at least 160 credit hours, we found recorded credits understated the actual classroom seats in 19 of the 22 cases.

Several Factors Influence Time and Hours To Graduation

Delayed graduation, whether the delay is seen in the number of years elapsed or the number of credits accumulated, results from a combination of student-related and institutional factors. The individual student's personal and academic characteristics play a large part in determining whether he or she can graduate in a timely manner.

The number of credits students take each semester may be the largest single factor affecting the *length of time* to graduation. Over one-fifth of Arizona students attend the universities part-time, generally defined as less than 12 credits per semester. Even many full-time students do not take a high enough course load to graduate in four years: a student would need to take more than 15 credits per semester to graduate with 125 credits in four years. Because many students work (recent surveys indicate as many as 60 percent of students report working an average of 20 hours per week), it may be unrealistic to expect them to take more credits per semester. Further, many students are older than traditional 18- to 22-year-olds – the number of students over the age of 35 has increased by nearly 5 times nationally, and in Arizona, the average age for seniors is 25 – and may have other financial and family commitments that cause them to interrupt their college careers from time to time, or to take fewer credit hours per semester.

Other student characteristics also play a part in determining *both* the length of time to graduation and number of hours earned. Our review of student transcripts⁽¹⁾ suggested several reasons for excess hours and delayed graduation. For example, some students struggle with majors they find difficult, so they retake failed classes, take extra classes to bring their grade point averages up to the minimum required to stay in the major, or take remedial classes whose credits do not count toward the major requirements. Many students change majors, and find that classes taken for the earlier major do not count toward their new graduation requirements. Finally, some students appear to lack a coherent plan, and end up having taken many classes that cannot be drawn together to create a degree. Other factors primarily influencing the *number of credits* earned at graduation include earning secondary (high school) teaching credentials in addition to completing a major in a specific field, such as history; returning to the university after leaving college for several years; taking military science (ROTC) courses; earning a dual degree; transferring from another institution; and simply selecting a major that has higher credit requirements for graduation.

(1) We reviewed transcripts of students with high credit hours at all three universities. At NAU, we reviewed the 22 still-enrolled students who had already earned over 160 credits. At U of A, we reviewed 20 students, selected at random from the 10 percent of 1992-93 non-transfer and non-architecture students who had earned the highest credits at graduation. At ASU, we reviewed 26 students, selected at random from the top 10 percent (in credit hours) of all 1992-93 graduates.

Universities Should Take Steps to Minimize Delays

Because the cost of unnecessarily delayed graduation is high, the universities should study the issues under their control. Decisions made and policies set by the universities contribute to the length of time and number of hours required to graduate. When setting policy or establishing requirements, the university should consider the impact on timely graduation. For example:

- Curriculum requirements can result in delayed graduation when they involve lengthy sequences of specialized courses, or when they define general education requirements in a way that prevents transfer students or students who change majors from applying previously earned credits to their degree.
- Selective admission policies in certain colleges and departments can create delays by forcing students who do not meet the standards to take extra classes to raise their grades or to change to a different major. Students who change majors may earn extra hours if the new major does not accept all the previously earned credits, and may take longer to graduate if they have to start at the beginning of the sequence of classes.
- Grade replacement policies can allow students to accumulate excess hours or take extra semesters, unless they include specific restrictions and the restrictions are enforced. We found this problem exclusively at NAU.
- Withdrawal policies can also delay graduation by allowing students to withdraw late in the semester to avoid a poor grade, and may encourage the course shopping that makes demand projection difficult.
- When needed courses are unavailable, students may have to stay an extra semester or more in order to complete the requirements, and may take unnecessary courses to fill their class schedules. Finding III (see pages 25 through 34) discusses this problem in detail.
- Poor advisement can lead to delayed graduation, as described in Finding IV (see pages 35 through 43). Incorrect advice can lead students to take unnecessary classes. Other students have not received the benefits of good advisement that would help them select an appropriate major.

The universities should review and address these issues. For example, more flexible general education requirements could reduce the number of credit hours earned by transfer students and by freshmen who need to explore options before selecting a major. Similarly, there may be room for flexibility in the courses required for some majors.

RECOMMENDATIONS

1. The universities should review curriculum requirements in light of their impact on length of time and number of hours to graduation. Particular attention should be paid to making general education requirements easier to fulfill across majors.
2. The universities should consider the impact on length of time and hours required to graduate when developing and establishing policies.

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FINDING III

THE UNIVERSITIES CAN DO MORE TO ADDRESS COURSE AVAILABILITY PROBLEMS

Many undergraduate students are delayed in graduating because they cannot gain admission to required courses. The universities need to give higher priority to undergraduate course availability and begin to forecast course demand. To solve problems over the long term, the universities will need to enforce minimum faculty teaching loads, reallocate faculty from small graduate courses to high-demand undergraduate courses, and ensure that unnecessarily duplicative programs, especially at the doctoral level, do not consume resources needed for undergraduates.

Course Availability Problems Are Severe for Some Students

The inability to get into classes required for graduation severely affects some groups of students. While problems vary across campuses, significant course shortages exist in junior- and senior-level courses in some majors.⁽¹⁾ The liberal arts and sciences colleges are more severely affected, although other colleges also have shortages in junior and senior requirements. Course availability for freshmen and sophomores has improved; however, problems remain in particularly popular courses.

Waiting for required courses delays graduation — While information on how many students attempt to enroll in classes exists for a few groups of courses, none of the universities could provide comprehensive data on the availability of courses versus demand. However, the results of U of A surveys, our own surveys, and interviews with students, parents, and faculty make it clear that for many students, graduation is delayed due to their inability to get into needed courses. The following comments illustrate the severity and breadth of the problem:

- **Student:** I'm on a five-page waiting list to get into a class I need to graduate.

⁽¹⁾ In order to graduate, students must fill requirements in their major field of study as well as university-wide or college-wide requirements, such as general education requirements. Generally, most junior- and senior-level courses pertain to the student's major.

- **Administrator:** The real heartbreak is when you see desperate juniors and seniors who will take anything just to graduate on time, but can't get into any classes.
- **Student:** Many psych classes are only offered only at one time slot each semester, and, of these, many are offered at the same time of the day. Several classes that are supposed to be offered are not taught at all. No wonder no one graduates for six years. This problem is ridiculous.
- **Administrator:** Anyone who believes there are no availability problems is not in touch with the students. I talk to them when they have tears in their eyes when they cannot get their courses. I talk to parents on the phone who are exasperated because their son or daughter is going to spend another semester. It is absolutely unfair to students and parents not to be able to provide the courses needed to graduate.
- One student in a focus group told us he "stopped-out" for a full semester in his junior year because he could not get *any* required classes.

Two U of A surveys also confirm serious problems:

- A 1993 study of students in the College of Business and Public Administration found that 52 percent of 117 upper-division BPA students reported considerable to major problems with closed professional core courses. Thirty-seven percent said they will need to attend summer school or delay graduation due to not getting needed courses.
- In a survey of 4,863 students taking the 1991-92 writing proficiency exam (primarily seniors), 49 percent reported taking extra time to complete their studies due to not getting a particular course.

Liberal arts affected more than professional programs – Overcrowding and course shortages are more common in the liberal arts and sciences which, unlike the professional programs, have not limited admission through higher entrance requirements. More of the bachelor's degrees awarded by Arizona universities are in liberal arts programs than in any other programs. Additionally, liberal arts colleges teach the majority of general education requirements, as well as entry-level math, English, and foreign languages. The other colleges are not free of course availability problems, but with a few exceptions, seem to have fewer bottlenecks.

Course shortages in the majors and particular groups of courses – Currently, the most severe course shortages exist in upper-division requirements for the major in particular areas of study. Our survey of undergraduates in selected courses identified several significant availability problems. In fact, in two upper-division classes we surveyed, over 25 percent of students reported having to wait one semester or more to get into the class.

Since the universities do not have adequate studies of course supply and demand, they were unable to provide data indicating the location and magnitude of course shortages. Thus, to better understand the number of students affected and how they are impacted, we chose five courses to study: two freshman-level courses studied across the system, and one course required for a major at each of the three universities. We visited 15 class sections and surveyed a total of 468 students. Although we chose five classes to investigate, availability problems are not limited to these classes.⁽¹⁾

- **Legal, Social and Political Environment of Business (surveyed U of A only)**— Required of all U of A Business majors; 27.6 percent of students surveyed reported having to wait a semester or more to get into the course.
- **Teaching Reading and Decoding Skills (NAU only)** — A core requirement for Elementary Education majors that must be completed prior to student teaching in the last semester; 26.5 percent of students surveyed reported having to wait at least one semester.
- **Second-semester Spanish** — Language requirements vary by university, college, and the student's major of study. However, many students are required to take one or more years of a foreign language, and Spanish is among the most popular choices. The percentage of students reporting having to wait at least one semester for the class was 14.6 percent at ASU, 3.4 percent at NAU, and 18.4 percent at U of A.

⁽¹⁾ Each course was selected to add to our knowledge of the problem. For example, Finite Math is required for a significant number of students at all three universities. Therefore, we were able to compare the seats offered, class sizes, etc. between the three campuses. Spanish was chosen to examine a separate aspect of availability: since Spanish itself is not required, and a student can take another language instead, we were interested in whether students would wait for Spanish or substitute another language. The three courses required for students' majors were each chosen from a different college and a different university, allowing us to show that such shortages are not extremely localized. We did not choose the five classes in an attempt to identify the worst cases.

- **Experimental Psychology (surveyed ASU only)** — A required course for approximately 1,400 ASU psychology majors, and a prerequisite for many required junior and senior courses; 12.5 percent reported having to wait at least one semester.
- **Finite Mathematics** — A freshman-level class required of Business majors at all three universities and of ASU students pursuing a bachelor of arts degree in Psychology. At ASU we found 5.9 percent of students reporting having to wait a semester or longer, 6.7 percent at NAU, and 16 percent at U of A.

Some University Responses May Cause Additional Problems for Students

The universities have responded in a variety of ways to course availability problems. While their efforts have helped or will help alleviate course shortages, some responses, such as increasing class size or employing non-professorial faculty, are not perceived favorably by students.

Universities have improved availability in some areas — Over the past several years, the universities have tried to ease student problems in getting required courses. All three universities have put effort and money into improving the availability of freshman courses.

In the past two years, ASU reports it has reallocated \$3.5 million to address course availability problems. ASU appears to have reduced availability problems in general studies courses and is considering the feasibility of a general studies degree, which will allow students a more flexible bachelor's program.

Perhaps because it has had the most serious availability problems, U of A is ahead of the other universities in studying availability. U of A has conducted several student surveys, is creating longitudinal data, and is projecting demand for general education requirements. Using the data on supply and demand, U of A has added hundreds of seats in key general studies areas.

Finally, although not a direct response to availability, NAU's curriculum allows students more choice in classes meeting general education requirements and is more likely than the U of A and ASU curriculums to allow the courses to count toward another major should the student make a change.

Some university responses may negatively impact students — While some of the university efforts have been successful, others may have negative impacts of their own. Increasing class sizes and hiring more teaching assistants and non-professorial faculty may lower the quality of education.

Increased class size can reduce the quality of education. While increasing the size of a class is an expedient and inexpensive way to improve availability, in many cases, the cost is paid by the student who has less opportunity for interaction and individual attention. Two examples of how increasing class size leads to negative impacts on students are:

- To accommodate high demand for Finite Mathematics, in the fall of 1993 ASU offered 7 classes of 140 students each (980 seats). By comparison, U of A offered 17 sections of 30 or 35 students each (585 seats). Although U of A has more availability problems in this course than ASU, U of A has actually made a greater resource commitment and more effort to preserve quality. An administrator at U of A told us that when the university reduced entry-level math courses from approximately 75 students per class to 35, grades increased, and fewer students dropped the course. At ASU, both a professor teaching the course and the Math Department chair said that 140 students in a math class is not optimal for student learning.
- In lower-division Spanish classes, responding to pressure from freshmen facing closed classes (and their parents), U of A increased fall 1993 class sizes by 25 percent. However, a few years earlier, to reduce the pressures on the graduate teaching assistants, the Spanish Department made computer-graded homework and testing necessary to complete the course. When class sizes were increased in 1993, there were not enough computers to accommodate the students, and the drop rate increased by 50 percent.

Another university response to availability problems (especially at ASU and U of A) is to rely more heavily on teaching assistants (TA's) and adjunct faculty for undergraduate instruction. As discussed in Finding IV (see page 35 through 43), contact with professors is important for student retention. Most faculty and administrators would agree that as juniors and seniors, students should be taught by tenured or tenure-track professors. However, at U of A, professors are teaching only 52.7 percent of junior-level lecture courses and 67.9 percent of senior-level lecture courses. At ASU, the percentages are 69 percent and 80 percent, respectively. At NAU, students enjoy relatively frequent contact with professors and according to the 1993 JLBC Faculty Workload Study, NAU professors spend high levels of time in the classroom.

The Universities Could Show More Regard for Students as Customers

Overall, the universities need to make undergraduate course availability a higher priority and begin to forecast course demand. Some administrators and faculty exhibit a cavalier attitude toward undergraduate course preferences, instead making decisions based on faculty teaching preferences and concern for university reputation.

Course demand data is needed – With the exception of the efforts in general education at U of A, we found course demand projections were incomplete or non-existent.⁽¹⁾ When we asked department chairpersons how they decided the number of course sections to offer, we were told decisions were based on either who was available to teach or what had been offered in the past. In some cases, department chairs did not know which other majors required the course they were offering. Others told of instances where outside colleges or departments had added a course requirement without the knowledge of the department offering the course, resulting in hundreds of students with unmet demand. Two chairpersons estimated that the true demand for the required course they were offering might be *double* the number of seats available per semester.

Course needs of undergraduates should be given higher priority – Although administrations at all three universities have initiated major efforts to improve the undergraduate experience, it will take time for widespread acceptance of students as customers. In U of A's TQM effort, over 140 administrators were encouraged to view students as the primary customer base. In our interviews with over 12 deans, 9 department chairs, and over 10 top-level administrators across the three universities, we found many people do not yet accept this view. We were surprised that several we interviewed expressed the view that students should take what is offered, and the university should not be expected to fill demand for specific courses. For example, one official told us that the university should not be expected to fill the demand for Spanish – that the value of a language is the process of learning it, rather than using it for a practical purpose, and the students should fill seats in open languages such as Persian or Greek. (A student in the NAU student focus group compared this attitude to going into a clothing store and being told, “we don't have your size; we don't have your color; but we have this one in mauve” and then being expected to take the shirt and pay for it.) However, student behavior does not coincide with the view that they

⁽¹⁾ Every semester, NAU measures the percentage of course requests fulfilled for students preregistering. In the fall of 1994, NAU was able to fulfill 91 percent of courses requested at preregistration. While we believe that this is an important performance indicator *and* believe that 91 percent may be good performance, we do not consider the measure to be a comprehensive demand forecast because it reflects the experience of only 8,643 of the approximately 15,000 fall enrollees.

should take open classes. Instead, many students simply wait to get the subject of their choice, even if it means delaying graduation.

Long-Term Solutions Will Require Making Some Unpopular Changes

Undergraduate course availability can be improved without funding increases. Solutions include increasing faculty teaching load, reallocating faculty from specialty and graduate courses to undergraduate courses, and eliminating unnecessarily duplicative programs, especially at the doctoral level, across the university system. All these changes are difficult given the university culture and reward system.

Faculty teaching load – To increase faculty available to teach undergraduate courses, the universities should begin to enforce a minimum average teaching load at the department level. While NAU professors spend high levels of time in the classroom, professors at both ASU and U of A are teaching less than two lecture sections per semester on average, and some departments teach far less than the university average.⁽¹⁾ According to internal university memorandums, two lecture sections per semester is a reasonable average teaching load standard for academic departments, even for those with active research engagements. Thus, the two-course standard should be a minimum average per department. This would result in a university-wide average of above two lecture sections per semester.

- ASU data for fall 1992 show the average teaching load for professors as 1.92. However, some ASU departments are far below a 2.0 average. For example, in Physics, Zoology, and Chemistry, professors taught less than 1.2 lecture sections, and both the Departments of Economics and Public Affairs averaged less than 1.5 lectures. In contrast, the Department of Foreign Languages averaged 2.5 lecture sections.
- At U of A, during fall 1993, professors taught an average of 1.63 lecture sections, 18.5 percent below the 2-course standard. The U of A average also varies greatly by department, with some departments averaging far less; for example, the teaching load averaged near or less than 1.5 in Psychology, English, and Chemistry. On the other hand, the Departments of Classics and Teacher Education averaged 2.6 and 2.4, respectively.

⁽¹⁾ Our analysis of teaching load examined the number of lecture sections that professors teach. Due to the student focus of this audit, we did not do an extensive examination of the teaching loads of non-professorial faculty. Also, NAU was not included in the analysis (see page 32 for explanation).

- NAU professors spend acceptable levels of time in the classroom. According to the 1993 JLBC Faculty Workload Study, NAU faculty spent more time in classroom instruction than U of A and ASU, and 36 percent more time than at NAU's peer institutions. Further, the teaching load data we reviewed at the department level, and interviews and focus groups with NAU students, did not indicate a problem with faculty teaching load. Therefore, we did not request university-wide faculty workload data at NAU.

While our teaching load analysis provides insight into potential gains from adherence to minimum teaching loads, more research needs to be done. Significant gains can be made through optimizing faculty time. For example, if ASU and U of A were at a 2.0 lecture-course-per-semester average for the semesters we analyzed, it would equate to 100 additional lecture sections at ASU and 422 at U of A. Further, these added sections would be taught by professors as opposed to TA's.

Reallocation of faculty to high demand courses – While adherence to teaching load minimums can improve course availability, a portion of teaching resources needs to be reallocated from small specialty and graduate courses to undergraduate courses. However, this is not a popular solution with faculty.

Understandably, some faculty members would prefer to teach a class of 15 in their specialty rather than a 300-person introductory class. Not only is teaching the course itself more gratifying, the university community appears to consider teaching these classes as more prestigious than teaching introductory courses. While data on minimally enrolled courses were not readily available, our analysis of an internal ASU report for the 1991-92 academic year showed 17 percent of courses did not meet minimum enrollment standards. These are primarily graduate courses or highly specialized upper-division courses. One college dean told us that, aside from putting more money into the system, the greatest gains in undergraduate course availability will come from reallocating professors from small graduate and specialty courses.

The universities and the regents must continue to develop systems that elevate the importance of faculty involvement in undergraduate education. According to administrators, U of A is beginning to take several actions in this regard: the stipulation of undergraduate teaching has been added to new faculty contracts; administration is actively monitoring courses below minimum enrollment standards and reallocating faculty to undergraduate classes; and deans' performance evaluations will be based on their ability to measurably increase the presence of professors in undergraduate classrooms. Additionally, the Board of Regents has asked the universities to develop plans to increase the importance of teaching in the faculty reward system.

Reallocation of resources between programs, colleges, and universities – While the discussed changes will help to improve course shortages for undergraduates, ultimately

the universities, the Board of Regents, and the state will need to reallocate resources. Specifically, they will need to identify programs of strategic importance and cut others – especially eliminating doctoral programs unnecessarily duplicated at more than one university.

Across the nation, students, parents, taxpayers, and legislators are demanding that universities provide a better product for the same or less cost. Experts believe that the pattern of continual increases in funding for public universities has ended and will not return. Additionally, the student population at Arizona's universities is approaching or exceeding approved enrollment caps, making timely graduation increasingly important. Given these factors, the universities need to identify programs that are key to their mission and prepare to cut others. Faculty and administrators at all three campuses told us that the key to having resources for undergraduate education is in clearly focusing the mission of each campus and limiting its doctoral programs accordingly. As one university administrator expressed:

“The real issue here is how many graduate programs do we need in the state in the same specialization. This is the macro solution to the resource constraints impacting course availability and the quality of education.”

RECOMMENDATIONS

1. The universities should commit to resolving the problem of undergraduate course shortages by taking the following actions:
 - Identify the location and magnitude of course shortages, project supply and demand, establish benchmarks for satisfactory availability, and direct resources to unsatisfactory areas;
 - Enforce a minimum average faculty teaching load per department and direct resulting resources to high-demand undergraduate courses; and
 - Reduce the number of specialty courses and courses with low enrollment and direct resources to high-demand undergraduate courses.
2. The universities, the Board of Regents, and the Legislature need to continue discussions regarding the missions and program focus of the three universities to eliminate unnecessary duplication of programs, primarily at the doctoral level. Further study or audit work should be considered.
3. The Legislature should consider additional study of faculty teaching loads to understand the implications for course availability and graduation rate.

FINDING IV

STUDENT SUPPORT SERVICES NEED IMPROVEMENT

Student support services at Arizona's universities need improvement. Support services such as academic advising, orientation, and others are important to student achievement and persistence to graduation. Although some university programs have been successful in meeting students' needs, more needs to be done.

Effective student support services improve student achievement and persistence to graduation. Support services help to integrate students into the social and academic life of the institution by encouraging meaningful contact with peers, university faculty, and staff. Although the universities have hundreds of programs providing important support services to students, due to time constraints we limited our review to academic advising, new student orientation, and residence life.

Academic Advising Should Be More Effective

Advisement, an important component of a student support system, could be improved at all three universities. Advisement entails two components: *prescriptive advising* helps students schedule classes, understand university requirements, and learn about other support services on campus such as tutoring. *Developmental advising* helps students clarify their educational and career goals and develop an appropriate overall academic plan. Students expressed general dissatisfaction with advisement, and we found that the advising systems at all three universities had serious problems including high student-to-advisor ratios, ineffective use of faculty, and an inadequate reward structure. Although there are some model academic programs at each of the universities that provide good advising, changes are needed to improve academic advising overall.

During the audit, we found that each of the three universities structure and deliver academic advising differently. We found that advisement differs from college to college within each university, and from department to department within the colleges.

Many students are dissatisfied with advising – Although research has shown that quality academic advising can have a substantial effect on student persistence, many students are dissatisfied with the academic advising they receive. Recent surveys

conducted by U of A and ASU found many of their undergraduate students were displeased with advisement: 42 percent at ASU said they were dissatisfied with the academic advising they had received; about 30 percent at U of A were dissatisfied with the availability of their advisors and 40 percent felt getting the information they needed was a "considerable" or a "big" problem. Satisfaction with advisement was somewhat higher at NAU; however, 15 percent of the students at NAU said they were "dissatisfied" or "very dissatisfied" with the quality of faculty advising they received. In addition, when we held student focus groups at all three universities, many students openly expressed dissatisfaction with advisement. Some of the students we spoke with said they had received conflicting advice from different advisors, or had taken unnecessary classes based on inaccurate advice. Others described obstacles to getting the best advice, including a faculty member who flatly told a student he didn't have time for him.

Several factors hamper effectiveness – The academic advising systems at all three universities have problems that detract from their effectiveness. Our extensive review of the literature on academic advising suggests that a comprehensive system of professional, faculty, and peer advisors is most effective. Although all three universities have advising systems that rely on this combination to one degree or another, we found them to be impaired by high student-to-professional advisor ratios, ineffective use of faculty, and inadequate reward structures.

- **High student-to-professional advisor ratios** – According to experts familiar with good academic advising programs, the ratio of students per full-time professional advisor should not exceed 300:1. However, we found that ASU and U of A exceed this ratio by as much as two to three times. Estimates of NAU's student-per-full-time-professional advisor ratio is also in this range. Further, we found some colleges and departments at ASU and U of A with ratios greater than 1,000 students per full-time professional advisor. High ratios can prevent advisors from providing quality advising or monitoring and helping students who are having academic problems. For example, advisors at one university told us they receive mid-semester reports identifying students who are experiencing academic problems, but the advisors do not have enough time to follow up and work with these students. University officials, staff, and students told us that high student-to-advisor ratios have been problematic.
- **Ineffective use of faculty** – Although faculty play an essential role in a comprehensive advisement system, many departments rely on faculty to provide the kinds of advisement that could be offered by full-time, professional advisors. Faculty are uniquely qualified to advise and mentor students in matters central to their academic discipline, such as recommended programs of study, graduation requirements for the major, and graduate school and career options. However, faculty advisors told us they spend too little time providing this kind of developmental advising and spend too much time advising students on

prescriptive matters such as general education or administrative requirements, which professional advisors are trained and qualified to provide. Since 43 percent of faculty, according to the results of our survey, spend less than 5 percent of their time advising undergraduate students, having faculty provide prescriptive advising may not be particularly effective. Furthermore, a consultant hired by ASU to review its advising system found that many faculty at ASU seem to be "willingly disengaged from the academic advising process" and that perhaps faculty would become more willing participants if they were relieved of the "mundane and clerical tasks they currently associate with advising."

Our survey of academic departments also found that more than two-thirds of the advisors at each of the three universities do not receive mandatory training in academic advising. Further, some departments also rely on administrative assistants or graduate students to advise undergraduate students on some matters.

- **Inadequate rewards for advisors** — Despite statements supporting the importance of academic advisement, the universities have not implemented a tangible system of rewards for good faculty advisement. Although some individual programs at each of the universities reward high-quality advising during promotion and tenure reviews, university administrators, faculty, and staff told us that good advising often goes unrewarded. In fact, a recent internal report on advising at NAU confirmed that there have been instances in which faculty have been told that continuing to perform as an advisor might seriously hamper their advancement in rank and tenure. We were told of similar experiences at ASU and U of A as well.

Some programs provide good advising — During our review, we identified a number of programs at each of the universities that provide students with high-quality academic advising. Effective programs have advising systems that utilize the expertise of faculty and professional advisors to provide students with clear and accurate advisement during critical periods throughout the student's academic career. For example;

- One academic department adopted a comprehensive advising plan, involving faculty and a full-time professional advisor, in order to address a 600 percent increase in majors over a 4-year period and to improve the overall quality of advising. Previously, a faculty member was responsible for advising all undergraduate students. Today, however, all department faculty provide developmental advising and serve as mentors to approximately 25 students each. A professional advisor now provides prescriptive advising to students and supports the faculty by handling administrative matters and providing updated information and training. In addition, the professional advisor coordinates several social activities, including a monthly newsletter and a student reception at the beginning of each fall semester. The department chair told us that the

complementary roles of faculty and a professional advisor at the department level provide students with the breadth of assistance they need to accurately plan and attain their academic and career goals.

- An intercollegiate athletic department, in an effort to improve graduation rates, assigns all student-athletes to an academic counselor. The department serves approximately 500 student-athletes with 4 full-time academic counselors, a ratio of about 125:1. Academic counselors help students focus on an area of study early in their academic career and actively monitor student progress through frequent meetings with the student and progress reports sent to the student's professors three times each semester. According to a 1993 Official National Collegiate Athletic Association (NCAA) Graduation Rates Report, the university's 6-year graduation rate for student athletes has steadily increased, from 32 percent in 1990-91 to 52 percent in 1992-93. The Athletic Department's Director of Academic Programs attributes the increase in graduation rates partly to the support programs available to student-athletes.

Changes are needed to provide good advisement to all students – The universities have demonstrated that successful advisement can be achieved through a coordinated, committed effort at the department level. While all three universities have taken some steps to improve academic advising for all students, they have yet to resolve fundamental problems, including reducing high student-to-full-time professional advisor ratios, utilizing faculty more effectively, and implementing a tangible system of rewards for good advising. In an effort to improve advising, the universities should consider several options; for instance:

- The universities could improve the quality of advisement by encouraging faculty to become more involved in the academic advising process. To accomplish this, the universities may need to bolster professional and peer advising staff in order to relieve faculty of the tedious and time-consuming paperwork they currently associate with advising. With adequate professional and peer advising support, faculty advisors could spend more time providing students with much needed developmental advising and mentoring.
- In addition, the universities could improve the quality of advisement, and possibly student persistence and graduation rates, by developing a computerized information system, or "degree audit," that is readily accessible to all advisors and students and is able to track student progress through a myriad of curricular requirements. Thus, the automated system could compare a student's transcript with degree requirements in any given field of study and determine what classes the student needs to complete. An expert familiar with degree audit systems explained that such a system could provide advisors with timely, accurate, and complete information on increasingly complex and constantly changing

requirements. Moreover, the system could allow professional advisors to spend more time interacting with students and monitoring their progress toward graduation. At present, none of the three universities have a "degree audit" system in place, though U of A is planning to implement its "On-Course" degree audit system during the 1994-95 academic year.

- Finally, to improve advisement the universities should implement a tangible system of rewarding faculty for providing good advisement to students. Rewarding high-quality advisement may encourage faculty to become more willing participants in advising.

Orientation Could Reach More Students

Like academic advising, new student orientation is important to student success and persistence to graduation. Although all three universities encourage new students to attend orientation, student participation is poor at ASU, in particular. To improve student participation in orientation, changes are needed.

Purpose of orientation — Orientation introduces students to academic policies and requirements of the university, helps students with business matters such as paying tuition or obtaining student loans, and provides students with general information about the campus, university history and traditions, and social activities. Each of the three universities offer students one- to two-day formal orientation sessions during spring and summer, as well as extended orientation activities before or during the beginning of the fall semester. Literature on student retention suggests that such orientations can significantly improve student satisfaction, leading to better grades and higher graduation rates.

Student participation in orientation is poor — Freshman and transfer student participation in orientation at ASU is significantly lower than other institutions of similar size. We analyzed data collected by the National Orientation Directors Association (NODA) from more than 300 small, medium, and large four-year colleges and universities and compared the results with data from each of Arizona's universities, as shown in Table 6 (see page 41).

A couple of factors may contribute to low student participation in orientation at ASU, in particular. For example, ASU does not require any of its students to attend orientation. U of A, on the other hand, requires some students who are considered to be at greater risk of not persisting to attend orientation. According to the National Resource Center for The Freshman Year Experience, orientation needs to move from an

optional to a required status in all universities. Many institutions that have mandatory orientation also have first-year persistence rates that are higher than average.

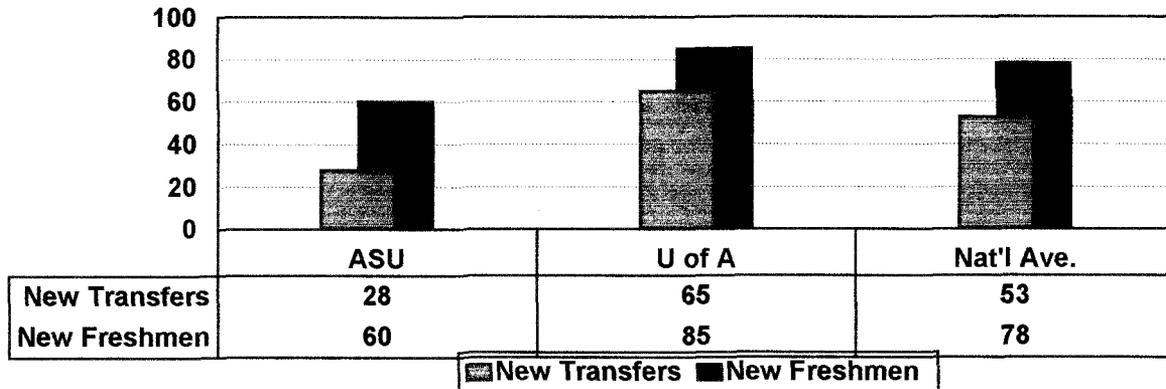
In addition, ASU's formal summer orientation sessions begin in late spring, but end by the first week of July. By contrast, U of A's summer orientation sessions are available throughout the months of June, July, and August, which gives students, especially those who decide to enroll weeks before the beginning of classes, a greater opportunity to attend.

Finally, the universities should continue their efforts to improve transfer student participation in orientation by tailoring sessions to meet their needs. All three of the universities have developed orientation sessions that acknowledge the uniqueness of transfer students and highlight academic and student support services of particular interest. Transfer student participation in orientation, however, remains considerably lower than for new freshmen.

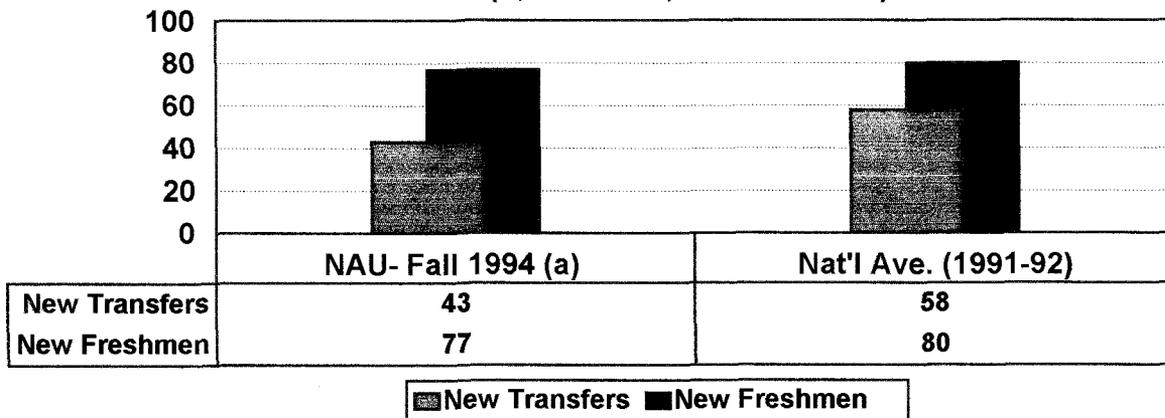
Table 6

**New Student Participation in
University Orientation Sessions
(Percent of New Students in 1991-92)**

**Large Institutions
(15,000 Students or More)**



**Medium Institutions
(5,000 to 15,000 Students)**



(a) According to NAU administrators, NAU staff submitted inaccurate student participation data to NODA for fall 1991 orientation. While unable to substantiate 1991 data provided by NAU, we were able to validate data for fall 1994 orientation, which showed a much higher rate of participation than previously reported by NODA. Thus, this table reflects fall 1994 orientation data as provided by NAU.

Source: National Orientation Directors Association, Data Bank, 1992-93, and data provided by NAU's Institutional Research department.

Residence Life Programs Could Be More Effective

Residence Life Programs can also impact student success. Although the majority of Arizona's students live off-campus, many new students live on campus, at least initially. During fall 1993, approximately 50 percent of new students enrolled at ASU and U of A and about 75 percent of new students at NAU lived in residence halls. Research shows comprehensive programs for these students can improve their academic achievement and ultimately, graduation rates.

Nationally, resident students tend to have higher persistence and graduation rates than students living off-campus. Research on student retention suggests, however, that residence halls that have *purposefully* designed programs that integrate the student into the intellectual and social life of the institution have the strongest effect on academic achievement and persistence to graduation. ASU's Freshman Year Experience (FYE) illustrates the nature of these effective programs:

- In fall 1993, ASU's Office of Student Development and Residential Life established the FYE program, which provides students easy access to a variety of academic and support services within the residence hall. For instance, residents can access academic advising, individual and group tutoring, workshops on academic success and study skills, university courses, computer facilities, and other campus resources within the hall. In addition, all first-year students, regardless of their place of residence, are eligible to participate in any FYE program or service. Currently, ASU has two FYE residence halls housing approximately 800 new students. Early indications suggest the program is benefiting students academically as well as helping them adjust to university life. ASU has plans to convert other residence halls to the FYE program and has established a pilot project to monitor the program's effect on student persistence and graduation rates. The total budget for renovation, equipment, and staffing for the FYE program is about \$140,000.

Similarly, U of A and ASU have residence halls that offer more comprehensive academic and support services for certain students, such as those living in honors halls or halls that are based on cultural or ethnic themes, than are available to students living in other residence halls. However, we found few residence halls that have comprehensive programs purposefully designed to reinforce student academic achievement and foster a sense of community. Residence Life programs, particularly at NAU and U of A, could do more to reinforce academic achievement. In fact, a recent survey of students living in residence halls at U of A found that students perceived the residence halls as providing little academic support.

To develop comprehensive programs within residence halls, officials at NAU and U of A believe there needs to be greater coordination with other academic and student support services on campus. In addition, the universities will need to create adequate space for additional support services, possibly by renovating some existing residence halls.

RECOMMENDATIONS

1. To improve student satisfaction, persistence, and graduation rates, the universities should make academic advising more effective by:
 - Reducing student-to-professional advisor ratios;
 - Developing a comprehensive advising model, in which faculty and professional advisors work together to advise students on topics in which they are uniquely well qualified; and
 - Implementing a tangible system of rewards for faculty providing good advising.
2. The universities should consider making orientation mandatory for all new students.
3. The universities should encourage residence life to do more to reinforce student academic achievement and foster a sense of community within all residence halls.

AREAS FOR FURTHER STUDY

During the course of our audit work, we identified several areas where further study is needed.

University Resource Allocation

The funding formula for the universities, which is based on the number of student FTE's enrolled in classes on the 21st day of the semester, may contribute to some of the problems we discovered. According to a 1993 article in *Change* magazine:

"...lengthening time-to-degree gets much of its inertial drift from the fact that it conforms only too well to the immediate needs of all the major groups present on campus. Administrators of public institutions gain more FTE-based funding and thereby some relief from budgetary constraints... Only parents and state governments care very much about the cost implications, and their concern is too global to influence the minutiae of practice that result in the lengthening."

Thus, the way universities are funded today provides little incentive to graduate students "on time."

Additional audit work could focus on program duplication, resource allocation, and the funding formula. Recent critiques of higher education in America have suggested that a resource allocation imbalance favors research and graduate students over undergraduate students. Several of the problem areas we identified, including lack of sufficient courses and excessive student:advisor ratios, may result in part from a lack of funding. University administrators told us that lack of money caused these problems, citing funding cuts during the past few years. However, we did not conduct extensive audit work regarding university funding, so we do not know if the universities already have resources that could be redirected to address these problems.

Quality of Instruction

Students, their parents, and some faculty raised the issue of quality of instruction at the universities. Although the current presidents and provosts have placed high priority on undergraduate (especially freshman) education, some faculty say the universities have not yet developed reliable methods for evaluating and rewarding professors for their teaching abilities. As with most of the issues raised in this report, this is a national issue: critics of higher education state that "teaching is shunned in the name of

research." Tenure decisions here and elsewhere are based largely on research contributions, partly due to the ease of measuring research grants and counting published articles compared to the difficulty of assessing teaching. The quality of instruction has obvious implications for the universities' graduates, who go on to become, among other things, teachers in the state's elementary and high schools. Without further study, though, the quality of instruction and, indeed, the quality of education at Arizona universities cannot be accurately measured.

Although some students were satisfied with the quality of teaching they received from teaching assistants, others were dissatisfied and preferred courses taught by professors. Dissatisfied students felt the screening process for teaching assistants should be improved. One remarked, "knowledge of the subject matter alone is not enough." Because teaching assistants perform every teaching function in some cases, including lecturing, holding discussions, and determining student grades, the quality of teaching assistants, as one parent said, "ultimately impacts the quality of education."

As discussed in Finding III (see pages 25 through 34), the universities have sometimes increased class sizes to relieve course availability problems. Some of the students we spoke with felt that large classes were impersonal and impaired their learning. Large class sizes restrict students' contact with professors, and may limit the instructor's ability to use essay exams and assign term papers that provide more opportunities for personalized feedback than multiple choice tests. Some students told us they had encountered these large class sizes at all course levels. While it is common practice to teach some introductory, freshman-level classes in a large lecture format, students expect smaller classes at the junior and senior level. In these upper-division courses the subject matter is narrower and covered in more depth in order to prepare students for professional work or graduate study in the subject.

General Education

Additional study is needed to determine whether the universities can improve implementation of general education requirements to alleviate the excess hours and course availability problems. Evaluation of the requirements themselves may also be appropriate, in the context of a national movement to reform the general education curriculum.

General education consists of courses students take outside their major fields in order to improve their skills and place their knowledge in perspective. Recently, universities all over the country have clarified the goals of general education and defined more rigid requirements to ensure students achieve them. Each of Arizona's three universities has taken its own approach to general education, requiring work in "core areas and awareness areas" at ASU, "foundation studies and discipline studies" at NAU, and "basic proficiencies and study areas" at U of A. Further, some colleges and departments specify a narrower set of acceptable general education classes for their own students.

The complexity and variation in general education requirements contributes to delayed graduation, excess credit hours earned, and course availability problems. Students who change majors may face different general education requirements and be unable to use courses already taken. Students who transfer in from community colleges or other universities often have credits that they cannot apply toward their graduation requirements. Departments such as English and Mathematics provide classes for students from all over the university, in addition to their own students, making demand prediction difficult, and contributing to course availability problems.

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ARIZONA BOARD OF REGENTS

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October 12, 1994

Douglas R. Norton, Auditor General
Office of the Auditor General
2910 North 44th Street, Suite 410
Phoenix, AZ 85018

Dear Mr. Norton:

Responses from the Arizona Board of Regents, Arizona State University, Northern Arizona University, and the University of Arizona to your report on *The Universities: The Student Experience* are enclosed. We appreciate the opportunities you have provided for us to discuss preliminary drafts of this report and your offer to include these responses in the text of the published report.

Sincerely,

Frank H. Besnette
Executive Director
Arizona Board of Regents

Lattie F. Coor
President
Arizona State University

Manuel Pacheco
President
The University of Arizona

Clara M. Lovett
President
Northern Arizona University

University and Board of Regent Responses To the Findings and Recommendations of *The Universities: The Student Experience*

Arizona's public universities and the Arizona Board of Regents welcome the Auditor General's report on the undergraduate student experience. Although findings in the report are often based upon partial data, small samples, questionable analysis and anecdotal evidence, they reiterate some of the concerns regarding academic and student service issues that have been identified and analyzed by the universities and the Board over the last several years. While some of the recent studies, change initiatives and resource reallocations at the universities have been ignored or given only passing mention, the report does recognize the universities' Board-approved goals for addressing those issues as "a good first step in making improvements." These measurable goals were based upon several years of study and discussion and were developed specifically to link faculty teaching effort to improvement of the quality of undergraduate education.

The issues raised in the Auditor General's report serve to underscore the appropriateness of the goals and the relevance of the performance measures that have been developed by the universities. As described below, the general, outcome-oriented recommendations contained in the audit report mirror the measures developed by the universities for improving the quality of undergraduate education. However, while some of the more specific, process-oriented recommendations contained in the report are currently being implemented by one or more of the universities, there are others that are misinformed and would not help the universities to achieve the detailed goals approved by the Board.

ISSUE I GRADUATION RATES

Audit Finding I: *Many Students Leave Arizona's Universities Without Graduating*

University/Board Response: This finding is addressed by one of the outcomes described in the universities' measurable goals: **Student persistence rates and graduation rates will improve over time.** To achieve this outcome, each university has developed a specific goal for (1) the percent of full-time freshmen who return for a second year, (2) the percent of full-time freshmen graduating in six years, (3) the percent of full-time lower-division transfer students graduating in five years, and (4) the percent of full-time upper-division transfer students graduating in four years. These percentages are defined either relative to comparable data from peer institutions or as absolute increases over baseline data.

With respect to the Auditor General's finding, it should be noted that some of the students who do not graduate from the university they first enter transfer to and graduate from another of Arizona's universities, transfer to community colleges and return later to graduate from one of the universities or transfer and graduate from schools out of state. Also, while completing a degree program is certainly a goal for many students, it may not be the goal of all students, and completing any number of higher education courses short of a degree is clearly of value both to the student and to the taxpayer. Finally, while current graduation rates at Arizona's universities show room for improvement when compared with those at peer institutions with similar missions, students and programs, they mirror the national pattern for public four-year institutions of higher education and should not be evaluated by comparison with institutions which are dissimilar on all these dimensions.

The comparison of graduation rates by academic ability levels with other universities--private and public, selective and access-oriented--contained in this report is a comparison of apples with oranges. It ignores the State's goal of access to public higher education, the relative lack of private institutions compared to other states, the absence of 4-year state colleges which are a part of most public educational systems, and the unique Constitutional provision in Arizona for higher education "as nearly free as possible." As a result, major differences in student characteristics and profound variances in average expenditure levels, not to mention significant dissimilarities in key demographic and academic variables such as age, race, gender, and grade point average, all of which may have a greater impact upon graduation rates than the SAT scores focused on in this report, are ignored, and spurious differences between graduation rates are created.

In particular, the comparison of decile subsets from Arizona's universities with entire student bodies which have similar scores is simply unacceptable methodology. We would note, however, that the universities cited with high SAT's and high graduation rates spend two to three times as much per student as do Arizona's universities.

The problems caused by omitting key variables from the analysis are exacerbated by the use of an unreliable methodology for comparing distributions, an improper technique for comparing percentages, and reliance upon a sample of only one cohort of students (freshmen entering in 1987). Moreover, the study conducted by the Arizona chapter of the American Association of University Professors (AAUP) and based upon *U.S. News and World Report* data, which is cited in the report as corroboration for the finding on graduation rates, is nearly as bad in ignoring the combination of complex factors that contribute to graduation rates and in drawing misleading conclusions from unwarranted comparisons. As a result, this data set can be manipulated to suit almost any agenda.

Audit Recommendation I.1 *The Arizona Board of Regents should require the universities to study and report to the Board and the Legislature within two years why students, and in particular students of high ability, leave before graduation.*

University/Board Response: Each university has information on the reasons that students leave prior to graduation. This information is currently utilized at the campus level in the ongoing effort to improve retention and will play a key role in the success of each university in meeting several of their outcome goals.

Since the Board will monitor progress toward these goals for graduation rates of freshman and transfer students, the studies necessary to achieve those goals are the responsibility of the individual universities. However, **the Board will ask the universities to provide information on the various reasons that students, including those of high ability, leave the universities and will pass this information on to the Legislature together with a progress report on the universities' measurable goals .**

Audit Recommendation I.2 *The universities should monitor and track on an ongoing basis student attrition (by levels of student ability) as compared to similar students at other universities.*

University/Board Response: Through a cohort survival study, the universities currently monitor and report to the Board on an ongoing basis information about student attrition. In addition, the flow of students between universities has been tracked and one of the outcomes addressed by the universities' measurable goals contains specific benchmarks for persistence rates based upon a comparison of students in Arizona's universities with those in peer institutions--universities with similar missions and programs. **The universities will continue their tracking and their monitoring of persistence and graduation rates for students of all ability levels and will expand them, as necessary and in a manner which is cost effective, to include comparative data from peer institutions.**

ISSUE II TIME TO GRADUATION

Audit Finding II: *Universities Can do More To Enable Students To Graduate More Quickly*

University/Board Response: This finding is addressed by another outcome described in the universities' measurable goals: **"The average length of time and number of academic credits required to complete academic degrees will remain steady and perhaps be reduced over time."** To achieve a significant reduction in time and credits to degree, each university has developed a specific goal for (1) the average number of years taken by all freshmen to complete a baccalaureate degree program, (2) the percent of graduating seniors who entered as freshmen and complete the

baccalaureate degree with no more than 18 credits over the minimum required by their programs, and (3) the percent of graduating seniors who entered as transfers and complete the baccalaureate degree with no more than 18 credits over the minimum required by their programs.

Audit Recommendation II.1 *The universities should review curriculum requirements in light of their impact on length of time and number of hours to graduation. Particular attention should be paid to making general education requirements easier to fulfill across majors.*

Audit Recommendation II.2 *The universities should consider the impact on length of time and hours required to graduate when developing and establishing policies.*

University/Board Response: Several outcomes in the universities' measurable goals show that the universities plan to reduce the average number of years taken by all freshmen to complete a baccalaureate degree program by one-half year and to increase the percent of graduating seniors who enter as freshmen or transfers and complete the baccalaureate degree with no more than 18 credits over the minimum required for their programs. **In order to accomplish these goals, the universities have been and will continue to review curriculum requirements, including general education requirements, as well as other policies which might impact the time and credits required for an undergraduate student to graduate.**

ISSUE III COURSE AVAILABILITY

Audit Finding III: *The Universities Can Do More To Address Course Availability Problems*

University/Board Response: This finding is addressed by an item in the universities' measurable goals: **"Students will be able to obtain classes necessary for meeting their general education and major requirements when they need them."** To achieve this goal, the universities have developed specific objectives appropriate for their individual registration procedures, such as (1) the proportion of General Studies courses completed by 64 hours, (2) the percent of preregistered students who obtain requested schedules and (3) the percent of students reporting class availability in their major.

Audit Recommendation III.1 *The universities should commit to resolving the problem of undergraduate course shortages by taking the following actions:*

- * *Identify the location and magnitude of course shortages, project supply and demand, establish benchmarks for satisfactory availability, and direct resources to unsatisfactory areas;*

- * *Enforce a minimum average faculty teaching load per department and direct resulting resources to high-demand undergraduate courses; and*
- * *Reduce the number of specialty courses and courses with low enrollment and direct resources to high-demand undergraduate courses.*

University/Board Response: The universities currently make course availability a priority by projecting supply and demand of courses, working to minimize the number of courses with low enrollment, and monitoring and enforcing minimum teaching loads on a departmental basis. Moreover, in their measurable goals they have already developed baseline data and established benchmarks for satisfactory course availability. **To achieve these benchmarks, the universities will continue efforts to improve educational outcomes and to increase productivity.**

In addition, the universities' measurable goals contain other items directly related to faculty teaching load. These items specify that **the number of lower-division courses taught by ranked faculty will be increased, student contact by ranked faculty in the many aspects of the student's educational experience will be increased, and undergraduates will be more completely integrated into research-related activities.**

It should also be noted, however, that while undergraduate instruction and course availability are priorities at all three institutions, the very different missions of the three Arizona universities are not factored into the analysis presented in this report. More directly, the comparisons in the report support an expectation that faculty at all three universities should have identical instructional responsibilities, even at the department level. The relevant comparison should be between similar disciplines both among peer universities and within individual universities. Only in this way can the appropriate mix of instruction, research, economic development and service be considered in the allocation of resources.

In 1993 Arizona's Joint Legislative Budget Committee (JLBC) published a report on the *Faculty Workload Study for Arizona Universities* and reached a similar conclusion. In their study the JLBC found that "the Arizona faculty workload survey indicates that the Arizona faculty work 56 hours a week, approximately the same number of hours as indicated in other faculty studies nationally" (page 27). Moreover, using data from public research universities to evaluate ASU and U/A and from public doctoral universities to evaluate NAU, JLBC findings demonstrate that faculty at ASU spend 15% more time in direct classroom instruction than the national average, faculty at U/A spend 5% more time than the national average, and faculty at NAU spend 36% more time than the national average. Taking these findings into account, the JLBC concluded that "the Arizona Board of Regents and the universities should look for ways to improve faculty productivity in teaching **without imposing substantial sacrifices in other vital functions of the academe and without increasing the overall faculty workload**" (page 28, emphasis added).

Audit Recommendation III.2 *The universities, the Board of Regents, and the Legislature need to continue discussions regarding the missions and program focus of the three universities to eliminate unnecessary duplication of programs, primarily at the doctoral level. Further study or audit work should be considered.*

University/Board Response: While this recommendation suggests that unnecessary duplication of programs is a problem, primarily at the doctoral level, there is no evidence or documentation provided that the universities currently offer any unnecessarily duplicative doctoral programs or that doctoral programs consume resources needed for undergraduates. Indeed, Arizona has developed a system of higher education that is noteworthy for its lack of duplication.

The Board of Regents currently requires substantial justification for any new academic programs which are duplicative, oversees in-depth reviews of all academic programs every seven years, and reviews university plans to disestablish or eliminate programs which might be unnecessarily duplicative. Also, in developing plans to manage enrollment growth over the next twenty years, the Board and the universities received input from legislators through a statewide commission which addressed issues including the need to prevent unnecessary duplication of programs. The Board of Regents is currently revising its Strategic Plan, which addresses issues of mission and program focus and will be sharing this document with the Legislature when appropriate. **All of these joint efforts to prevent the unnecessary duplication of programs at both the graduate and undergraduate levels will be continued.**

Audit Recommendation III.3 *The Legislature should consider additional study of faculty teaching loads to understand the implications of course availability and graduation rate.*

University/Board Response: Two years ago, the Arizona Board of Regents, together with the Joint Legislative Budget Committee, sponsored a comprehensive analysis of faculty workloads based upon an extensive survey of faculty at all three universities and a comparison of the results with national data on similar universities. The audit did not question the validity of this JLBC study. In addition, the universities continually monitor faculty teaching loads and are tracking progress towards meeting the benchmarks for teaching loads, course availability and graduation rates described in the universities' measurable goals. **Given the recent JLBC study of faculty workload, the initiatives currently being undertaken by the universities and the on-going monitoring of this issue by the Board, additional study of faculty teaching loads, course availability and graduation rates would not be useful at this time.**

ISSUE IV STUDENT SUPPORT SERVICES

Audit Finding IV: *Student Support Services Need Improvement*

University/Board Response: The universities' measurable goals include several items addressing the need for improvement in student support services, including advising of students, contact of students with faculty outside of the classroom, and access of students to instructional technology. To achieve these goals, the universities have developed specific objectives appropriate for their individual advising, mentoring, and technological systems, such as (1) the percent of current students, graduating seniors, and alumni satisfied with advising, (2) the percent of students with an educational (academic/career) plan by the end of the freshman year, (3) the percent of students with electronic access to a report on their fulfillment of degree requirements, and (4) the percent of students with regular advising/mentoring contact with ranked faculty.

It should also be noted that the general tone of this finding suggests that student dissatisfaction with public higher education in Arizona is substantial. Although problems certainly exist, the available data from all three universities suggest that the majority of students are indeed satisfied with the education they receive and with the services which support them.

Audit Recommendation IV.1 *To improve student satisfaction, persistence, and graduation rates, the universities should make academic advising more effective by:*

- * *Reducing student-to-professional advisor ratios;*
- * *Developing a comprehensive advising model, in which faculty and professional advisors work together to advise students on topics in which they are uniquely well qualified; and*
- * *Implementing a tangible system of rewards for faculty providing good advising.*

University/Board Response: The universities disagree with the emphasis on professional advisors in the audit report. Utilizing a more comprehensive advising model in which faculty and professional advisors work together to advise students on those topics with which they are uniquely familiar, the student-to-advisor ratios at the universities are in line with the ratios quoted in the report. Moreover, the universities have committed to improving student satisfaction, persistence and graduation rates in their measurable goals. In addition, these goals stipulate that **students will receive adequate advising for their program and career needs. The specific goals developed by the universities to improve advising and to increase student satisfaction with advising will be achieved by continuing to make improvements in the advising process.**

Audit Recommendation IV.2 *The universities should consider making orientation mandatory for all new students.*

University/Board Response: Some orientation programs are already mandatory for those students who will benefit from them the most. It may not be appropriate to make orientation mandatory for all other groups of students. **The universities will continue to encourage all students to attend orientation and additional orientation opportunities will be provided.**

IV.3. The universities should encourage residence life to do more to reinforce student academic achievement and foster a sense of community within all residence halls.

University/Board Response: Significant initiatives are being developed by all three universities in this area, and some of these efforts are already underway. **The universities will continue to reinforce student academic achievement and foster a sense of community within all residence halls.**

ISSUE V AREAS FOR FURTHER STUDY

Audit Finding: *During the course of the audit work, several areas were identified where further study is needed.*

Audit Recommendation V.1 *University Resource Allocation--Additional audit work could focus on issues such as program duplication, resource allocation, and the funding formula.*

University/Board Response: The JLBC studies issues of university resource allocation each year in reviewing state operating budget requests, which include decision packages for new programs and continuing services funding requests based upon the enrollment growth ("22:1") formula. Moreover, there is not any relationship between the funding formula and the time it takes a student to graduate, given that funding depends upon credit hours generated by the courses that are taken not upon how many years a student takes to complete those courses. **Unless significant issues are raised in the annual review of budget requests or in the strategic planning and program authorization review processes, additional audit work on these issues is not called for.**

Audit Recommendation V.2 *Quality of Instruction--Without further study, ... the quality of instruction and, indeed, the quality of education at Arizona universities cannot be accurately measured.*

University/Board Response: The Board will provide the Legislature with copies of the annual progress report on the universities' measurable goals, with its multiple measures linking faculty teaching effort to improvement in the quality of undergraduate education. **These reports will enable the Legislature to measure progress each year on the quality of education without assigning additional resources to conduct new studies.**

Audit Recommendation V.3 *General Education--Additional study is needed to determine whether the universities can improve implementation of general education requirements to alleviate the excess hours and course availability problems. Evaluation of the requirements themselves may also be appropriate.*

University/Board Response: The annual report on the universities' measurable goals, to be provided to the Legislature, will include measures showing progress toward the goal of reducing the average time and credits required for a student to graduate from a baccalaureate program at each university. **These reports will enable the Legislature to measure progress on these issues each year without additional study.**

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**Arizona State University Response
To the Findings and Recommendations of
*The Universities: The Student Experience***

GENERAL COMMENTS

In January 1993, ASU launched President Lattie F. Coor's initiative to enhance the quality undergraduate education and address concerns in many of the same areas outlined in the performance audit. Our efforts recognize the need to take advantage of new developments in active learning theory and technology, as well as the growing recognition that student contact with faculty outside the classroom significantly contributes to the undergraduate experience. While this does not diminish our role as a major research university that serves the community, it provides us with opportunities to renew our dedication to teaching by establishing five goals for improving undergraduate instruction:

1. A guarantee that undergraduates can enroll in the courses they need in the sequence they need so that a fully prepared student following a plan of study can graduate in four years;
2. A 50 percent increase in graduation rates for full time undergraduates who enter as freshmen, as well as for full time transfer students;
3. Providing full time freshmen with at least four classes in their first year taught by ranked faculty members, at least one seminar style course and a writing intensive course;
4. A commitment to the continuous improvement principle of total quality service for all of the functions related to the delivery of undergraduate education services, including recruitment, advising, course selection, scheduling and financial aid; and,
5. The creation of an additional campus communities within the university to give students more personalized contacts with faculty and fellow students.

ASU faces challenges in achieving these goals, including managing the university's enrollment, a high student:faculty ratio, and limited financial resources relative to similar universities in other states. These current difficulties, however, should only affect the pace at which we accomplish these goals.

In many instances, the auditors present ASU data collected three and four years ago which does not reflect improvements implemented within the past two years. ASU is beginning to see more and more evidence of improved student outcomes.

ISSUE I GRADUATION RATES

ASU's Response: ASU shares concerns presented in the University/Board Response.

ISSUE II TIME TO GRADUATION

Audit Finding II: Universities Can Do More to Enable Students to Graduate More Quickly

Audit Recommendation 1: The universities should review curriculum requirements in light of their impact on length of time and number of hours to graduation. Particular attention should be paid to making general education requirements easier to fulfill across majors.

Audit Recommendation 2: The universities should consider the impact on length of time and hours required to graduate when developing and establishing policies.

ASU's Response: ASU agrees with the audit recommendations and has already started to see the effects of improvements initiated in this area. For example, the College of Engineering and Applied Science reviewed its curriculum requirements during the past academic year and reduced the number of hours to graduation in all engineering majors. In addition, ASU is developing a Bachelor of General Studies degree to assist those students who accumulate a large number of credit hours, but cannot graduate because the hours do not match those required for a major. We should also note Arizona's universities and community colleges have a nationally recognized articulation model.

While much of the audit recommendations and supporting data target improvements for traditional full time students, ASU has a responsibility to provide quality undergraduate education for part time and non traditional students. We recently initiated a study of approximately 385 ASU students who have 160 or more credit hours, but have not graduated. Preliminary findings reveal that the majority of these consist of transfer students whose prior credits were at earned other colleges and many are pursuing a second bachelors degree. About 75 percent of these students attend part time and are best characterized as adult reentry students who work full time and/or who seek a career change. When asked if anything prevented their graduation, most indicated that they were working at a pace which best suited their circumstance.

It is important to keep in mind that many ASU students must work to support themselves or their families and thus cannot attend the university on a full time basis.

ISSUE III COURSE AVAILABILITY

Audit Finding III: The Universities Can Do More to Address Course Availability Problems

Audit Recommendation 1: *The universities should commit to resolving the problems of undergraduate course shortages by taking the following actions:*

- *Identify the location and magnitude of course shortages, project supply and demand, establish benchmark for satisfactory availability, and direct resources to unsatisfactory areas;*
- *Enforce a minimum average faculty teaching load per department and direct resulting resources to high demand undergraduate courses; and,*
- *Reduce the number of specialty courses and courses with low enrollment and direct resources to high demand undergraduate courses.*

ASU's Response: **Enforcing faculty teaching loads to heighten access to classes seems reasonable on the surface, but it is the wrong solution.** It is unclear how the auditors determined that if all ASU faculty in all departments had a minimum teaching load of 2 classes per semester, it would make available 100 more class sections. If true, however, our rough calculations suggest that 70 of those sections would be in physics, chemistry and zoology. Student access to courses in those disciplines is not a major problem and that action would not address shortages in Spanish, math, or psychology sections where larger teaching loads exist. We believe that the multiple missions of the departments and the university should determine faculty workloads.

The ASU Department of Zoology provides an outstanding illustration of why mandatory teaching loads are simplistic, and naive. The Department of Zoology, in addition to supplying a curriculum for undergraduate and graduate majors, has very strong research programs - all of which receive support from external granting agencies. There is demand for faculty by both local and national agencies to participate in problem solving and to provide their expertise on many projects. More importantly, in the context of this report, the faculty have brought in over \$4 million within the past four years to support undergraduate research experiences and to retrain faculty to facilitate inquiry based learning in the biology curriculum. This kind of work with undergraduates does not show up on "lecture sections taught," but few would say that it does not contribute to quality undergraduate education.

Finally, ASU agrees that the universities should become more student centered, but we think we should not treat students as customers. The auditors theorize that treating students as customers may improve course availability problems and the undergraduate experience. We believe that ASU must become more student centered and sensitive to course demands, but the "student as customer" concept is problematic, with implications that are inappropriate in a university setting. The auditors present a fine example of this dilemma when, in Finding IV, they recommend changing ASU's optional student orientation program to a mandatory program in order to improve participation rates. Such a mandatory orientation would certainly improve attendance, but it would be done by forcing our "customers" to participate. We should also note that since ASU teaches neither Persian nor Greek, we must assume that an

official referenced on page 28 of the report directed his or her comments towards another university; the statement does not represent ASU's views.

***Audit Recommendation 2:** The universities, the Board of Regents, and the Legislature need to continue discussions regarding the missions and program focus of the three universities to eliminate unnecessary duplication of programs, primarily at the doctoral level. Further study or audit work should be considered.*

ASU Response: Recommendations to eliminate unnecessarily duplicated doctoral programs are unfounded in that the auditors provide no documentation to support such recommendations. We find no documentation that the auditors studied doctoral programs, and yet they conclude that there are unnecessary program duplications. These are unsubstantiated recommendations with no evidence to support allegations that the universities have any unnecessary duplicated doctoral programs, or that doctoral programs consume resources needed for undergraduates. In fact, ASU offers substantially fewer doctoral programs than other Research I universities and has not added a new degree program in three years.

While the audit report focuses on undergraduate education, it is important to note that ASU must contend with high demand for courses in graduate programs as well. ASU is the major graduate institution and the only doctoral institution in the Phoenix metropolitan area.

ISSUE IV STUDENT SUPPORT SERVICES

Audit Finding IV: Students Support Services Need Improvement

***Audit Recommendation 1:** To improve student satisfaction, persistence and graduation rates, the universities should make academic advising more effective by:*

- Reducing student to professional advisor ratios;
- Developing a comprehensive advising model, in which faculty and professional advisors work together to advise students on topics in which they are uniquely well qualified; and,
- Implementing a tangible system of rewards for faculty providing good advising.

ASU's Response: ASU is well aware of the problems in academic advising and concurs with the University/Board Response, however, we want to point out needed corrections to the information presented in this section. On page 34, paragraph 1, line 2 states that, "...42 percent at ASU said they were dissatisfied with the academic advising they had received..." According to the 1993 Graduating Senior Survey, 33 percent of the graduating seniors at ASU said they were dissatisfied.

***Audit Recommendation 2:** The universities should consider making orientation mandatory for all new students.*

ASU's Response: Table 6 on page 39 should include more recent information on ASU student participation in orientation sessions. The report compares Fall 1994 data for NAU against a 1991-92 national average, but uses Fall 1991 participation data for ASU. For Fall 1994, the new ASU student participation in university orientations by transfer students and freshmen are 25 percent and 74 percent respectively. We also should note that the auditors did not include all the special orientation programs for targeted audiences such as reentry students, Upward Bound, summer math, Science Honors program, Engineering Summer program...etc., in the ASU participation numbers. When we account for the special orientation programs, ASU easily exceeds the 1991-92 national average for new freshmen.

ISSUE V AREAS FOR FURTHER STUDY

***Audit Finding:** During the course of the audit work, several areas were identified where further study is needed.*

***Audit Recommendation V2:** Quality of Instruction -- Without further study, ...the quality of instruction and, indeed, the quality of education at Arizona universities cannot be accurately measured.*

ASU's Response: ASU concurs with the University/Board Response regarding *Quality of Instruction*. ASU has established goals and implementation time lines to increase the number of freshmen and sophomore courses taught by ranked faculty as one way to improve the quality of undergraduate instruction. Within three years, we expect that ranked faculty will teach 60 percent of lower division student credit hours. Within the next four years, 95 percent of lower division students will have two or more courses taught by ranked faculty. Finally, within the next five years, 50 percent of freshmen will enroll in seminar courses with ranked faculty and 75 percent of graduating seniors will have developed personal relationships with three or more faculty.

NORTHERN ARIZONA UNIVERSITY
Official Response to
Performance Audit - *The Universities: The Student Experience*

Audit Recommendation I.1. *The Arizona Board of Regents should require the universities to study and report to the Board and the Legislature within two years why students, and in particular students of high ability, leave before graduation.*

We recognize and are concerned that many students leave the university after the first year. We will continue to study this issue. The three universities need to work together to develop a total system graduation rate. Our strategies will include developing better means of tracking students who transfer within the Arizona University System, conducting cost/benefit analyses of trying to locate students who have left the university, developing ways to get student cooperation in identifying why they leave the university, analyzing the data gathered, and developing a plan of corrective action.

Audit Recommendation I.2. *The universities should monitor and track on an on-going basis student attrition (by levels of student ability) as compared to similar students at other universities.*

We agree that we should monitor and track, on an on-going basis, student attrition by level of student ability. However, we believe the comparison should be to students at peer institutions. In the past year, NAU has joined a consortium sponsored by the University of Oklahoma and the National Science Foundation. The consortium consists of 49 colleges and universities. The consortium is constructing a large longitudinal retention and graduation rate database with the goal of better understanding the variance in rates among different types of institutions and determining ways to improve these rates. At present the database contains persistence and graduation rates for 55,000 students and should offer new insights into student performance nationwide. In addition, this joint effort will provide for the first time national data on the higher education success of Native American students, a topic of keen interest at NAU.

Audit Recommendation II.1. *The universities should review curriculum requirements in light of their impact on length of time and number of hours to graduation. Particular attention should be paid to making general education requirements easier to fulfill across majors.*

We believe that we should be sensitive to the impact of curriculum requirements on length of time to graduation and already have taken steps to address some of these concerns. For example, last year the curricula for several of our engineering majors underwent a review which resulted in reducing the number of credit hours required for graduation. Also, there are two groups on campus which have been appointed to study this issue and

make recommendations. In addition, NAU has requested funds from the Legislature to plan and begin implementation of a three-year bachelor of arts degree. The pilot program will begin the summer of 1996 and is designed to capitalize on the strengths of NAU. This new program will link the residential student experience to the educational experience in an attempt to create a more efficient and effective degree package. The program also will take maximum advantage of instructional technologies. Approximately 200 new students seeking degrees in the liberal arts will be recruited to participate in this accelerated degree program. Concurrently, a fast-paced curriculum will be developed. Activities of both student services and the faculty will be coordinated to ensure academic success of the students and the program.

Audit Recommendation II.2. *The universities should consider the impact on length of time and hours required to graduate when developing and establishing policies.*

We agree with this recommendation and have already begun to implement it. A campus group has been appointed and is in the process of examining all of our academic policies, including add/drop policies, course repeat policies, etc. We expect to see some recommendations and changes being made by the end of this academic year.

Audit Recommendation III.1. *The universities should commit to resolving the problem of undergraduate course shortages by taking the following actions:*

- *Identify the location and magnitude of course shortages, project supply and demand, establish benchmarks for satisfactory availability, and direct resources to unsatisfactory areas.*

NAU has made undergraduate course availability a priority and we believe we do forecast course demand. For example, changes were made in early registration for continuing students which resulted in the satisfactory assignment of 91% of the course requests for Fall 1994; additional sections were opened to enable students to obtain needed courses before Fall 1994 and for all freshmen and transfer students attending summer Previews so complete schedules could be obtained.

- *Enforce a minimum average faculty teaching load per department and direct resulting resources to high-demand undergraduate courses.*

It has been a regular practice at NAU to direct faculty resources to high-demand undergraduate courses and is documented by the Joint Legislative Budget Committee's recent faculty-workload study.

- *Reduce the number of speciality courses and courses with low enrollment and direct resources to high-demand undergraduate courses.*

A number of years ago, NAU began examining courses with low enrollment, cancelling them and reassigning faculty to areas of greater enrollment. This process continues on a regular basis.

Audit Recommendation III.2. *The universities, the Board of Regents, and the Legislature need to continue discussions regarding the missions and program focus of the three universities to eliminate unnecessary duplication of programs, primarily at the doctoral level.*

Contrary to the statement on page 1 of the report which reads "All three offer a wide range of baccalaureate, master's, and doctoral degrees," (emphasis added) NAU offers a limited range of doctoral programs and has no plans to expand those programs. In fact, a decision has been made not to implement one doctoral program approved by the Board of Regents and the doctoral programs in zoology and botany have been combined into one program in biological sciences.

Audit Recommendation IV.1. *To improve student satisfaction, persistence, and graduation rates, the universities should make academic advising more effective by:*

- *Reducing student-to-professional advisor ratios,*

We believe that the fact that 85% of our seniors report satisfaction with advising at NAU is a much stronger statement of effectiveness and the quality of our program than what some experts may have concluded from the population at large.

- *Developing a comprehensive advising model, in which faculty and professional advisors work together to advise students on topics in which they are uniquely qualified.*

We have done this in a number of academic areas and will continue to expand this model as appropriate.

- *Implementing a tangible system of rewards for faculty providing good advising.*

In tenure and promotion decisions as well as merit pay decisions, good advising has been, is, and will continue to be a significant criterion at Northern Arizona University.

Audit Recommendation IV.2. *The universities should consider making orientation mandatory for all new students.*

Even though we have a relatively high participation rate in orientation programs, we are looking at ways to improve. For example, we are considering an additional orientation

session at the end of summer to accommodate students who are admitted to the university late and students who are unable to attend in June. Consideration also is being given to holding a mid-year orientation for students who are admitted to the university early.

Audit Recommendation IV.3. *The universities should encourage residence life to do more to reinforce student academic achievement and foster a sense of community within all residence halls.*

We agree with this recommendation and recognize that this is something we need to do. We are in the process of looking at various options such as a three-year baccalaureate which would be residentially-based with a living/learning component, expanding learning assistance opportunities to the residence halls, enhancing computer access within the residence halls, and grouping students together in residence halls by area of study to build a sense of community and facilitate study groups and peer assistance.

University of Arizona Responses to the Findings and Recommendations of *The Universities: The Student Experience*

The University of Arizona shares many of the concerns raised in the Auditor General's report. However, as outlined in the University/ABOR response, the University does not concur with most of the recommendations. Over the last several years the student experience has been extensively analyzed and greatly improved. Major changes have been implemented and more are planned to address undergraduate education, in spite of substantial budget shortfalls. The lack of acknowledgement in the Auditor General's report of the many changes and the new approaches is disturbing. Moreover, many of the conclusions of the Auditor General's report are based on dated or anecdotal information from all three Arizona Universities and do not accurately represent the current situation at the University of Arizona.

ISSUE I: GRADUATION RATES ISSUE II: TIME TO GRADUATE

Graduation rates are a complex problem faced by public universities across the nation. Improvement in student persistence and graduation rates is a major focus of the changes under way at the University of Arizona. However, the only *meaningful* comparisons are with universities that have similar missions, students, and institutional resources. The Auditor General's comparisons, which include elite private universities such as Harvard and Yale, fail to understand the missions of large, open access, public universities such as the University of Arizona. Furthermore, the analysis focusing on comparison of Arizona's universities to subgroups based on entering SAT scores is statistically flawed and presumes that standard tests are the *only* and *best* criteria. As a case in point: If performance is compared to a combination of test scores and grade point averages, a comparison with the universities used by the Auditor General yields a very different picture from that derived from test scores alone (Table attached). The University of Arizona is committed to improving graduation rates, student persistence, and reduction of time to graduation. These goals will be accomplished through a series of actions including, but not limited to:

- making available classes required for general education and major requirements through resource reallocation and restructuring
- improving mentoring and advising
- improving career services
- increasing student faculty interaction, in and out of the classroom

- improving facilities
- emphasizing K-12 and community college outreach

ISSUE III: COURSE AVAILABILITY

Course availability has been substantially addressed by guaranteeing all freshman who attend orientation a full course load. The general education curriculum is being revised. Highly specialized courses at both the undergraduate and graduate levels are being minimized. The key elements are faculty workload and resource allocation. However, analysis of workload should be viewed relative to peer universities and should take into account the mission of the University of Arizona. Thus, a careful balance of instruction, research, economic development, and service must be achieved to meet the State's needs. We believe that the restructuring that is currently under way will address all the relevant issues and will result in appropriate and balanced faculty workloads. Unfortunately, the Auditor General's report fails to consider the University's obligation to seek solutions to medical, economic, agricultural, and social problems affecting the citizens of the State at the same time it provides outstanding undergraduate education.

ISSUE IV: STUDENT SUPPORT SERVICES

The University has instituted a very comprehensive program to more effectively treat students as customers. This approach, derived out of Continuous Organizational Renewal (CORe), is designed to develop more effective and efficient services. It has already resulted in substantial savings which have been reallocated to academic programs and, importantly, to quality services for students. An example is emphasis on career services integrated across colleges to better track graduates into public and private sector jobs. CORe is an ongoing process and, coupled with changes in academic programs and resource allocations, will greatly improve the support of the student experience.

Finally, the tone of the Auditor General's report suggests substantial student dissatisfaction with the undergraduate experience. Although improvements are still needed, approximately 80 percent of the graduating students report being satisfied with their undergraduate experience. We believe this level of satisfaction can be increased and that we can substantially improve the quality of our graduates. This will be accomplished through a broad based approach as outlined here and in the University/ABOR response.

**FALL 1987 FRESHMAN 6-YEAR GRADUATION RATE
DECILE GROUPS BASED ON INDEX OF H.S. GPA AND SAT**

	Mean SAT	Mean H.S. GPA	UA 6-Year Grad. Percent	Other Schools 6- Year Grad. Percent*
<u>Group No.</u>				
1	816	2.27	35.0	38.0
2	829	2.57	42.2	42.5
3	855	2.69	43.0	32.0
4	868	2.83	42.2	39.8
5	881	2.97	40.9	49.6
6	894	3.11	46.4	50.1
7	919	3.26	58.6	58.6
8	960	3.41	57.4	61.1
9	1017	3.62	64.6	67.0
10	1105	3.85	67.9	85.0

* Average of comparison institutions as presented in Auditors report.