# IMPROVING GRA

## A Simple Method That Works

**P**arents, legislators, and even students worry about graduation rates at American public colleges and universities. They compare the statistics they see to their idealized memory of a time when college students enrolled in college immediately after high school and graduated with a bachelor's degree four years later. Although this enrollment pattern remains characteristic of many small private liberal arts colleges, public colleges and universities generally have much more complex patterns of student attendance, persistence, and graduation.

Only about 42 percent of students now graduate within four years even at the best public institutions, and the more commonly reported six-year rate reaches a median of only 71 percent at the best publics. The average four-year graduation rate for all public institutions is 20 percent, while their six-year rate is 45 percent.

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Some of the gap between the observed and the idealized graduation rates stems from the federal government's reporting methodology. The rate reported today is not the percentage of all students who matriculate and eventually graduate from the institution. Instead, institutions take the number of full-time students (those registering for at least 12 hours per semester) who begin college in one fall and calculate the graduation rate as a percentage of the number of those students who graduate four or six years later. Because the rate measures only full-time students beginning in the fall, it excludes students who begin college in the summer or spring, as well as the growing number of part-time students.

Finally, the measure misrepresents the experience of transfer students. Perhaps a quarter of today's students transfer from one institution to another to take advantage of special programs, reduce costs by relocating closer to home, or accept employment opportunities. But any student who enrolls as a



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freshman at one institution and transfers to complete the degree at another will appear as a failure in the statistics of the first institution and will not appear at all in those of the second.

Statistics aside, there are other problems with the expectation that students will graduate within four years. A full-time student, under the minimum federal definition, would require 10 semesters, not eight, to complete a 120-hour program. And many students take more than 120 credit hours, often because they are pursuing degrees that require more credits due to accreditation requirements, particularly in professional degree programs.

# DUATION RATES

By Elizabeth D. Capaldi, John V. Lombardi, and Victor Yellen
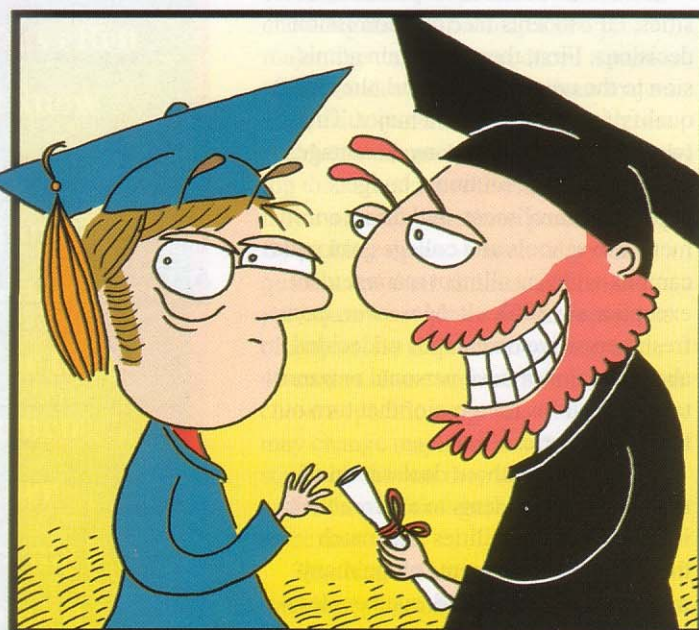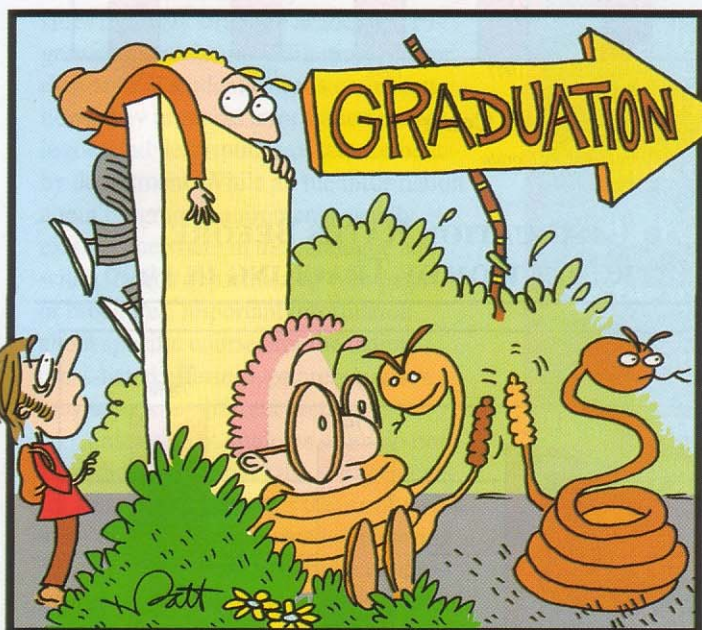


So it is surely unrealistic to expect any university to ever have a 100 percent four-year or even six-year graduation rate, given both the peculiar way the federal government calculates the statistic and the realities of students' lives that are not under the institution's control. But colleges and universities can implement programs that improve low rates by addressing the causes that they *do* control. They can ensure that prospective students understand the requirements for academic success and the preparation they need to succeed. And once students have matriculated, institutions can clear the path to the degree.

We describe here how improvements in the academic and advising processes of the University of Florida (UF), which began in 1996 to include all undergraduates in a program called "tracking," removed obstacles to completing degrees. Tracking improved each of the university's graduation rates (four-, five-, and six-year) by seven percent for the 1996 cohort, a level maintained over subsequent years. The program also enhanced student satisfaction.

We believe that this program has general applicability—indeed, the state's Office of Program Policy Analysis and Government Accountability has suggested that all universities in Florida adopt

tracking. As practiced at the University of Florida, tracking can be adapted to work at any university.

## THE TRACKING PROGRAM

In the mid-1990s, student surveys revealed a high level of satisfaction with the academic experience and teaching at the University of Florida, but a low one with the institution's bureaucratic processes. Other signs of trouble were the large numbers of students dropping and adding courses once the semester began, as well as the significant number of students taking basic required courses in their junior and senior years rather than as freshmen or sophomores. All these

indicators pointed to a poorly designed enrollment-management system.

In large public universities, students often have difficulty finding their way through the maze of curricular options and requirements. Course patterns for majors can appear extremely complex, and even experienced academic advisors have difficulty guiding students through them, especially when a student contemplates a number of different majors in various colleges and schools. It was clear that the university could improve its graduation rate by focusing on improving academic advising so that students would follow clearer and more rational paths to their intended degrees, and by increasing the availability of seats in required and prerequisite courses. The tracking program was implemented to help with both.

As is common at most public universities, UF students face two admissions decisions. First, they must gain admission to the university; second, they must qualify for admission to a major. This two-part strategy has many advantages. In most states institutional budgets depend on enrollment, and direct enrollment into schools and colleges can make campus-wide enrollment management exceptionally difficult. Moreover, many freshmen arrive on campus undecided about a major or have personal or parental expectations for a major that turn out to be unrealistic.

Admission without declaration of majors allows students to explore their interests and capabilities and match them to the requirements of the many majors available. Indeed, such exploration is a key feature of the undergraduate experience and an advantage of the large public university, with its wide range of specialties and majors. Such a system also enhances the opportunity to devote substantial portions of the first two years to general education, the hallmark of a liberal arts undergraduate experience in the United States.

However, eventually all students need to declare a major, at which point they become the responsibility of a particular department. If students postpone making that decision, they may find they do not have the prerequisites for the major they finally choose and must take additional courses to complete their degrees. All this increases the number of credit hours for a degree

## CHART 1. FOUR-YEAR GRADUATION RATES BEFORE AND AFTER THE INTRODUCTION OF TRACKING IN 1996
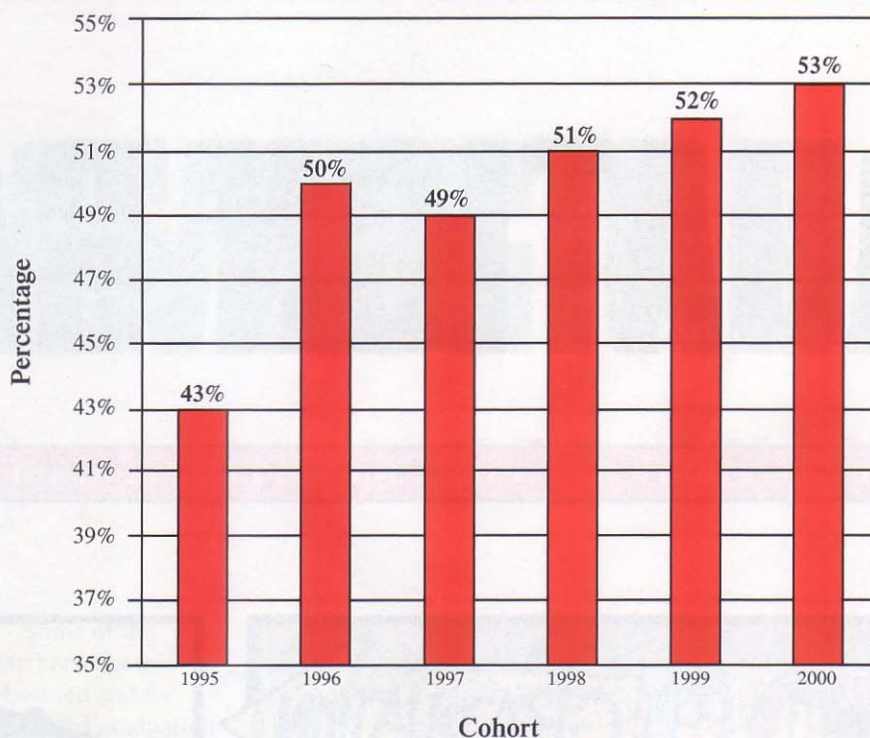


*Source: Office of Institutional Research, University of Florida*

## CHART 2. SIX-YEAR GRADUATION RATES BEFORE AND AFTER THE INTRODUCTION OF TRACKING IN 1996
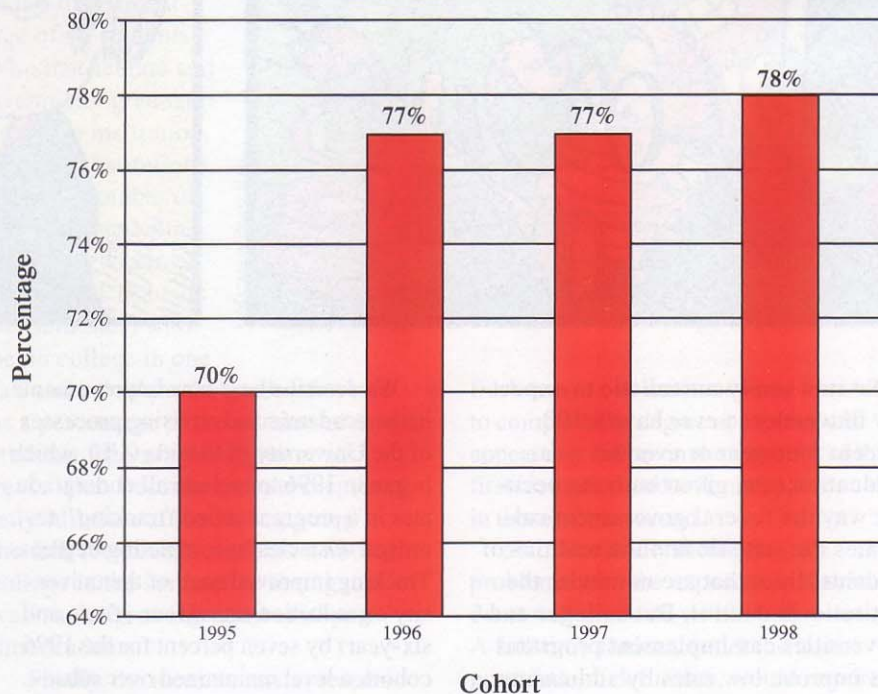


*Source: Office of Institutional Research, University of Florida*

and extends the time required to complete it. A key premise of tracking is that the sooner students pick a major the better. Even if students change

majors later, picking one early allows them to have a focus that gives purpose and direction to their work and permits them to discover quickly whether they

have the aptitude and interest to succeed in that program.

Students often have difficulty selecting majors because of the complexity of institutional catalogues and other information about curricular choices and requirements for the major. Since universities typically structure academic programs around faculty affiliations, rather than around students' needs or expectations, they organize information in catalogues and descriptions of requirements by department. While all the information about program requirements usually exists somewhere in the catalogue and within online departmental Web pages or brochures, important information about specific courses for the major, cross-listed offerings, or prerequisites may appear in different sections.

Consequently, students often do not know how to decipher the requirements for a particular degree or the involvement of other departments in delivering it—never mind how to explore all the majors that might prove relevant to their abilities, preferences, and career aspirations. As a consequence of this confusion, they often find themselves taking courses that prove irrelevant to their eventual major, especially if they change programs after one or two years of academic work.

The tracking program addresses these issues through a computerized system that takes the formal elements of the curriculum—majors, with their prerequisites, requirements, and course sequences—and reorganizes this information into a sequential presentation that matches each student's current transcript and major. It shows, for each individual, what he or she has accomplished and what remains to be done to earn a degree in the major. Tracking

gets its name from the individualized student report that lays out a specific, clear, and accurate track to the intended degree. If students stay on their tracks and take full course loads, they will graduate on time.

Tracking also lets students explore the consequences of changing majors, otherwise known as "degree shopping." A student currently on track for a history major, for example, can test online the consequences of changing to political science. The system instantly recalculates the individual student's track relative to the new major, in this case political science. It shows which of the courses taken previously count toward the requirements or electives of that program, as well as

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which and how many additional courses the new track will entail.

In short, it calculates a new track. Because the response is so quick, a student can explore multiple options. If one seems promising, the student can go to an academic advisor to discuss the new major and its match to his or her abilities and aspirations.

## ELEMENTS OF TRACKING

*Choosing a Major.* The tracking system requires that students choose a major as freshmen, which puts them on
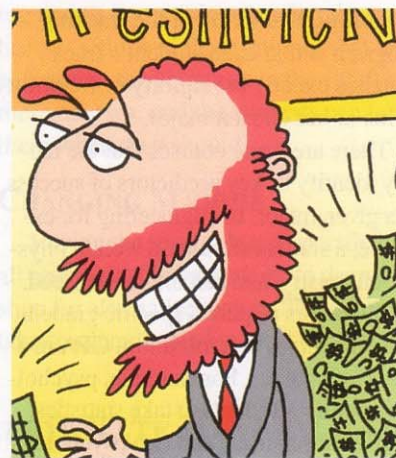
a preliminary track to graduation. To accommodate the many students who arrive undecided about their majors, the system permits a choice among three "proto-majors:" undecided-science, undecided-social science, and undecided-humanities. To assist students in choosing their initial major or a proto-major, the university produced a pamphlet that describes how various majors align with student interests and talents.

Most students have no trouble matching their interests with either a specific major or one of the three proto-majors. By picking a proto-major, they can quickly test their abilities against the prerequisites required for these clusters of majors. By the time they have taken 45 credits, those with proto-majors must chose a specific program. Although they may change majors at any time, most stay with the one they initially picked, and if they do change, very few do so more than once.

*Tracking a Course Sequence.* The tracking system arranges all the courses required for a degree in a semester-by-semester sequence. Before each semester, all students receive a tracking report incorporating what they have accomplished the previous semester and telling them whether they remain on or off track for graduation. Students identified as off track receive a notice requiring them to see an academic advisor before registering for the semester. The academic advisor helps them identify and resolve any difficulties and establish a plan to get back on track.

Not all major requirements fall into a rigorous semester-by-semester sequence. In majors such as engineering, the order in which courses must be taken may determine almost the entire schedule, while other majors offer greater

flexibility. The virtue of the tracking program is that each student's track matches exactly the rigidity or flexibility of his or her chosen major.

There are some courses that the faculty identify as key predictors of success in a given major. In engineering for example, a student should do well in physics, chemistry, and calculus to succeed. Many majors require a specific grade in critical courses or a minimum GPA in a group of courses. For example, psychology requires students to take statistics, biological sciences, and two psychology courses with at least a 2.8 GPA to stay on track, while management students need a minimum 3.0 average on all attempts in the required courses of calculus, microeconomics, statistics, and accounting.

Prior to the institution of tracking, students whose parents wanted them to be, for example, engineers but who had no natural interest in this topic could postpone taking the key prerequisite courses until their sophomore year. When they did poorly and realized they were not likely to succeed, they would have to start their search for a more compatible major fairly late in the game. By putting these critical courses in the first year, tracking helps students make important choices early, reducing frustration and ensuring that most of the courses they take count toward their degree.

A student who is off track in either the fall or the spring—that is, one who is not taking a required course or achieving the performance expected in certain critical courses—must get back on track by the next semester (many students use the summer session to do so). For example, if a psychology student earned Cs in statistics and biological sciences, he or she would need to re-take these courses and earn an acceptable grade. Students who stay off-track for two semesters in a row must see an advisor to discuss special circumstances that might have affected their performance and the advisability of changing majors. Students can then use the degree-shopping process to explore alternatives, either by themselves or with the guidance of the advisor.

## PRODUCING THE TRACKS

Each track in the system represents the requirements for a particular degree program, including general education requirements, prerequisites, necessary sequences, required courses, and electives. Because the tracking program requires a clear and precise description of the requirements and any alternatives or options, the faculty responsible for each degree program must sign off on the specifications for each track and resolve any ambiguities in the program description. If the track includes any threshold grades or sequences, the faculty must approve those as well.
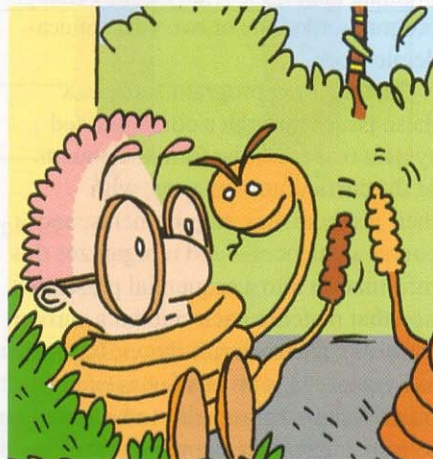
In writing the degree specifications for the tracking program, many departments discovered that their catalogue descriptions and practices included considerable ambiguity. Often, in practice, the requirements or sequences accepted by the department for students in the major did not match the catalogue's description. For instance, sometimes a prerequisite or a required GPA in core courses turned out to be preferred but not actually required. The departmental and program faculty in each academic unit needed to resolve any ambiguities of this kind to ensure clarity of expectations and precision in the descriptions used by the tracking program.

The fundamental commitment that drives tracking is an agreement between the university and the students. The University of Florida guarantees to provide a sufficient number of seats in required or prerequisite courses to allow students to stay on track. It can do this because the system can determine how many seats in which courses will be required to keep enrolled students on track—information that is extremely helpful for course and enrollment management.

But to ensure that the courses offered and the number of sections available match the number of students who will need the courses, the faculty must commit to offering critical courses in sufficient numbers at the point in the sequence when they are needed. This was a new way of arranging teaching schedules. In many departments, faculty traditionally taught courses when they wanted to teach them, and departments offered the number of sections the faculty appeared willing to teach.

To enable departments to implement this new form of course management, the provost's office provided funding to increase sections wherever required to meet student demand. In Florida, the legislature reinforced its support of this student-centered approach to improving

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graduation rates by providing a special one-time appropriation of $5 million.

The tracking program also follows students' behavior during registration by reporting what courses they attempt to register for and whether the registration program offered them a seat. This allows an effective response to concerned parents who complain that their child needed a required english course but could not find a seat. The tracking program usually shows that while the student tried to register for English at 11 a.m. on Wednesday and failed to get into the course, he or she also rejected the open section of English at 8 a.m. on Monday. The parents then redirect their concern toward their child.

## STUDENT REACTION

Although initially many people thought the tracking program might not prove popular with students, the survey of graduating seniors that the University of Florida administers at five-year intervals has demonstrated otherwise. Prior to tracking, the registration and advising systems always received very low marks: In the 1993 survey, registration and advising received a satisfactory rating from only 36 percent of the students. By 1998, after the full implementation of tracking, 92 percent of students gave registration and advising a satisfactory rating, a truly phenomenal increase. This level of satisfaction has continued and increased slightly over the subsequent years.

Another indicator of the success of tracking appears in the dramatic reduction of drop-and-add activity. Prior to tracking, many students who could not find a course they needed would sign up for another course as a placeholder to maintain their full-time status. Then during add/drop they would drop the course they did not want in the hope of getting a course they needed that someone else might have dropped. This produced a great deal of course churning. In addition, because the selection of courses did not necessarily follow predictable patterns, at the end of the process, some sections of courses would remain over-enrolled and some under-enrolled. With tracking, the add/drop process—which had involved thousands of students, long lines, and much aggravation—shrank to a small fraction of its prior volume, improving everyone's experience with registration.

Finally, because under the old system students could postpone any courses they were not required to take in a particular sequence, a backlog developed. In many cases, even students who wanted to take these courses early in their majors could not do so until their senior year. This defeated the purpose of courses directed at providing core skills for students early in their academic careers, such as technical writing. Tracking makes it possible to predict the number of sections of these courses that will be needed; the campus can then staff these courses, and the students can take them when they should.

## CHANGING MAJORS

Having the tracks clearly specified for all programs allows students to degree-shop for alternative majors. The computer takes each individual student's current

## CHART 3. FOUR-YEAR GRADUATION RATE FOR FEMALES AND MALES BEFORE AND AFTER THE INTRODUCTION OF TRACKING IN 1996
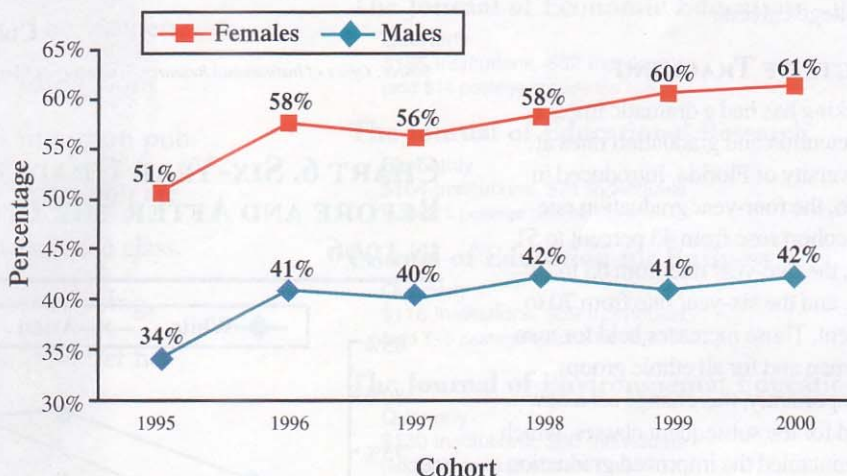
*Source: Office of Institutional Research, University of Florida*

## CHART 4. SIX-YEAR GRADUATION RATE FOR FEMALES AND MALES BEFORE AND AFTER THE INTRODUCTION OF TRACKING IN 1996
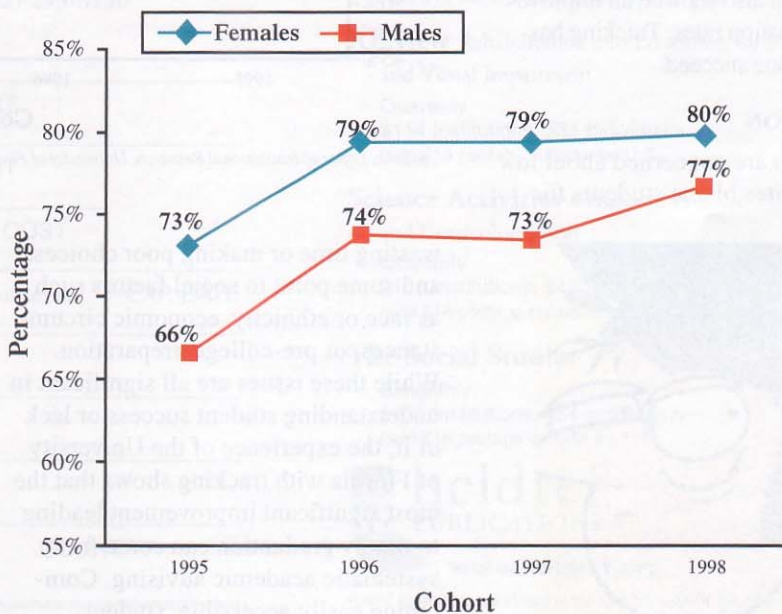
*Source: Office of Institutional Research, University of Florida*

record, matches it against the requirements for any major, and produces an alternative track that shows the requirements already fulfilled and the courses and number of credit hours remaining for that student in the alternative major. Because students can so easily explore other programs themselves online, they have more control over their options and more accurate information about the additional time that may be required to complete the new major. While many students do a lot of degree shopping, the actual numbers who change majors remains about the same as before tracking. As noted above, very few students change majors more than once during their college careers.

## EFFECTS OF TRACKING

Tracking has had a dramatic impact on the retention and graduation rates at the University of Florida. Introduced in fall 1996, the four-year graduation rate for this cohort rose from 43 percent to 51 percent, the five-year rate from 65 to 71 percent, and the six-year rate from 70 to 76 percent. Those increases held for men and women and for all ethnic groups. Most importantly, this change set a new standard for the subsequent classes, which have maintained the improved graduation rates even though entering students' SAT scores have increased only modestly.

Although the greatest change affected students entering in 1996, whose entire college career took place within the tracking system, all classes of students enrolled in the university when tracking began also showed an improvement in graduation rates. Tracking has helped everyone succeed.

## CONCLUSION

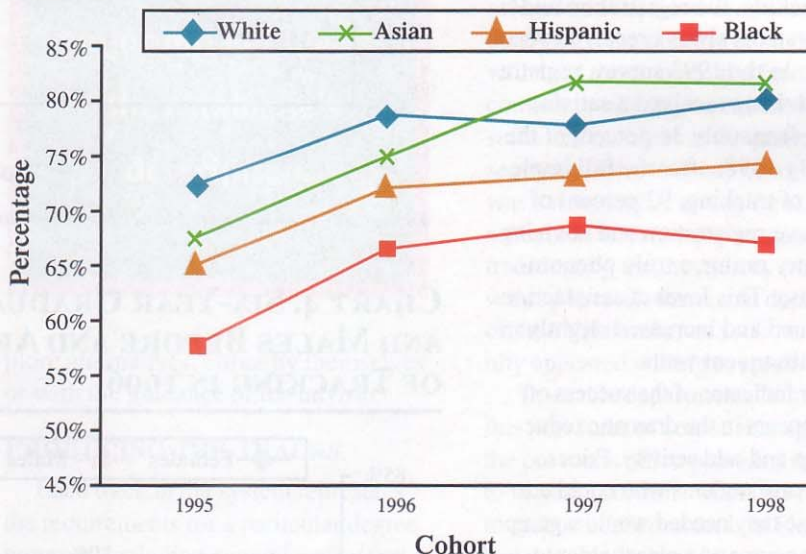Some who are concerned about low graduation rates blame students for
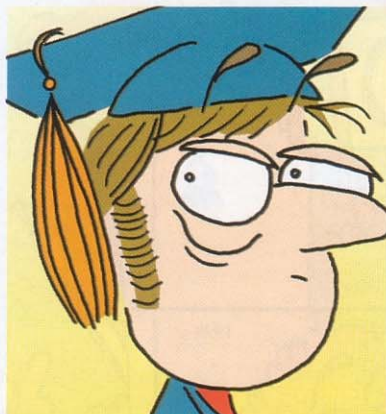
## CHART 5. FOUR-YEAR GRADUATION RATE BY ETHNICITY BEFORE AND AFTER THE INTRODUCTION OF TRACKING IN 1996
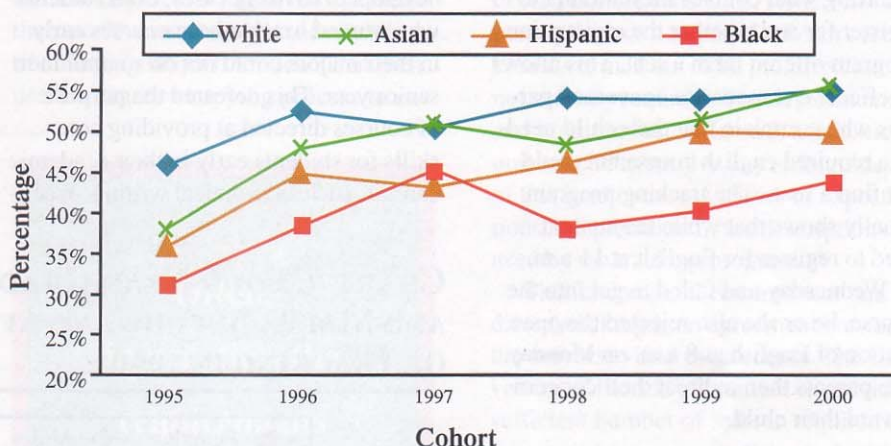


*Source: Office of Institutional Research, University of Florida*

## CHART 6. SIX-YEAR GRADUATION RATE BY ETHNICITY BEFORE AND AFTER THE INTRODUCTION OF TRACKING IN 1996



*Source: Office of Institutional Research, University of Florida*

wasting time or making poor choices, and some point to social factors such as race or ethnicity, economic circumstances, or pre-college preparation. While these issues are all significant in understanding student success or lack of it, the experience of the University of Florida with tracking shows that the most significant improvement leading to timely graduation can come from systematic academic advising. Combining easily accessible, student-centered information about programs and academic progress with focused personal help for students can make a big difference when it is also coupled with an institutional commitment to provide the courses students must take to complete their degrees—at the time they need to take them. The tracking methodology requires no dramatic changes in the design of degree programs and no major curricular innovations. It simply makes explicit and effective the academic expectations that students must meet. ⋐