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Does the Advertising Effect of Athletics Impact Academic Rankings?

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Executive Summary

The study presented here examines the relationship between athletic success and academic quality among Division I universities. The analysis begins by revisiting models that have been previously examined by other researchers. The current literature is then extended using a new model incorporating academic rankings. The previously used models incorporate objective measures of academic quality. The new model presented here uses rankings which have a subjective input. It is then examined to see whether the subjective opinions present in the academic rankings are influenced by athletic success.

The analysis supports the assertion that successful football programs enhance the academic mission of the university through improved graduation rates and median SAT scores. Basketball is not found to have a significant impact on either of these measures. However, when using a subjective measure of academic quality, both football and basketball success have a positive impact on academic rankings. It is concluded that increased exposure from athletic success may improve university perceptions resulting in improved rankings.

I. Introduction

The contribution of successful athletic programs to the academic mission of the university is a matter that is often debated. While the issue makes for fine leisurely discussion, it also holds legitimate implications for university policy makers. For example, university admission officers may be interested to know if the hypothesized advertising effect of athletics has an impact on applicant pools. For a successful athletic program, this effect is said to serve as a marketing tool for the university by increasing name exposure, recognition, and ultimately the number of applicants. In a similar way, it has been put forth that students searching for a college consider more than academics alone. Students are likely searching for the "college experience" not simply a college. Academics are only a single component in a utility function incorporating entertainment, extracurricular activities, and so forth, including big-time sporting events.

Furthermore, university officials may want to know if successful athletic programs complement the academic mission by increasing the overall academic quality of the school, either by increasing the quality of students or the number of students to select from. Theoretically, even if the average quality of students applying remains unchanged, a larger applicant pool allows the university to be more selective without decreasing admissions, or alternatively admissions may be increased while keeping student quality constant at the same time increasing tuition revenues. In each case, academic quality may be increased either by directly improving student quality or generating larger revenues that can be used to improve academic inputs.

The analysis presented here examines the impact of big-time college athletics (division I men's basketball and football) on the academic quality of national research

institutions. This work begins by estimating variants of two widely used models; one which uses median SAT scores as the dependent variable and the other, six-year graduation rates. Both of these dependent variables are objective measures of academic quality. Extending the current literature a third model is incorporated that uses a subjective measure of academic quality. The *US News & World Report* annual college rankings have a significant subjective element incorporated in them in the form of a peer assessment survey. The *US News* rankings receive a great deal of attention and should therefore offer interesting insight into the policy issues discussed above.

II. Literature Review

The empirical literature examining the impact of intercollegiate athletics on academic quality has largely stemmed from an article published in 1987 by McCormick and Tinsley. In their study, they analyzed entering freshman SAT scores in relation to two different measures of athletic success. The first measure, a binary variable indicated membership or non-membership in a major athletic conference, and the second measured a school's 15-year in-conference football wining percentage trend. McCormick and Tinsley concluded that for many schools a positive and significant relationship exists between athletic success and academic quality. This relationship is described as an advertising effect, produced from successful athletic programs. Following this work there have been a variety of studies published examining the effects of athletics on the academic mission of the university.

Researchers have since looked at alternative measures of academic and athletic quality and have often found conflicting results. For example, Tucker (1992) and Bremmer and Kesselring (1993) both found athletics to have a negative impact on the

academic mission of the university. Tucker used the same sample of schools as used by McCormick and Tinsley and supported their conclusion of an "advertising effect" associated with athletic success, thereby increasing SAT scores. However, it was found that athletic success had an adverse effect on graduation rates. Tucker concluded, that on average, even though higher quality students enrolled, superior athletics created an opportunity cost to studying on many students, resulting in lower graduation rates. The study by Bremmer and Kesselring examined the advertising effect hypothesis set forth by McCormick and Tinsley. Using updated data set as well as an alternative model, they found that athletic success did not have a significant impact on incoming freshman SAT scores. Bremmer and Kesselring conclude that in the course of improved model specification significant impacts on SAT scores tend to dissipate.

There is also a variety of work that supports the assertion that athletics have a positive impact on academic quality. Rishe (2003), Tucker (2004), and Mixon & Trevino (2005) examined athletic success in relation to graduation rates. In his analysis, Rishe finds that for schools with major athletic programs undergraduates have higher graduation rates. Along with graduation rates, Tucker examined the rate at which alumni supported their alma mater. It was found that football success had a significant and positive impact on both graduation rates and alumni giving rates, while basketball was insignificant in both cases. Mixon and Trevino examined freshman retention rates as well as graduation rates and found that increases in a schools football wining percentage had a positive and significant relationship on both.

Other studies that found athletics to have a positive effect on academics include Mixon (1995), and Mixon, Trevino, & Minto (2004), both examined the impact on SAT

scores. Mixon (1995) concluded that basketball success, as measured by the number of NCAA tournament appearances over a fifteen year period, had a significant and positive relationship to SAT scores. The study by Mixon et al (2004) found that football success support the admission process allowing administrators to enhance the quality of their student populations.

III. The Model and Data

The model can be generalized as:

$$\mathbf{Y} = \alpha + \beta\mathbf{X} + \varepsilon,$$

where **Y** is a dependent variable measuring academic quality, α is a constant term, **X** is a vector of institutional and athletic variables, β is a vector of coefficients on these variables, and ε is an error term.

The sample of schools used in the estimated models is drawn from a set of public and private universities that *US News & World Report* defines as National Universities-Doctoral. This categorization is based on university classifications developed by the Carnegie Foundation, and is intended to represent a group of schools that are directly comparable based upon their academic mission. Conveniently enough, this group of universities encompasses most all of the schools considered to be participating in big-time college athletics, i.e. NCAA division I schools. The sample here includes 173 schools that participate in basketball, with103 of them participating in both basketball and football. A complete list of all schools included in the sample is located in the appendix.

Three alternative dependent variables are used in the analysis; *SAT*, *GRADRATE*, and *RANK*. *SAT* is defined as the median SAT score of incoming freshman for the 2002-

03 academic year. *GRADRATE* is the percentage of freshman cohorts from 1997-98 academic year who graduated by the spring semester of the 2002-03 academic year. Lastly, *RANK* is the academic ranking assigned to a school by the 2004 edition of US News & World Report's America's Best Colleges[1].

The *US News & World Report* rankings take in a variety of academic components in their estimates. Among these components are peer assessment, student retention rates, faculty resources, student selectivity, financial resources, graduation rates, and alumni giving rates. Each of these factors is assigned a weight by *US News* based upon what they think are the most important predictors of academic quality. The most heavily weighted factor is the peer assessment survey at 25 percent. The peer assessment survey takes into account the opinions of university presidents, provosts, and deans of admission. The analysis presented here will subject athletic quality to a subjective measure of academic performance (*US News* rankings) to elicit any differences between the impact of athletics on objective and subjective measures of academic quality.

Explanatory variables for football and basketball success are indicated by *FBAVG* and *BBAVG* respectively. For a given school these variables measure a four year average (1999-2002) of the final football and/or basketball ratings assigned by USA Today's Jeff Sagarin ratings. As Rishe (2003) points out, the Sagarin ratings have two advantages over methods such as the Associated Press (AP) polls. The first reason is that Jeff Sagarin has developed an accepted statistical model to measure athletic success, unlike the AP polls which are based on the votes of sportswriters. The second advantage of the Sagarin

[1] US News & World Report numerically ranks what they call first and second tier schools. The remaining third and fourth tier schools are listed alphabetically within their respective tiers. For example, the third tier schools are ranked between 127 and 186, but are listed alphabetically without their explicit numerical rank. The schools used in this sample that fell in either the third or fourth tier are assigned the average rank for that tier.

ratings is that they allow comparison across all division I schools, whereas conference affiliation, poll rankings, and tournament appearances only allow comparisons among schools that are considered athletic heavyweights.

The ratings are used as four-year averages to more accurately measure recent athletic success, or in other words remove any "Cinderella" effect that may be present. For example, George Mason's basketball team finished 155th with a rating of 73.86 in the 2005 Sagarin ratings; in 2006 they ranked 15th with a rating of 87.34, along with a final four appearance. Using the more recent rating alone would likely overstate the presence of big-time basketball success at George Mason. Following this logic, the four-year averages better account for universities that consistently make it their business to have top athletic programs versus those that do not.

Along with the athletic and academic variables described above, there are a number of independent variables controlling for institutional characteristics. The selection of these variables is largely based on what previous researchers have used. However, it should be mentioned that this was not the only consideration. Previous research has also used independent variables such as tuition levels, and the selectivity of admissions. These types of variables are not used here, as they likely suffer from endogeneity.

The variable *PUBLIC* takes on the value of one if a school is a public institution and zero if it is private. *ENROLL* measures the number of full-time-equivalent students enrolled at a university. *RACE* indicates the percentage of full-time-equivalent African American students. *AGE* is the number of years a university has been in existence.

STD/FAC is a schools student faculty ratio. *LIBVOL* measures the number of volumes in a university's library. Finally *MIDWEST, WEST, SOUTH,* and *NORTH* are a set of

Table 1: Variable Definition and Descriptive Statistics

Variable	Description	Mean	Std. Dev.	Min	Max	Obs
GRADRATE	six-year graduation rate	0.6176936	0.1815692	0.122	0.978	173
MEDSAT	median SAT score	1144.364	123.9683	885	1495	173
RANK	US News Ranking	116.763	68.30171	1	219.5	173
PUBLIC	1=public, 0=private	0.734104	0.4430916	0	1	173
ENROLL	full-time-equivalent enrollment	14.35707‡	7.560825‡	2.531‡	35.862‡	173
RACE	% of full-time-equivalent students that are Black	0.0758029	0.0624998	0.0040585	0.3323898	173
AGE	age of the university	128.9249	56.77588	30	367	173
STD/FAC	student-faculty ratio	12.13147	4.495912	2.324355	24.08628	173
LIBVOL	number of volumes in the library	2.576889†	2.664269†	0.141578†	19.89114†	173
MIDWEST	1=school located in the mid-west, 0=otherwise	0.2427746	0.4300045	0	1	173
SOUTH	1=school located in the south, 0=otherwise	0.2485549	0.4334297	0	1	173
WEST	1=school located in the west, 0=otherwise	0.2890173	0.4546218	0	1	173
NORTH	1=school located in the north, 0=otherwise	0.2196532	0.4152134	0	1	173
BBAVG	four-year avg Sagarin basketball rating	76.35223	7.461074	58.1675	94.615	173
FBAVG	four-year avg Sagarin football rating	71.59699	11.30545	42.145	97.4025	103

† (x 106) ‡ (x 103)

categorical variables indicating the region in which a university is located. Table 1 contains a complete list of all variables, their definitions, and descriptive statistics.

IV. Empirical Analysis

The empirical analysis presented here is separated into three general models. Within each model individual equations are estimated for football effects and basketball effects. The first two models revisit previously used academic dependant variables, *GRADRATE* and *MEDSAT*. These models will be useful for comparison to previous research and the new analysis presented here. The new third model presented here uses *RANK* as the dependent academic variable. The subsequent models are estimated using ordinary-least-squares and robust variance estimates.

Graduation Rate and Median SAT Models

A priori theory suggests the expected sign on many of the independent variables in the *GRADRATE* and *MEDSAT* models, while others are uncertain. On average, private universities tend to be more selective through admissions and tuition policies; therefore the variable *PUBLIC* is expected have a negative sign. No prediction is made on the sign of *ENROLL.* As Tucker (1992) points out smaller universities may offer smaller classes and faculty who are concerned with teaching, resulting in a positive academic impact. However it may also be the case that larger universities have more resources, courses, and degree options that promote academics. The coefficient on *RACE* is expected to take a negative sign. On average if a disadvantaged socioeconomic background exists among minorities, then it is expected that schools with a larger minority student population will have lower SAT scores and graduation rates. The *AGE* of a university is expected to have a positive effect on academic quality. In general, older schools are richer in academic tradition and prestige, resulting in a positive impact on academics. The student-faculty ratio (*STD/FAC*) is a measure of faculty resources available to students. Therefore, the more students per faculty member should have a negative effect on the outcome measures. A greater number of volumes (*LIBVOL*) in a university's library offers students added physical learning resources, ceteris paribus, and therefore is expected to have a positive impact on academic quality. The regional categorical variables *MIDWEST, WEST,* and *SOUTH* are expected to have a negative sign when *NORTH* is omitted as the comparison region. Universities located in the northern region of the United Sates are traditionally very old well respected institutions with a rich academic heritage. For example, the well respected Ivy League schools are all located in

the northeast region. Finally, based on prior research it is expected that the sports variables *BBAVG* and *FBAVG* will hold a positive sign; however there are no assumptions regarding the significance of these variables. Tables 2 and 3 contain the regression estimates of the *GRADRATE* and *MEDSAT* models respectively.

Table 2: Graduation Rate Models

Dependant Variable: GRADRATE

	Football		Basketball	
Variable	Coefficient (t-statistic)		Coefficient (t-statistic)	
CONSTANT	**0.6840287**	**(7.93)*** **	**0.5976404**	**(5.58)*** **
PUBLIC	**-0.2377502**	**(-8.06)*** **	**-0.2014525**	**(-8.69)*** **
*ENROLL**10^3	**0.0035675**	**(2.18)** **	**0.0046236**	**(3.22)*** **
RACE	**-0.9692117**	**(-5.35)*** **	**-0.9803977**	**(-5.98)*** **
AGE	0.0004479	(1.28)	0.0006491	**(2.79)*** **
STD/FAC	**-0.0054056**	**(-2.18)** **	**-0.0038071**	**(-1.76)***
*LIBVOL**10^6	0.0131701	(1.66)	0.0122982	**(1.96)***
MIDWEST	**-0.0605188**	**(-2.08)** **	**-0.0783414**	**(-2.96)*** **
SOUTH	-0.021773	(-0.66)	-0.003081	(-0.10)
WEST	**-0.1306161**	**(-3.84)*** **	**-0.1028789**	**(-3.53)*** **
BBAVG	—	—	0.0020459	(1.55)
FBAVG	**0.0025607**	**(3.00)** **	—	—
R-Squared	.6616		.6638	
No. of Observations	n=103		n=173	

Significance at (.01)*** (.05)** (.10)*

Table 3: Median SAT Models

Dependant Variable: MEDSAT

	Football		Basketball	
Variable	Coefficient (t-statistic)		Coefficient (t-statistic)	
CONSTANT	**1197.885**	**(19.36)*** **	**1231.763**	**(17.26)*** **
PUBLIC	**-194.1551**	**(-7.54)*** **	**-144.8235**	**(-8.62)*** **
*ENROLL**10^3	**2.963734**	**(2.22)** **	**3.337836**	**(3.45)*** **
RACE	**-303.1578**	**(-1.97)***	**-315.0639**	**(-2.52)** **
AGE	0.2316366	(1.07)	**0.3530005**	**(2.30)** **
STD/FAC	**-5.596772**	**(-3.13)*** **	**-6.068047**	**(-4.31)*** **
*LIBVOL**10^6	10.79972	(2.43)	**12.32259**	**(3.00)*** **
MIDWEST	-44.73614	(-1.69)	**-72.46015**	**(-3.65)*** **
SOUTH	3.220441	(0.11)	1.344934	(0.06)
WEST	-43.23467	(-1.41)	**-47.02271**	**(-2.24)** **
BBAVG	—	—	0.2891297	(0.31)
FBAVG	**1.535711**	**(2.23)** **	—	—
R-Squared	.6580		.6807	
No. of Observations	n=103		n=173	

Significance at (.01)*** (.05)** (.10)*

Referring to the aforementioned tables verify that all of the coefficients retain their expected signs when significant. The coefficient on *ENROLL* is negative and significant across all of the models. Overall the above models produce relatively high and stable R-Squared estimates across all of the equations, consistently explaining 65-68 percent of the variation in graduation rates and SAT scores. The athletic variable *FBAVG* is positive and significant in both models. The graduation rate model suggests that on average, a one unit increase in the Sagarin football ratings results in a .0026 increase in a schools six-year graduation rate. Similarly, the same one unit increase in football ratings results in an increase of 1.54 points in a schools median SAT score. Conversely, the variable *BBAVG* fails to produce significant results in either model. These results however tend to be consistent with most of the existing literature. There are a number of studies that find football success to have a positive and significant impact on graduation rates and SAT scores, while there are relatively few studies that find basketball to have a significant impact on either measure.

The US News & World Report Ranking Model

The final model presented here uses *RANK* as the dependent variable. As discussed earlier, US News & World Report's calculation of academic rank has a significant subjective element, in the form of the peer assessment survey. It is possible that part of the subjectivity of school ranking is influenced by athletic success. If this is the case, then a positive response to athletic success among peers should on average improve academic ranking. However, a negative response should produce the opposite effect.

The following models use the same institutional characteristics as independent variables as the previous models. However, the expected sign on these variables is opposite the expected sign from the prior estimates. The measure *RANK* indicates improved academic quality as it decreases, whereas *MEDSAT* and *GRADRATE* indicate improved academics through increases. In other words, an outstanding school should have a low rank and high median SAT scores and graduation rates.

Table 4 shows the results for the ranking models. Once again, all of the coefficients retain their expected sign when significant. Although slightly lower, the R-Squared estimates for these models are comparable to those of the previous equations,

Table 4: US News & World Report Ranking Models

Dependant Variable: *RANK*

	Football		Basketball	
Variable	Coefficient (t-statistic)		Coefficient (t-statistic)	
CONSTANT	**140.7356**	**(3.30)*** **	**174.7413**	**(4.38)*** **
PUBLIC	**90.31519**	**(8.68)*** **	**68.9717**	**(7.78)*** **
ENROLL$*10^3$	**-1.92767**	**(-2.62)*** **	**-2.326937**	**(-3.85)*** **
RACE	**261.6689**	**(3.16)*** **	**295.2197**	**(4.76)*** **
AGE	-0.232079	(-1.58)	**-0.2168752**	**(-2.42)** **
STD/FAC	**3.756117**	**(3.68)*** **	**3.242575**	**(3.89)*** **
LIBVOL$*10^6$	-4.488858	(-1.40)	**-4.517117**	**(-1.78)***
MIDWEST	6.97943	(0.39)	**25.4599**	**(2.34)** **
SOUTH	1.041983	(0.06)	-1.069183	(-0.09)
WEST	20.36707	(1.05)	**21.73629**	**(1.86)***
BBAVG	—	**—**	**-1.434341**	**(-2.76)*** **
FBAVG	**-1.440602**	**(-3.48)*** **	—	**—**
R-Squared	.6583		.6243	
No. of Observations	n=103		n=173	

Significance at (.01)*** (.05)** (.10)*

explaining 62-66 percent of the variation in academic rank. However, the most interesting result here is that *BBAVG* is highly significant in the ranking model. The first two measures, *MEDSAT* and *GRADRATE* are essentially objective measures of academic quality, whereas *RANK* has a significant subjective element to it. In the previous two models, the Sagarin basketball average failed to be even mildly significant. The ranking

model suggests that on average, a one unit increase in a schools average Sagarin basketball rating results in significant 1.43 unit improvement in academic rank.

The peer assessment component of the US News rankings is heavily weighted on the opinions of university administrators. The findings here suggest that the intangible perceptions of university administrators may be positively influenced by athletic success; the advertising effect of athletics may reach more than just prospective students. Prominence in athletics may have the effect of increasing name recognition and awareness of a university. This increased awareness may then result in improved scores on the US News peer assessment survey.

V. Conclusions

The analysis presented here supports the assertion that quality football programs have a positive impact on academic quality through improved graduation rates and median SAT scores. However it is found that success in basketball programs has little effect on these objective measures. The new model presented here incorporates an academic measure that has elements of subjectivity. In the presence of a subjective measure, basketball has a positive and significant effect on academic rankings. Students may not be the only ones influenced by the advertising effect associated with successful athletic programs. On average schools with successful basketball and/or football programs receive better rankings from *US News & World Report*. The findings here suggest that when university administrators are responding to *US News'* peer assessment survey they consider more then academics alone. It is possible that perceptions of university quality may be improved through the recognition resulting from athletic success.

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Appendix

Sample Universities

AMERICAN UNIVERSITY
ARIZONA STATE UNIVERSITY AT THE TEMPE CAMPUS
AUBURN UNIVERSITY MAIN CAMPUS
BALL STATE UNIVERSITY
BAYLOR UNIVERSITY
BOSTON COLLEGE
BOSTON UNIVERSITY
BOWLING GREEN STATE UNIVERSITY-MAIN CAMPUS
BRIGHAM YOUNG UNIVERSITY
BROWN UNIVERSITY
CENTRAL MICHIGAN UNIVERSITY
CLEMSON UNIVERSITY
CLEVELAND STATE UNIVERSITY
COLLEGE OF WILLIAM AND MARY
COLORADO STATE UNIVERSITY
COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK
CORNELL UNIVERSITY
DARTMOUTH COLLEGE
DEPAUL UNIVERSITY
DREXEL UNIVERSITY
DUKE UNIVERSITY
DUQUESNE UNIVERSITY
EAST CAROLINA UNIVERSITY
EAST TENNESSEE STATE UNIVERSITY
FLORIDA ATLANTIC UNIVERSITY-BOCA RATON
FLORIDA INTERNATIONAL UNIVERSITY
FLORIDA STATE UNIVERSITY
FORDHAM UNIVERSITY
GEORGE MASON UNIVERSITY
GEORGE WASHINGTON UNIVERSITY
GEORGETOWN UNIVERSITY
GEORGIA INSTITUTE OF TECHNOLOGY-MAIN CAMPUS
GEORGIA STATE UNIVERSITY
HARVARD UNIVERSITY
HOFSTRA UNIVERSITY
IDAHO STATE UNIVERSITY
ILLINOIS STATE UNIVERSITY
INDIANA STATE UNIVERSITY
INDIANA UNIVERSITY-BLOOMINGTON
INDIANA UNIVERSITY-PURDUE UNIVERSITY-INDIANAPOLIS
IOWA STATE UNIVERSITY
KANSAS STATE UNIVERSITY
KENT STATE UNIVERSITY-MAIN CAMPUS
LEHIGH UNIVERSITY
LOUISIANA STATE UNIV & AG & MECH
LOUISIANA TECH UNIVERSITY
LOYOLA UNIVERSITY CHICAGO
MARQUETTE UNIVERSITY
MIAMI UNIVERSITY-OXFORD
MICHIGAN STATE UNIVERSITY
MISSISSIPPI STATE UNIVERSITY
MONTANA STATE UNIVERSITY-BOZEMAN
NEW MEXICO STATE UNIVERSITY-MAIN CAMPUS
NORTH CAROLINA STATE UNIVERSITY AT RALEIGH
NORTHERN ARIZONA UNIVERSITY
NORTHWESTERN UNIVERSITY
OAKLAND UNIVERSITY
OHIO STATE UNIVERSITY-MAIN CAMPUS
OHIO UNIVERSITY-MAIN CAMPUS
OKLAHOMA STATE UNIVERSITY-MAIN CAMPUS
OLD DOMINION UNIVERSITY
OREGON STATE UNIVERSITY
PENNSYLVANIA STATE UNIVERSITY-MAIN CAMPUS
PEPPERDINE UNIVERSITY
PORTLAND STATE UNIVERSITY
PRINCETON UNIVERSITY
PURDUE UNIVERSITY-MAIN CAMPUS
RICE UNIVERSITY
RUTGERS UNIVERSITY-NEW BRUNSWICK
SAINT LOUIS UNIVERSITY-MAIN CAMPUS
SAN DIEGO STATE UNIVERSITY
SETON HALL UNIVERSITY
SOUTHERN ILLINOIS UNIVERSITY CARBONDALE
SOUTHERN METHODIST UNIVERSITY
STANFORD UNIVERSITY
SUNY AT ALBANY
SUNY AT BINGHAMTON
SUNY AT BUFFALO
SUNY AT STONY BROOK
SYRACUSE UNIVERSITY
TEMPLE UNIVERSITY
TEXAS A & M UNIVERSITY
TEXAS CHRISTIAN UNIVERSITY
TEXAS TECH UNIVERSITY
THE UNIVERSITY OF ALABAMA
THE UNIVERSITY OF MONTANA-MISSOULA
THE UNIVERSITY OF TENNESSEE
THE UNIVERSITY OF TEXAS AT ARLINGTON
THE UNIVERSITY OF TEXAS AT AUSTIN
THE UNIVERSITY OF TEXAS AT EL PASO

TULANE UNIVERSITY OF LOUISIANA
UNIVERSITY OF AKRON MAIN CAMPUS
UNIVERSITY OF ALABAMA AT BIRMINGHAM
UNIVERSITY OF ARIZONA
UNIVERSITY OF ARKANSAS MAIN CAMPUS
UNIVERSITY OF CALIFORNIA-BERKELEY
UNIVERSITY OF CALIFORNIA-IRVINE
UNIVERSITY OF CALIFORNIA-LOS ANGELES
UNIVERSITY OF CALIFORNIA-RIVERSIDE
UNIVERSITY OF CALIFORNIA-SANTA BARBARA
UNIVERSITY OF CENTRAL FLORIDA
UNIVERSITY OF CINCINNATI-MAIN CAMPUS
UNIVERSITY OF COLORADO AT BOULDER
UNIVERSITY OF CONNECTICUT
UNIVERSITY OF DAYTON
UNIVERSITY OF DELAWARE
UNIVERSITY OF DENVER
UNIVERSITY OF FLORIDA
UNIVERSITY OF GEORGIA
UNIVERSITY OF HARTFORD
UNIVERSITY OF HAWAII AT MANOA
UNIVERSITY OF HOUSTON-DOWNTOWN
UNIVERSITY OF IDAHO
UNIVERSITY OF ILLINOIS AT CHICAGO
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
UNIVERSITY OF IOWA
UNIVERSITY OF KANSAS MAIN CAMPUS
UNIVERSITY OF KENTUCKY
UNIVERSITY OF LOUISIANA AT LAFAYETTE
UNIVERSITY OF LOUISVILLE
UNIVERSITY OF MAINE
UNIVERSITY OF MARYLAND-BALTIMORE
UNIVERSITY OF MARYLAND-COLLEGE PARK
UNIVERSITY OF MASSACHUSETTS-AMHERST
UNIVERSITY OF MEMPHIS
UNIVERSITY OF MIAMI
UNIVERSITY OF MICHIGAN-ANN ARBOR
UNIVERSITY OF MINNESOTA-TWIN CITIES
UNIVERSITY OF MISSISSIPPI MAIN CAMPUS
UNIVERSITY OF MISSOURI-COLUMBIA
UNIVERSITY OF MISSOURI-KANSAS CITY
UNIVERSITY OF NEBRASKA AT LINCOLN
UNIVERSITY OF NEVADA-LAS VEGAS
UNIVERSITY OF NEVADA-RENO
UNIVERSITY OF NEW HAMPSHIRE-MAIN CAMPUS
UNIVERSITY OF NEW MEXICO-MAIN CAMPUS
UNIVERSITY OF NEW ORLEANS
UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
UNIVERSITY OF NORTH TEXAS
UNIVERSITY OF NOTRE DAME
UNIVERSITY OF OKLAHOMA NORMAN CAMPUS
UNIVERSITY OF OREGON
UNIVERSITY OF PENNSYLVANIA
UNIVERSITY OF PITTSBURGH-MAIN CAMPUS
UNIVERSITY OF RHODE ISLAND
UNIVERSITY OF SAN DIEGO
UNIVERSITY OF SAN FRANCISCO
UNIVERSITY OF SOUTH ALABAMA
UNIVERSITY OF SOUTH CAROLINA-COLUMBIA
UNIVERSITY OF SOUTH FLORIDA
UNIVERSITY OF SOUTHERN CALIFORNIA
UNIVERSITY OF THE PACIFIC
UNIVERSITY OF TOLEDO
UNIVERSITY OF TULSA
UNIVERSITY OF UTAH
UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLL
UNIVERSITY OF VIRGINIA-MAIN CAMPUS
UNIVERSITY OF WASHINGTON-SEATTLE CAMPUS
UNIVERSITY OF WISCONSIN-MADISON
UNIVERSITY OF WISCONSIN-MILWAUKEE
UNIVERSITY OF WYOMING
UTAH STATE UNIVERSITY
VANDERBILT UNIVERSITY
VIRGINIA COMMONWEALTH UNIVERSITY
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIV
WAKE FOREST UNIVERSITY
WASHINGTON STATE UNIVERSITY
WEST VIRGINIA UNIVERSITY
WESTERN MICHIGAN UNIVERSITY
WICHITA STATE UNIVERSITY
WRIGHT STATE UNIVERSITY-MAIN CAMPUS
YALE UNIVERSITY