

# The Cost of Chaos in the Curriculum

by Elizabeth D. Capaldi Phillips & Michael B. Poliakoff



*Perspectives on Higher Education*

American Council of Trustees and Alumni | Institute for Effective Governance



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# About the Authors

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# The Cost of Chaos in the Curriculum

**SUMMARY:** *The baccalaureate degree offered by American colleges and universities has developed over time into a peculiar blend of a focused major along with a wide range of courses that students choose largely at will. Even the so-called core curriculum, or general education, commonly contains a broad range of distributional choices, sometimes numbering into the thousands. Throughout the nation's history, leading educators have questioned the effectiveness of a system built on the specialized interests of faculty and often-uninformed choices of young adults. Equally disturbing is the enormous cost of the ever-increasing number of majors and the vast number of elective or distributional courses, often under-enrolled, that departments list. Chaos in the curriculum can have dire consequences for an institution's long-term fiscal future, while doing untold damage to students' academic progress, evident in lower graduation rates and in the absence of the intellectual community that was once the hallmark of a rich liberal arts education.*

Happily, it doesn't have to be this way. In this essay, the authors, with combined administrative experience at six major universities or university systems, analyze the causes and effects of large-scale curricular expansion and, more importantly, identify available remedies.

There are a number of strategies trustees and administrators could explore for making a more coherent and cost-effective curriculum:

- Consolidating departments into larger, interdisciplinary units;
- Prescribing a limited number of general education courses that are required for all students;
- Eliminating narrow, niche courses;
- Ensuring enough sections are offered in the fundamental general education courses; and
- Requiring a minor rather than allowing students to take a large number of random electives.

Once focused on the problems of expansive course offerings, institutions will undoubtedly devise additional strategies to meet their unique circumstances. Reducing the bloated list of general education choices offers amazing cost reductions—10% of educational costs per semester in the two institutions examined in this essay. And there would be further savings from reduction of the number of free electives. Administrators and trustees, working with faculty, can take the lead to reduce curricular bloat and create an undergraduate degree that is both cost-effective and intellectually coherent.



## The Cost of College and the Quality of Degrees

The increase in the price of a college education has been nothing short of staggering. *Bloomberg News* reports that between 1985 and 2013, the sticker price of college tuition and fees increased 538%, almost 4½ times the consumer price index, which rose 121% during the same period. Even the inflation of medical care costs—286%—was modest in comparison.<sup>1</sup> The Organization for Economic Cooperation and Development (OECD) shows that the United States far outspends every other developed nation per pupil in higher education: Combined public and private funding puts our expenditure at almost twice the average of other OECD nations. Yet our college outcomes are at best lackluster. The United States ranks 12<sup>th</sup> among OECD nations for the percentage of adults ages 25–34 holding college

degrees, and our graduation rates hover near the bottom of the OECD charts.<sup>2</sup> Perhaps worst of all is the limited level of skills and knowledge of many college graduates. Even after making allowances for different reporting protocols and patterns of college completion, the results fully merit the impatience that has risen to the level of Congress and the White House. Both the financial costs and the decline in educational outcomes can be traced in large measure to failure to maintain efficient, coherent curricular requirements.

This booklet will show the cost of failing to control curricular bloat. Even more important, it will describe one remedy that has already proven itself to be highly effective and will point to other promising strategies.



## Curricular Quality and Efficiency

Today the undergraduate curriculum at major universities has three components: general education requirements; requirements for the major; and “free electives,” courses that fulfill neither general education nor major requirements. The historical development of this remarkably open, if not chaotic, approach to higher education is a peculiarly American phenomenon. Already in the early years of the twentieth century, it was not unusual for a leading university to offer as many as 500 courses—and that number, as we will see, has only continued to grow.<sup>3</sup>

### Early American Higher Education

American higher education had its beginnings in the colonial colleges created to provide education for men training to become ministers or leaders in their communities. The curriculum was largely prescribed, based on Latin and Greek authors and Christian doctrine, with significant attention paid to the traditional liberal arts and sciences of the medieval university. From the beginning, the liberal arts and sciences conducive to public leadership remained at the heart of the curriculum, even as practical subjects of study emerged. Thomas Jefferson, Benjamin Franklin, Benjamin Rush, and other founders of the nation wrote prominently about the

importance of a broad-based liberal arts curriculum, which seemed to bode well for the liberal arts' place in the new nation.<sup>4</sup> Even Harvard President Charles William Eliot, who advocated giving students the widest range of choices, firmly articulated in his inaugural address of 1869: "Unless a general acquaintance with many branches of knowledge . . . be attainable by great numbers of men, there can be no such thing as an intelligent public opinion; and in the modern world the intelligence of public opinion is the one indispensable condition of social progress."<sup>5</sup>

### **The German University and the Challenge to Liberal Arts**

The privileged position of the liberal arts and sciences in higher education, however, would soon give way. The German research university emerged shortly after the turn of the nineteenth century: At its best, as sociologist Edward Shils observes, it brought "insistence on the crucial importance of methodical investigation, and systematic teaching of serious matters on the basis of the result of that methodical investigation."<sup>6</sup> American educators quickly began to explore this approach to higher education. Beginning with Johns Hopkins and Harvard—and followed by Clark, Cornell, Chicago, Michigan, and others—the German research-university model became the standard for these institutions, bringing research and graduate education to American higher education, along with the notion that a Ph.D. is the appropriate entry degree for university teaching.<sup>7</sup> The structure suited the needs of America's rapidly expanding economy and the nation's deep tradition of practical education, and it has had an extraordinary impact on the advancement of knowledge.

But in the collision of the German research-university model and the liberal arts, the liberal arts lost. There was a cost to the development of an increasingly specialized faculty and the formalization of specialized majors and minors. The vision that President Eliot had expressed in 1869 regarding broad intellectual understanding could not be aligned with a curriculum based on choice, pleasing to students and pleasing to faculty but hardly ensuring the "acquaintance with many branches of knowledge." An early

twentieth-century Harvard dean, with an eye on cost and quality, tellingly observed, “The only way that I can see of improving, with our present force, our already rich and varied instruction is through increased stress on offering what should be taught rather than what the teachers wish to teach.”<sup>8</sup> Princeton President James McCosh perceived the inevitable damage of the path on which Harvard had embarked and eloquently denounced it:

Tell it not in Berlin and Oxford that the once most illustrious university in America no longer requires its graduates to know the most perfect language, the grandest literature, the most elevated thinking of all antiquity. Tell it not in Paris, tell it not in Cambridge in England, tell it not in Dublin, that Cambridge in America does not make mathematics obligatory on its students.<sup>9</sup>

### **The Elective**

A final, key component of the emerging structure modeled on the German research university was the elective course. Free electives, which do not form part of the curriculum of any major nor count toward fulfilling general education requirements, allow faculty to teach their specialties. In theory, this practice could lead to more rigorous courses. More often, however, the roster of electives results in an array of courses that correspond to faculty interests or a department’s desire to boost enrollment through entertaining, popularized topics. As historians of higher education Arthur Cohen and Carrie Kisker write, the end result was that the “uniform college experience disappeared, along with the idea that the faculty in particular—or the curriculum in general—was in any way responsible for what became of the students.”<sup>10</sup>

Today, faculty are often in competition for students, and one can find in college catalogs courses on vampires, zombies, pop singers, and sexual expression that have supplanted crucial exposure to essential skills and knowledge. The corrosiveness of overspecialized teaching within liberal education has become apparent.

## The Consequences

There are three consequences of this specialized and complex curricular structure in contemporary American colleges and universities:

1. Overall, the quality of undergraduate education has decreased, with no guarantee a recipient of a college degree will display the skills and knowledge that once signified a college-educated person and that employers seek in their new hires.<sup>11</sup> Too many choices in the curriculum, moreover, produce a lack of coherence and cause opportunities for intellectual community to be missed, opportunities that a common core—a common foundation—would provide.
2. The confused state of the curriculum is a primary cause of low retention and graduation rates. The data show that having too many choices is particularly detrimental to the success of those from lower socioeconomic backgrounds.<sup>12</sup> Thus, the wide range of choices stands in the way of the social mobility that college is intended to advance—and which was once a hallmark of a college education in the United States.
3. The current curriculum has become unsustainably expensive as the number of majors, number of courses that fulfill general education requirements, and number of free electives all have exploded.

The state of the curriculum in U.S. universities is thus—too often—one of high cost with poor outcomes.



## The Fractionated Curriculum

### Multiplication of Majors and Degree Programs

From 1985 to 2012 at public four-year institutions—from baccalaureate-only schools to research-intensive universities—the median increase in number of disciplines offering degrees was 60%, a rate of nearly 1% per year. It is true that enrollments at public four-year institutions

have increased more than 50% during the timeframe,<sup>13</sup> but increasing enrollments does not require increasing degree program offerings. The proliferation of degrees stems largely from increased specialization in the academic world. To some extent, this indicates a productive expansion of intellectual realms. Where there was once a single history program, there might now be degrees in African Studies, East Asian Studies, Latin American Studies, and others. There are degrees in creative writing, linguistics, and literature, not just English. Animal physiology and behavior, botany, ecology, cell and developmental biology, conservation biology, genetics, and others are all variations of biology degrees. But there are downsides as well to this growth—financial and, ultimately, intellectual.

The explosion of degrees results in a corresponding and expensive explosion of departments since the academic department is the organizational unit for academic degree programs. Department status is a sign of maturity for a field, and new fields establish their longevity and ability to compete for resources in the university by becoming departments. At the beginning of the twentieth century, Columbia had 42 departments; by the start of the twenty-first century, this had more than doubled, with traditional departments such as history and literature dividing into more narrowly focused ones.<sup>14</sup> The budget, the catalogue, the faculty, and academic buildings are all organized around departments. The bigger the department, the more power and influence the department has, so the pressures in academia are to create and grow departments. And new departments almost inevitably impose additional costs because each department requires its own administration and resources.

The explosion of degrees results in serious academic downsides as well: Departments divide the intellectual content of a university into smaller and smaller units, and because departments manage faculty time, this trend can interfere with interdisciplinary work. The ever-widening division of knowledge and creation of departments, sub-departments, programs, and other administrative units have not served the interests of students. The curriculum has become so complex that students do not see the connections between their courses and do not learn what is intended by the curriculum

as a whole. Social science researchers have documented the detrimental effects of too many choices on rational behavior.<sup>15</sup> Having increased choices works only if there is good information and the chooser is well informed. However, students entering college have precious little information on which courses, among the many choices available to them, are best for their education.<sup>16</sup>

Departments, moreover, have a perverse incentive to multiply the electives they offer, often vying to find topics that appeal to students, in order to bolster enrollments. The fractionated curriculum only intensifies this process as it steadily increases the number of departments competing for enrollments. Turning it back has financial and academic benefits.



### Remedies for Curricular Bloat

There are significant savings to be found in reducing the administrative expenses associated with the growth in the number of departments and even greater savings to be found in addressing curricular bloat. There are two large cost drivers in the curriculum: (1) courses for which the institution gives general education credit but which themselves do not fulfill the degree requirements for any major; and (2) free elective courses that neither fulfill the requirements for any major nor fulfill the institution's general education requirements. As we will see, at some colleges and universities, these two categories account for a very substantial number of the courses offered. Their elimination would allow institutions to offer degrees to students at a lower price and with a higher level of intellectual coherence. We will look at these remedies in turn.

#### **Reorganizing Units: A Remedy That Has Worked at ASU**

Reducing the number of departments saves costs and enhances quality. By merging departments into larger interdisciplinary schools, Arizona State University saved over \$13 million recurring and also increased the intellectual interactions among faculty.<sup>17</sup> *It is important to note that these*

*large savings were realized solely by eliminating administrative redundancy. No faculty positions were eliminated.*

### SAVINGS AT ARIZONA STATE UNIVERSITY THROUGH REORGANIZATION

<b>GRAND TOTAL Recurring Savings</b>	\$13,577,859
Colleges Eliminated	\$5,754,889

#### Departments Merged within Following Colleges

Colleges of Arts and Sciences	\$3,056,096
School of Business	1,152,005
Colleges of Design and the Arts	1,872,737
Schools of Engineering	960,000
College of Public Programs	550,000
College of Technology and Innovation	232,132

There are decided advantages for both teaching and research to be gained from such a reorganization. Within the traditional departmental structure, the genuinely innovative faculty who teach at the intersections of different academic disciplines are not necessarily valued by their own departments since they do not tally up enrollments for their home departments. What is good for students may not be viewed and rewarded by the department as advantageous, and there is limited incentive for departments to collaborate and share resources in addressing pedagogical needs. A reorganization such as the one that ASU successfully implemented will shift the focus from building departmental silos to optimizing teaching and learning throughout the institution.<sup>18</sup>

## Finding a Rational Approach to General Education

Given increased specialization within disciplines and the typical competition among departments, fewer and fewer schools continue to offer thoughtfully designed introductory courses on the central texts, skills, and methodologies of the liberal arts. (There are some notable exceptions, among them Columbia University, Baylor University, St. John's College, Hampden-Sydney College, and Thomas Aquinas College.) Instead of a coherent core curriculum, general education has become an unlimited collection of frequently narrow and specialized courses divided into buckets, known as distribution requirements. Students can take one or two courses from each bucket to assemble a general education curriculum as they prepare to select a major in one or another of the specialized domains of knowledge within the university. With limited exceptions, today's curricula now tend to cultivate narrowness and fragmented perspective rather than academic breadth. The principle of progression through a hierarchy of skills and knowledge structured by prerequisites that are the gateway to upper-level courses ("300" and "400" level courses) has been seriously weakened.<sup>19</sup> At one of the institutions we studied, only 26% of the general education courses are 100 or 200 level, and the rest are 300 or 400 level classes, once deemed "advanced" or "upper-level." Students typically have so many choices within the broad distributional area that fulfill general education requirements that these courses operate almost like free electives. There is no common set of courses that students take—nor is there the academic community that such common courses make possible. As noted in the report of the Project on Governance for a New Era, "It is not surprising that most students, if asked about general education, see it as little more than 30-plus credit hours—and never on Friday—that they need to accumulate in order to declare a major."<sup>20</sup> Sadly, at graduation, students often have little more in common than that they have all completed 120 or more credit hours.

The number of courses that can fulfill general education requirements can be shockingly vast. The current numbers at two different universities are shown on the following page.<sup>21</sup>

## NUMBER OF COURSES THAT CAN FULFILL GENERAL EDUCATION REQUIREMENTS

### UNIVERSITY A

Literacy and Critical Inquiry	671
Mathematics/Computer/Statistics	116
Humanities, Fine Arts, and Design	906
Social and Behavioral Sciences	632
Natural Sciences	75
Cultural Diversity and Pluralism	258
Global	417
<b>TOTAL</b>	3,075

### UNIVERSITY B

American Pluralism	53
Arts	635
Humanities	855
Language	63
Mathematical Science	382
Natural Science	663
Social and Behavioral Science	663
World Civilization	5
Writing Skills	8
<b>TOTAL</b>	2,455

As is evident, the roster of courses satisfying general education requirements is in the thousands, a far cry from a small, carefully constructed core curriculum. And, as noted previously, because general education serves as a requirement for all students, every unit or department

seeks to qualify as many of its courses as possible within one or another of the general education buckets, thereby acquiring a captive audience that might not otherwise seek out their specialties.

This phenomenon is exacerbated by the common method of budgeting academic units by the number of credit hours students take from each department. In the short run, having a course listed as a fulfillment of a general education requirement is one sure way to bolster enrollment, but it is also a clear example of what economists call “the tragedy of the commons,” where self-interest destroys common resources—in this case, in the best interests of students. Former president of University of Northern Colorado Robert Dickeson points out that in general, 80% of the students will fulfill their general education requirements with 20% of the available general education courses.<sup>22</sup> The departmental scramble to get more and more courses listed that fulfill general education requirements is, in the long run, breathtakingly mindless and wasteful, when we consider costly faculty, narrow subjects, and few students. In this dysfunctional structure, professors will devote their precious and expensive time to creating and teaching evermore narrowly focused courses in competition with one another for a limited number of students available to fill their sections.

Teaching this large number of courses is, of course, very expensive. An analysis at University A of the number of students taking each general education course showed each course was taken by some students. But it is noteworthy that 40% of general education courses in a typical university also fulfill requirements of a major. Consolidating majors, as described in the previous section, and then teaching only general education courses that also fulfill requirements of a major would reduce in a rational fashion the excessive number of general education courses typically offered and would also begin to refocus general education on core disciplines rather than narrow specialties.

Eliminating general education courses that are not central to any discipline and are therefore not requirements of any major would save an institution an estimated 10% of its instructional costs per semester—or more, depending on the university. This is, needless to say, an enormous

amount of money: At four-year public colleges and universities nationwide, on average the instructional budget is 50.4% of the total budget, excluding hospitals and auxiliaries.<sup>23</sup> Trimming 10% of that expenditure would make a huge difference in a school's bottom line—and its financial future, not to mention the cost to the student.

Some of these funds would be needed to increase enrollments in core general education courses, but the savings would still be substantial and education would be much improved. Remarkably, the exact cost of burgeoning courses is not even tracked at most institutions. We attempted to get specific data from many universities to assess probable savings and found most universities do not even organize their data in a way that permits them to know how many students take a particular course to fulfill general education requirements. Instead, universities compute whether students have completed whatever the requirements may be for graduation, and there can be no systematic review of how many of these distributional choices were actually needed for students to meet schools' requirements. Thus, the first step in correcting the inefficiency of the curriculum—and the attendant cost to students—is to insist on systems that measure the usefulness of courses in fulfilling requirements. Institutions may then wish to consider a policy that caps the number of courses that can qualify for general education credit as well as ensures the quality and substance of those included.

It cannot be emphasized enough that the budget is not the only victim of curricular bloat. The extensive choice of courses to fulfill general education objectives also leads to lack of coherence in the curriculum, as the courses chosen by a student in each bucket do not necessarily connect. Just as fine choices within each category in a cafeteria line do not necessarily produce a balanced meal, choices independently made in each long list of courses have little likelihood of producing a coherent curriculum and the education serious educators aim for from the general education core.

## Reducing the Free Electives

Some majors, like nursing and engineering, have so many requirements that they allow very few free electives after students take their courses for general education and the major. Other majors have very few required courses and thus allow large numbers of free electives, reaching as many as 48 of the approximately 120 credits needed for graduation. Ideally, the choice of free electives is guided by the student's program and interest in enhancing his or her education. But with the growth in enrollment and reduction of time devoted to individual mentoring, free electives are often a blind path by which students get lost and lose focus or simply choose the path of least resistance—namely, the easiest and trendiest-sounding courses. Reading students' blogs on what free electives they advise other students to take suggests many seek interesting courses and academic challenges while others merely look to accumulating the credits toward graduation and avoiding classes that fall on Mondays or Fridays.

Using data from graduating seniors in one university, we found that the more free electives there were in a given major, the poorer the graduation rate.<sup>24</sup> As noted on pages 7–8, many students do not do well in a situation with too much choice, particularly in a large university, which is difficult to navigate in other ways.

Finally, and of increasing importance as higher education funding declines, teaching a vast array of free elective courses is very expensive. The estimated cost of teaching free electives at the two research universities examined was 9% of the instructional budget. If there were no room in the required courses to accommodate students who previously filled elective courses (or general education courses that fulfill no requirements of any major), no money would be saved by eliminating these courses, since more sections of the courses that do fulfill requirements would be needed. However, in the universities we examined, courses fulfilling major requirements and/or general education requirements were typically not filled to capacity.

It would be reasonable to ask why universities have free electives at all. President Francis Wayland, long-term president of Brown University

(1827–55), suggested that “in so far as it is practicable, every student might study what he chose, all that he chose, and nothing but what he chose.”<sup>25</sup> Although suggested by President Wayland, ironically, it was Harvard under President Eliot that was the first actually to adopt a system of free electives. President Eliot, who had expressed his aspirations for a broadly educated society, believed the elective system would facilitate more advanced teaching of specialized subjects and a higher level of instruction, consistent with a preeminent research university. It did not turn out the way he had hoped, failing to bring overall the depth and focus he envisioned and certainly failing to provide a true liberal education.<sup>26</sup>

Today, as we have seen, universities offer thousands of courses. (A check of three major public research universities showed that each had over 9,000 active courses, more than three times the number of faculty at each university.) And so very many of these are specialized courses, fulfilling requirements for neither the major nor even general education.



## Conclusion

The massive expansion of the curriculum—with no coherence—produces graduates who are likely not to possess the core skills or the cultural literacy a college education should provide. At the same time, it means that students are taking much longer to graduate since “so many choices” means there is no clear curricular pathway to success. And given the bloated, chaotic curriculum, it is no wonder that more and more employers are complaining that students are ill prepared for the workforce.

Universities can save millions of dollars by acknowledging the problems and by ending the splintering of major fields into the ever-widening array of subfields. Millions more can be saved by focusing general education courses on core subjects that are also required by the disciplinary majors. Millions can also be saved by reducing or eliminating electives when they cannot be shown to contribute to significant educational outcomes. We can no longer afford the human and financial cost of chaos in the college curriculum.



## Notes

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3. Arthur M. Cohen and Carrie B. Kisker, *The Shaping of American Higher Education: Emergence and Growth of the Contemporary System*, 2<sup>nd</sup> ed. (San Francisco: Jossey-Bass, 2010), 153, 238–39.
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5. Charles William Eliot, “Inaugural Address,” quoted in Samuel Eliot Morison, *Development of Harvard University since the Inauguration of President Eliot* (Cambridge, MA: Harvard University Press, 1930), lx; cited and discussed in Harry R. Lewis, *Excellence Without a Soul: How a Great University Forgot Education* (New York: Public Affairs, 2006), 36.
6. Edward Shils, *The Calling of Education: “The Academic Ethic” and Other Essays on Higher Education* (Chicago: University of Chicago Press, 1997), 235.
7. Cohen and Kisker, *Shaping of American Higher Education*, 112; and Andrew Delbanco, *College: What It Was, Is, and Should Be* (Princeton, NJ: Princeton University Press), 80–81.
8. L. B. R. Briggs, “Report of the President, 1902–03: Faculty of Arts and Sciences,” 95, quoted in Lewis, *Excellence Without a Soul*, 40.
9. James McCosh, *The New Departure in College Education: Being a Reply to President Eliot’s Defence of It in New York, Feb. 24, 1885* (New York: Charles Scribner’s Sons, 1885), 23.

10. Cohen and Kisker, *Shaping of American Higher Education*, 153.
11. See Jill Casner-Lotto and Mary Wright Benner, *Are They Really Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21<sup>st</sup> Century U.S. Workforce* (New York: The Conference Board et al., 2006), [http://www.p21.org/storage/documents/FINAL\\_REPORT\\_PDF09-29-06.pdf](http://www.p21.org/storage/documents/FINAL_REPORT_PDF09-29-06.pdf); Hart Research Associates, *Raising the Bar: Employers' Views on College Learning in the Wake of the Economic Downturn* (Washington, DC: Association of American Colleges and Universities, 2009), 9, [http://www.aacu.org/sites/default/files/files/LEAP/2009\\_EmployerSurvey.pdf](http://www.aacu.org/sites/default/files/files/LEAP/2009_EmployerSurvey.pdf); and Shane J. Lopez, "Many in U.S. Doubt That Students Are Prepared for Work," *Gallup*, August 22, 2012, <http://www.gallup.com/poll/156818/doubt-students-prepared-work.aspx>.
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13. Calculations are drawn from data on fall enrollments and completions in the NCES Integrated Postsecondary Education Data System. Discipline counts are based on the six-digit Classification of Instructional Program taxonomy.
14. Hershey H. Friedman, "The Obsolescence of Academic Departments," *Radical Pedagogy* 3, no. 2 (2001), [http://www.radicalpedagogy.org/radicalpedagogy/The\\_Obsolescence\\_Of\\_Academic\\_Departments.html](http://www.radicalpedagogy.org/radicalpedagogy/The_Obsolescence_Of_Academic_Departments.html).
15. Benjamin Scheibehenne, Rainer Greifeneder, and Peter M. Todd, "Can There Ever Be Too Many Options? A Meta-Analytic Review of Choice Overload," *Journal of Consumer Research* 37 (October 2010): 409–25, <http://dx.doi.org/10.1086/651235>; Judith Scott-Clayton, "The Dark Side of Choice in Higher Education," *The New York Times*, March 25, 2011, [http://economix.blogs.nytimes.com/2011/03/25/the-dark-side-of-choice-in-higher-education/?\\_r=0](http://economix.blogs.nytimes.com/2011/03/25/the-dark-side-of-choice-in-higher-education/?_r=0); and Barry Schwartz, *The Paradox of Choice: Why More Is Less* (New York: Harper Collins, 2004).
16. Some institutions have created technological tools to assist students in finding their way through the complex curriculum. For example, Dr. Capaldi Phillips describes eAdvisor, a system using technology and analytics to treat each student as an individual, taking into account the unique background and preparedness of each individual student. eAdvisor led to an increase in retention from 76% to 84% in the first five years of its implementation and an increase in the four-year graduation rate from 32% to 42% in the

same time period at Arizona State University. As a result of eAdvisor, ASU produces an average of 1,000 additional graduates per year, and, in addition, it has saved \$14 million a year in instructional and advising costs. It also serves to forecast enrollment and plan for instructional space. Its application would be significantly enhanced and its impact strengthened, however, if the curriculum were coherent and if paths to the degree were simple and laid out clearly. Elizabeth D. Phillips, “Improving Advising Using Technology and Data Analytics,” *Change: The Magazine of Higher Learning* (January–February 2013), <http://www.changemag.org/Archives/Back%20Issues/2013/January-February%202013/improving-advising-full.html>.

17. Elizabeth Capaldi, “Intellectual Transformation and Budgetary Savings Through Academic Reorganization,” *Change: The Magazine of Higher Learning* (July–August 2009), <http://www.changemag.org/Archives/Back%20Issues/July-August%202009/full-intellectual-budgetary.html>.
18. *Ibid.*; see also William F. Massy and Robert Zemsky, “Faculty Discretionary Time: Departments and the ‘Academic Ratchet,’” *Journal of Higher Education* 65, no. 1 (1994): 1–22.
19. National Association of Scholars, *The Dissolution of General Education: 1914–1993* (Princeton, NJ: National Association of Scholars, 1996).
20. Benno C. Schmidt, *Governance for a New Era: A Blueprint for Higher Education Trustees* (Washington, DC: American Council of Trustees and Alumni, 2014), 9–10.
21. For reasons of confidentiality, we do not identify “University A” and “University B” that graciously agreed to provide data to us on their curricula.
22. Robert C. Dickeson, “General Education: Too Many Options?” (unpublished manuscript, February 20, 2013), Microsoft Word file.
23. Data are for public colleges and universities of four years and above. NCES Integrated Postsecondary Education Data System (Finance 2012–13), <https://nces.ed.gov/ipeds/datacenter/DataFiles.aspx>.
24. The correlation between the number of free electives that a major leaves space for and the six-year graduation rate is  $-.26$ .
25. Francis Wayland, *Report to the Corporation of Brown University, on Changes in the System of Collegiate Education* (Providence, RI: G. H. Whitney, 1850), 51.
26. See Derek Bok, *Our Underachieving Colleges: A Candid Look at How Much Students Learn and Why They Should Be Learning More* (Princeton, NJ: Princeton University Press, 2006), 12–30.





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