The Study of
Undergraduate Education
at Stanford University

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Ways of Thinking, Ways of Doing: Fostering Breadth

Stanford seeks to prepare students not only for "personal success and direct usefulness," but also to live creatively and responsibly in the world. Breadth is integral to this project. By venturing beyond their specialized fields of study, students develop knowledge and skills that are different from, but complementary to, those emphasized in their majors. As their minds broaden and deepen, they discover new possibilities for combining and creatively deploying their developing knowledge and skills, enabling them to transcend traditional fields and look beyond what is thought and taught today. Far from being merely an ancillary part of students' curriculum, breadth is essential to realizing the promise of a liberal—and liberating—education.

Few people today question the value of intellectual breadth. The question is how best to provide it. Ironically, the way that most universities answer that question—by requiring students to take certain courses—can feel anything but liberating to students. Students are quick to note the inconsistency in the university's preaching the virtues of freedom and exploration while simultaneously insisting that they take this many courses of type x and that many courses of type y. On the other hand, long experience at Stanford and many other universities suggests that most students need some guidance and direction to help them realize the promise of freedom. Among the revealing findings of the SUES alumni surveys was the number of respondents who expressed gratitude for having been directed into courses they would not have chosen on their own, courses whose value and relevance they only appreciated later in their lives.

The tension between freedom and guidance dominates any discussion of breadth requirements. But even if one resolves that conundrum, questions remain. Traditionally, breadth has been understood to mean exposure to a range of disciplines—in essence, a sampling of different bodies of knowledge, mirroring the way the university organizes itself. Such sampling certainly has value, but is this the optimal way of fostering true breadth in an age like ours, in which the boundaries of different fields are increasingly blurred? Should there be many breadth categories or few? Should students' exposure to different fields be more or less uniform, and thus necessarily shallow, or should breadth courses be clustered in hopes of fostering greater depth and coherence? Should the roster of requirements reflect the changing academic landscape, incorporating new and emerging fields, or should priority be given to the areas that have traditionally provided the foundation for liberal education? How much of students' curricula should be devoted to breadth?

General Education at Stanford: Past and Present

Over the years, Stanford has answered these questions in different ways. Between 1891 and 1920, the university prescribed no breadth requirements, aside from freshman writing, trusting each student to work out an appropriate program in consultation with his or her "major professor." From 1920 to 1957, students spent the bulk of their freshman and sophomore years in the "Lower Division," attending to general education requirements, before proceeding into their majors as juniors. In 1957, the Lower Division was replaced by a new general studies curriculum—essentially a roster of disciplinary breadth requirements that students were expected to complete before graduation. This is largely the system under which Stanford still operates today, though the number and specific content of requirements have changed many times over.

The two most recent undergraduate education review committees discussed the breadth issue at length. The 1968 Study of Education at Stanford recommended reducing the number of general education requirements, in the name of freeing students to take ownership of their own educations. The university responded by eliminating several requirements, though others soon emerged to take their place. The 1994 CUE report, concerned less with the size of the general education curriculum than with its superficiality and apparent arbitrariness, proposed two major reforms: a redefinition of social science and humanities breadth requirements "to enable students to focus on coherent sets of courses of their own choosing," and the creation of a three-quarter freshman science, mathematics, and engineering core for non-specialists, akin to the existing three-quarter Cultures, Ideas, and Values requirement (though the new core was to be optional). The first of these recommendations was never adopted by the Faculty Senate. The latter was enacted, but with disappointing results. Designed with great care and thoughtfulness by an interdisciplinary team of faculty members, the "SME Core" was suspended after only a few years due to low student enrollments.

The current system of general education requirements was developed in the late 1990s and early 2000s. It consists of five parts. We have already discussed two: every student is required to complete a trio of writing courses (PWR1, PWR2, and a departmentally based WIM course) and to demonstrate competence in a foreign language equivalent to three quarters of study (a standards-based requirement that does not necessarily entail coursework). Students also must complete a three-quarter freshman-year Introduction to the Humanities (IHUM) requirement, which we will discuss in the next chapter. Most important for our purposes, students face a "Disciplinary Breadth" requirement consisting of five courses and an "Education for Citizenship" requirement consisting of two courses. To fulfill the former, they take one course in each of five broad areas: Engineering and Applied Sciences, Humanities, Mathematics, Natural Sciences, and Social Sciences. For the latter, they take single courses in two of four designated areas: Ethical Reasoning, American Cultures, the Global Community, and Gender Studies. (Several of the colleagues we spoke to noted the irony of identifying four broad areas as essential to responsible citizenship and then asking students to choose from only two of these areas.)

In all, every Stanford student today is asked to complete the equivalent of sixteen general education courses. In practice, most students are able to reduce the actual number by testing out of their foreign language requirement or enrolling in courses that "double count" for both Disciplinary Breadth and Education for Citizenship requirements. Depending on the circumstances, a small number of general education courses might also count toward students' majors—WIM courses do so by definition—but most do not.

Given all the variables, it is impossible to say what proportion of a Stanford student's total curriculum consists of general education requirements. If a student set out with the sole goal of reducing total general education units—testing out of the foreign language requirement, double-counting general education courses, fulfilling as many requirements inside the major as possible, and taking all remaining requirements for only three units (the minimum required) —he or she might escape with as few as 34 units of required courses outside the major, about 19 percent of the total graduation requirement. (Given that most Stanford students graduate with substantially more than 180 units, the actual percentage might be even lower.) If a student determined to maximize the total number of general education units, the figure would be exactly double—68 units, or 38 percent of the required 180. In actual practice, most students today devote about a quarter of their total curricula to requirements outside their majors.

From the perspective of the SUES committee, the problem is not the size of the current general education "footprint"—which is similar to, if not slightly smaller than, the footprint at peer institutions—but the manner in which the system operates. With few exceptions, the students to whom we spoke described approaching their general education requirements in a purely instrumental way, seeking out classes that satisfied Disciplinary Breadth and Education for Citizenship requirements simultaneously while also meeting at convenient times. Stanford's online ExploreCourses makes it possible to search for courses using those parameters only. Many students reported cross-checking the resulting list with information about previous years' grade distributions, available from a third-party course information site, CourseRank, to find courses offering the largest percentages of A grades. Lest this be dismissed as student exaggeration, the aggregate data the

SUES committee collected on how current undergraduates satisfy different general education requirements suggested a very similar story.

It is characteristic of faculty, on hearing all this, to condemn students for their cynicism, but the fault is more ours than theirs. If students conceive intellectual breadth as a series of "hoops" or "tick boxes," it is because we have presented it in that way. If they choose general education courses with little thoughtfulness or purpose, it is because we have failed to communicate to them why we believe these courses are important, what we hope they will gain from them, and how they relate to the broader aims of a Stanford education.

Reconceiving the Meaning of Breadth: Ways of Thinking and Doing

The SUES committee, working in conjunction with a dedicated subcommittee on breadth, looked closely at the operation of Stanford's current general education system, as well as at the broader tensions and trade-offs inherent in any requirement regime. After considering a number of alternatives, we recommend moving to a new, non-disciplinary system of breadth requirements. Rather than prescribing courses in particular disciplinary areas, our new model promotes the acquisition and development of seven essential capacities, which we term "Ways of Thinking, Ways of Doing":

1. Aesthetic and interpretive inquiry (2 courses)
2. Social inquiry (2 courses)
3. Scientific analysis (2 courses)
4. Formal and quantitative reasoning (2 courses)
5. Engaging difference (1 course)
6. Moral and ethical reasoning (1 course)
7. Creative expression (1 course)

In conceiving breadth in a non-disciplinary way, we are not suggesting that disciplinary knowledge is unimportant. As we have already explained, we see knowledge and capacities as inextricable and reciprocal. We also believe that the framework proposed here will provide our students with abundant opportunities to engage substantially with a wide variety of disciplines—more substantially, in fact, than most do under the current regime. At the same time, we are convinced that by focusing less on the specific content of courses and more on the purposes and goals that such

courses are designed to serve, we can create a system far better than the current one—more coherent, more transparent in its rationale and learning goals, and more responsive to the needs, interests, and aspirations of individual students.

In order for our colleagues to evaluate the new model—and for our students to engage with it thoughtfully—it is essential that we clearly articulate what we propose to require and why. In the section that follows, we describe each Ways of Thinking and Doing category, including its rationale, a list of learning outcomes, and some suggestions about how students might go about fulfilling it. Before turning to this discussion, however, let us make three broad points about our approach.

Perhaps the most obvious advantage of the proposed model is the way that it bridges the conventional divide between majors and general education. Many of the essential capacities we have identified are present in students' majors and may, in fact, be most effectively developed in those contexts. It follows that the general education footprint, while at first glance slightly larger than at present, will for most students remain essentially the same. Students in interdisciplinary majors may well see some reduction in their general education requirements, or at least in those that do not also count toward their majors. (We also anticipate that revised freshman year requirements, discussed in the next chapter, will normally fulfill Ways of Thinking and Doing requirements, adding still more flexibility to the system.) Beyond the question of relative size, the new approach reinforces the SUES committee's overall message about integrative learning, signaling to students and faculty alike that general education and majors are not separate enterprises vying for scarce time and curricular space, but rather reciprocal and mutually reinforcing aspects of a broad liberal education.

In the same way, our model bridges the division between Disciplinary Breadth and Education for Citizenship, a division that we believe communicates a highly misleading message to students. The suggestion that taking single courses from two of four possible categories equips students for citizenship is absurd on its face. One of the premises of the system proposed here is that all of the enumerated capacities—the ability critically to analyze societies, to understand and evaluate scientific and statistical arguments, to interpret cultural products in a wide variety of domains, and the rest—are essential to responsible citizenship. This is not to say, we hasten to add, that the specific concerns

embodied in the existing Education for Citizenship requirement are no longer important. On the contrary, the approach described here is intended to elevate the importance of such issues to students, presenting these courses not as boxes to be ticked while satisfying some other requirement but as paths to developing capacities that are essential in their own right, capacities they will need to live responsibly in the complex world awaiting them.

In discussing our proposal, colleagues continually asked about the logistics of the new system. What courses will count for which requirement? How will such decisions be made, and who will make them? These are indeed crucial questions, which are discussed in detail below. Here, let us just say that we imagine a flexible and inclusive system. We assume that every course that fulfills a requirement will be fully aligned with the rationale for that requirement, but we certainly do not expect it to satisfy every specified learning outcome; given the capaciousness of the categories, as well as the variety of learning goals, it is hard to imagine that many courses could. We also recognize that particular requirements might be satisfied in very different ways. For example, a newly designed science course intended to provide non-specialists with a substantial introduction to a particular discipline would surely count as fulfilling the Scientific Analysis requirement, but so too would a foundational science course designed for disciplinary majors. Both courses teach essential ways of thinking and doing.

1. Aesthetic and Interpretive Inquiry

Rationale: Cultural products exist across a vast array of domains, including art, literature, philosophy, religion, and many other areas of human endeavor. They also take a wide variety of forms—not only works of artistic creation but also theories, ritual practices, and intellectual, cultural, and expressive traditions. Though infinitely various in conception, content, and form, these enterprises all represent fundamental human efforts to understand ourselves, the world, and our place within it. Every reflective citizen faces the task of developing a satisfying orientation toward the world through such cultural products, and that process begins with the effort to understand and reason critically about them. Providing students with the interpretive and analytical techniques they need to do this essential work is the task of courses in our first category, which we call Aesthetic and Interpretive Inquiry.

Requirement: Two courses.

Learning outcomes: Students should:

- develop skills for the study, analysis, and interpretation of expressive works and other meaningful cultural products.
- demonstrate facility with close reading techniques, recognizing the key features of a text or artwork and understanding how these features contribute to its (intended) effect on an audience.
- develop abilities to analyze interpretations, theories, and arguments, as well as broader frameworks for thought and action; to identify their assumptions; and to assess those assumptions rationally.
- understand diverse artistic, literary, and theoretical traditions, their characteristic forms of production, and their development across historical time.

How students might fulfill this requirement: We expect that students would fulfill this requirement by taking courses in the arts and humanities, including such fields as music, literature, philosophy, art and art history, and drama. Such courses would typically focus on the interpretation of cultural practices and products, rather than analysis of the social structures from which they emerge; thus a course devoted to the analysis of literary texts or artistic works would belong here, whereas a course on the publishing industry or the economics of the art market would fit better in Social Inquiry. Courses offering distinctively interpretive explanations of cultural products and practices in such fields as religious studies, cultural anthropology, philosophy, history, and the history of science would also be appropriate.

2. Social Inquiry

Rationale: Human beings create societies, and those societies, in turn, create them. To exercise responsible citizenship, students need to be able to think critically about societies, their own as well as others, and to recognize and analyze their distinctive forms of social and economic organization, political institutions and ideologies, patterns of social differentiation and stratification, linguistic practices, and characteristic mentalités. At a still deeper level, they need tools for understanding the behaviors and propensities at the root of human sociality, as well as the complex ways in which those behaviors and propensities vary and change across space, time, and individual circumstance.

Equipping students with the skills to do this work is the task of courses in our second category, which we call Social Inquiry.

Requirement: Two courses.

Learning outcomes: Students should:

- be able to apply the methods of research and inquiry from at least one social science discipline to the study of human experience.
- understand what makes a question about human behavior empirically tractable and significant.
- exhibit a capacity to think historically, recognizing the reciprocal relationship of social context and individual action and the reality of change over time.
- possess the capacity to critically evaluate primary and secondary source materials, and to use both to fashion explanations for social and historical phenomena.

How students might fulfill this requirement: Students will typically fulfill this requirement by taking courses in history and the social sciences. Departments and programs such as Political Science, Sociology, Economics, Anthropology, History, International Relations, and Religious Studies all offer a multitude of appropriate courses. Many, though perhaps not all, courses in departments such as Psychology and Linguistics would also be appropriate for fulfilling this requirement.

3. Scientific Analysis

Rationale: Today, more than ever, scientific literacy is essential to responsible citizenship. Many of the most pressing decisions that await our students, from public policy on climate change to personal decisions about their health and the health of loved ones, require the abilities to understand and synthesize scientific information, recognize the limitations and strengths of existing theories, assess evidence, and evaluate competing claims. Engaging in scientific analysis at a university level (whether through advanced or introductory coursework, as a researcher or consumer of the research of others, as a prospective scientist, or as a non-specialist seeking broad insight into the state of a particular scientific discipline) equips students with these essential capacities. Thus equipped, students are prepared not only to share in humans' ever-expanding knowledge of the universe, but also to grapple with the complex technologi-

cal, political, and ethical implications of that knowledge. Courses that hone these essential capacities fulfill the rationale of our third category, which we call Scientific Analysis.

Requirement: Two courses.

Learning outcomes: Students should:

- be able to understand and evaluate scientific concepts, theories, and evidence.
- understand and utilize both inductive and deductive reasoning and understand the role of each in scientific inquiry.
- be able to formulate hypotheses, to undertake careful and disciplined empirical observation, and to interpret experimental data.
- exhibit a broad curiosity about the natural world, and about the ways in which knowledge about that world is obtained, analyzed, and interpreted.

How students might fulfill this requirement: This requirement might be fulfilled by courses in a wide variety of departments and programs. Some students will satisfy it through traditional introductory courses in scientific disciplines. Others might do so in newly designed courses specifically intended for non-scientists. We expect that many students will choose to take courses in two different scientific fields, thus gaining exposure to different disciplines, but we are open to the possibility of their fulfilling the requirement with two courses from a single field. Laboratory experience, while highly desirable, is not required.

4. Formal and Quantitative Reasoning

Rationale: Many decisions and judgments are made on the basis of large amounts of data—data that can be imperfect, incomplete, or in other ways intractable. If we wish our students to make good decisions and wise judgments in such circumstances, we need to equip them with two distinct but related capacities. The first, which we call formal reasoning, involves precise deductive thinking and is epitomized by pure mathematics, logic, and the algorithmic sciences. The second, which we call quantitative reasoning, is more inductive in nature and, in a deep sense, more applied. In broad terms, it involves the process of bringing formal and technical capacities to bear on large, complex problems, often problems involving imperfect information, through such techniques as modeling, statistical analysis,

and probabilistic thinking. While formal reasoning is taught in a somewhat restricted number of venues in the university—courses in mathematics, statistics, philosophy, computer science, and symbolic systems being the most obvious examples—quantitative reasoning is learned, taught, and used in a host of different fields and contexts, including engineering and design, public policy, education, law, economics, management science, medicine, and the social and natural sciences. Both capacities are essential to living an informed, responsible, and creative life in today's world. Both are represented in our fourth category, Formal and Quantitative Reasoning.

Requirement: Two courses (one each in Formal Reasoning and Quantitative Reasoning).

Learning outcomes: Students should:

- hone formal and deductive reasoning skills through sustained engagement with problems in which the system of formal reasoning is itself the object of study.

- be able to set and solve optimization problems (broadly construed), model complex processes, evaluate data, think probabilistically, and assess risk.

- have the ability to distinguish between causal and correlational evidence, as well as the ability to recognize when the available evidence is too weak to decide a matter.

- be comfortable not only with abstract principles of probability theory, statistics, decision theory, logic, and mathematics, but also with the application of empirical methods to concrete problems and questions.

- model complex processes or systems so as to be able to predict (or change) their outcomes.

- recognize common mistakes that human beings make in empirical reasoning and problem solving.

How students might fulfill this requirement: Many students will fulfill the Formal Reasoning portion of this requirement through courses in mathematics or computer science, while others may do so through courses in philosophy, statistics, or symbolic systems. Students may fulfill the Quantitative Reasoning requirement through courses across the university, from engineering to economics, public policy to product design. Many, perhaps most, students will routinely encounter such courses in the context of their majors.

5. Engaging Difference

Rationale: In our increasingly complex and interdependent world, it is crucial that students develop abilities to live, work, and communicate with people whose experiences and perspectives are different from their own. More broadly, they need to be able to think critically about human variety and to understand the different ways in which societies construct and construe human difference. In the society in which we live, certain categories of difference are particularly salient, including race, ethnicity, gender, sexual orientation, religion, and social class, but the capacity for thinking critically and reflectively about human difference has applications far beyond these categories. Courses that equip students with this essential capacity fulfill our fifth requirement, which we call Engaging Difference.

Requirement: One course.

Learning outcomes: Students should:

- attain an understanding of the histories, cultures, and social experience of diverse groups of people.

- grapple with the challenges that surface in interactions between people with diverse backgrounds and worldviews.

- recognize the power relationships that structure interactions between people in different historical, social, and cultural contexts.

- develop a rich appreciation for both human commonality and the diversity of human experience.

How students might fulfill this requirement: Students might fulfill this requirement with courses in a host of Stanford departments and programs, including Anthropology, History, Sociology, Psychology, Religious Studies, International Relations, Feminist Studies, African and African American Studies, and the Center for Comparative Studies in Race and Ethnicity (which includes Asian American Studies, Chicano Studies, Jewish Studies, Native American Studies, and Comparative Studies in Race and Ethnicity). Courses currently certified as fulfilling the Education for Citizenship requirements in American Cultures, Gender Studies, or the Global Community would also fulfill this requirement.

6. Moral and Ethical Reasoning

Rationale: Moral and ethical judgments are inescapable in human life. Every individual and citizen must be able to think critically about ethical and moral questions, to draw defensible conclusions, and to assess competing values and claims. To develop these capacities, students need to be introduced to the pervasiveness, complexity, and diversity of normative concepts and judgments, as well as to some of the diverse ethical traditions and perspectives available for thinking about them. In defining such capacities as essential ways of thinking and doing, we are obviously not suggesting that the university should seek to inculcate any particular values or commitments in its students, but we believe that it does have a responsibility to equip them with the critical tools they need to forge values and commitments of their own. In keeping with this perspective, we believe that this requirement should be understood broadly, to include not only courses in formal ethical reasoning but also courses that enable students to grapple with ethical and moral questions in the contexts of their particular fields and interests. Such courses meet the rationale of our sixth category, which we call Moral and Ethical Reasoning.

Requirement: One course.

Learning outcomes: Students should:

- understand the nature of normative claims and recognize diverse normative concepts and arguments.
- evaluate competing ethical and moral perspectives and claims.
- possess a capacity to reason critically about ethical and moral questions, as well as an ability to make ethical and moral judgments about issues that they face in their lives.
- be broadly and continuously reflective about the ethical and moral dimensions of their own conduct.

How students might fulfill this requirement: All of the courses certified as completing the existing Ethical Reasoning requirement would fulfill this requirement, as would a number of courses in fields such as philosophy, political philosophy, and religious studies that are not currently certified. At the same time, we see the new category as opening up fresh opportunities for students to engage moral and ethical questions in the context of a wide variety of departments and disciplines, including their own major

fields. We also hope that a more capacious moral and ethical reasoning requirement might inspire departments and programs to incorporate these essential capacities more fully into their majors, increasing the supply of such courses across the university and providing our students with a richer, more integrated education.

7. Creative Expression

Rationale: Since its founding, Stanford has attempted to balance the teaching of high-order knowledge with that of hands-on application. The excellence of its current programs in design, creative writing, art, music, and the performing arts attests to the continuing vitality of that tradition, as does the legendary inventiveness of its students and alumni. Creativity is a foundational capacity in virtually every field of human endeavor, including not only the creative arts, but also the physical, natural, and social sciences, the humanities, and engineering. It is also a transferable skill that can stimulate innovation and problem solving in unexpected realms. Every student should have the opportunity to experience and develop his or her capacity to create. Courses that foster that capacity fulfill our final requirement, Creative Expression.

Requirement: One course.

Learning outcomes: Students should:

- explore their own potential to produce original creative projects, in whatever fields of endeavor they choose.
- discover new capacities for self-expression.
- learn to take creative risks, stepping outside of their comfort zones and accepting the possibility of failure.
- experience design thinking, posing new questions, identifying obstacles (whether technical, social, or artistic), and devising creative solutions to them.

How students might fulfill this requirement: Students at Stanford have a rich choice of available fields in which to express and develop their capacities for originality and creative self-expression. Many students will satisfy this requirement in fields such as art, music, creative writing, dance, drama, or film. Others will find opportunities for creation in such fields as product design and architecture. Courses in this area should focus on creative practice; courses devoted primarily to the *interpretation* of creative works belong under Aesthetic and Interpretive Inquiry.

Managing the System

Like any other system of course requirements, the Ways of Thinking, Ways of Doing model raises questions about how courses will be classified and counted. Some of these questions are easily answered. Given the capaciousness of the categories (and the wealth of interdisciplinary courses offered at Stanford), it is likely that many courses will fulfill the rationales and learning outcomes of more than one requirement. Such courses would be so identified in the *Bulletin*, and students would be free to count them as they chose. We do not believe, however, that students should be able to satisfy two requirements with a single course; we have no wish to reproduce the instrumental mentality fostered by the current system. The ability of students to satisfy Ways of Thinking and Doing requirements within their majors, as well as through freshman-year requirements, provides such flexibility that there is no reason to allow additional "double counting."

Several colleagues have asked us whether any of the new requirements might be fulfilled in noncurricular ways—through an internship, say, or some kind of community service project. Our answer is yes and no. In describing our categories as "Ways of Thinking, Ways of Doing," we mean to highlight the fact that essential capacities grow not in a vacuum but through active engagement with the world. The best way to develop capacities for engaging difference, to take an obvious example, is by engaging with people whose experiences and ideas are different from one's own. To that end, we hope and expect that many of the courses that students take to satisfy requirements will include an engaged or experiential dimension—a group project, a laboratory component, community-based research, or the like. At the same time, we feel strongly that the capacities we wish to instill in our students are not simply practical but also intellectual, and as such need to be honed through analysis and reflection. It follows that all Ways of Thinking and Doing courses must have a substantial academic component.

The issue of what specific courses will count for what particular requirements is more complicated, raising as it does broader questions about governance and the relative flexibility or restrictiveness of the new system. The trade-offs are familiar. Tightly governed systems, in which courses are centrally vetted to ensure that they conform to the specified goals of a particular requirement, offer the advantages of coherence and consistency, but at the cost of flexibility, particularly for students, who can find themselves forced through requirement bottlenecks. Such systems also impose a burden on faculty time, particularly for members of the committee tasked with vetting courses but also for individual professors, who typically have to go through some process to have their courses certified. Loosely administered systems, in which the default decision is to include rather than exclude courses, are more flexible for students and less laborious for faculty, but they sometimes lack consistency and clarity of purpose.

In weighing this question, the SUES committee looked at peer institutions, which offer examples of both approaches, as well as the experience of Stanford, which in recent years has tried both. The current Disciplinary Breadth system, for example, began as an "opt-in" program, but that system proved burdensome for the faculty charged with approving courses and was soon abolished. The difficulties were compounded by the failure of many professors to submit their courses for certification, producing confusion among students and a raft of student petitions to the registrar seeking retroactive approval of uncertified courses as fulfilling breadth requirements. Since 2005, Stanford has employed an "opt-out" approach, presuming that courses fulfill their most logically related Disciplinary Breadth requirements unless instructors say otherwise. Education for Citizenship requirements are governed somewhat differently, but here too Stanford in recent years has tended toward inclusiveness, save in the case of the Ethical Reasoning category, where an ad hoc advisory board carefully scrutinizes courses before certifying them. Because the Education for Citizenship requirement asks students to select courses from only two of four categories, the relative dearth of Ethical Reasoning courses has not created a significant bottleneck, but it has significantly reduced student enrollments in that category. Currently fewer than 10 percent of students fulfill one of their Education for Citizenship requirements with an Ethical Reasoning course.

Having weighed the alternatives, the SUES committee favors an approach that provides sufficient administrative oversight to keep the Ways of Thinking, Ways of Doing system fresh and vital, but that is otherwise open and inclusive, minimizing the burden on faculty and students alike. We do not imagine some large faculty committee poring over stacks of syllabi to select the few courses that meet the standards for certification as satisfying requirements. We do

not foresee asking our colleagues to redesign their courses, though we hope that our emphasis on student learning over disciplinary content will inspire greater clarity between students and faculty about course objectives. Our operating assumption is that the vast majority of courses currently taught at Stanford teach essential capacities and achieve many of the learning outcomes described above.

If we have done our work well—if we have devised a system that is at once sufficiently inclusive and sufficiently precise—then identifying classes appropriate for different requirements should be a fairly straightforward task, one that can largely be handled at the level of individual departments and programs. Most academic units already have curriculum committees, which oversee course offerings and decide what courses satisfy major requirements. Such committees, having been introduced to the letter and spirit of the Ways of Thinking, Ways of Doing system, are ideally placed to identify courses that suit the rationales of different requirements. Equally importantly, they are well positioned to determine what courses ought not be used to fulfill breadth requirements. The obvious examples are courses that have substantial prerequisites or are intended to be parts of major sequences, as well as courses that are heavily oversubscribed (as some laboratory, project-based, and studio art courses currently are). In addition, some classes simply may not align with the rationales and learning outcomes of any of the seven categories (though we hope that such courses will be few), and some instructors may choose not to have their courses counted as fulfilling any of the requirements. Maintaining a flexible and inclusive system does not mean that every course should or must count for something.

While we envision a relatively decentralized process for classifying new and existing courses for purposes of breadth, we also believe that the Ways of Thinking, Ways of Doing system will require a vigorous faculty governance board. Or perhaps governance is the wrong word, for what we imagine is not a rule-bound committee policing colleagues' course offerings but rather a group of committed faculty members, supported by administrative staff from VPUE, working together to manage, monitor, and, where necessary, refresh the system. This group will liaise with departmental curriculum committees, identify new opportunities and potential bottlenecks, and generally ensure that the roster of Ways of Thinking and Doing course offerings

remains well populated, balanced, and true to the spirit of the program. To help gauge the effectiveness of the system, the committee should periodically receive statistical summaries of student evaluations, including data on how well courses are meeting their stated rationales and learning outcomes. In certain cases, it might have to consider decertifying courses that no longer meet the criteria for a Ways of Thinking and Doing course, but we anticipate such situations arising very rarely.

To illustrate both the necessity and the nature of our proposed governance board, let us close with an example of an issue that such a board would need promptly to address. Every year, Stanford admits a number of exceptional transfer students from community colleges. Such students typically try to fulfill as many general education requirements as possible in their two-year institutions, in order to complete their majors at Stanford on an accelerated schedule. We certainly do not wish the Ways of Thinking and Doing model to make Stanford less accessible to them. Therefore, one of the first tasks of the new governance board will be to establish and communicate clearly the university's expectations and standards for general education requirements for transfer students. In this way, as in every other, we hope that the new system will operate flexibly and inclusively.

Recommendations

1. Replace the existing system of breadth requirements with the Ways of Thinking, Ways of Doing model described above.

2. Establish oversight procedures, also described above, to ensure that the proposed system of requirements operates in a flexible yet meaningful way, designed to minimize burdens on faculty while offering students great latitude to navigate the requirements in a manner suited to their own interests, aspirations, and needs.

3. Produce formal guidelines for transfer students that detail the kinds of courses that Stanford will accept for general education credit. Helping community college students navigate the transfer process and meet Stanford's general education requirements should be a high priority for any general education governing body.