

JOHNS HOPKINS UNIVERSITY

Final Report:
**Second Commission on
Undergraduate
Education**



Fall 2020

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Executive Summary

The mission of the Johns Hopkins University is to educate its students and cultivate their capacity for lifelong learning, to foster independent and original research, and to bring the benefits of discovery to the world.

In April 2017, President Ronald J. Daniels and Provost Sunil Kumar convened a Second Commission on Undergraduate Education (CUE2) with members from across the Hopkins community. Its charge was to build on the accomplishments following from the recommendations made in 2003 by its predecessor, the first Commission on Undergraduate Education (CUE1), to interpret the Johns Hopkins mission statement for the present day, and to develop a model of undergraduate education for our future.

This report details that model. It capitalizes upon the most important feature of education at Hopkins: the earnest intellectual passion of our extraordinarily talented faculty and students. The commission's respect for that passion motivated the two outstanding features of this report: its commitment to greater curricular flexibility; and its determination not to issue credentials, but to cultivate the capabilities needed to be successful citizens of the world. The fortune of a community dedicated to intellectual life isn't to be squandered: this report celebrates it.

The commission, composed of 30 faculty, staff, administrators, undergraduate students, and alumni, deliberated over the course of a two-year period. It convened formally as a whole eight times; working groups met much more frequently. Members discussed matters of principle, reviewed relevant reports from peer institutions and national associations, examined undergraduate survey data, spoke with faculty and administrators, and convened public town hall meetings, seminars, and round tables. The commission also considered more than 200 suggestions and comments submitted via email. Distinguished experts gave public lectures for the university community and provided ongoing advice. Subsequently, community meetings were held to discuss interim recommendations, make comments, and offer suggestions for improvement.

That work culminates in this report. It seeks to establish the guiding principles and goals for a re-envisioned Johns Hopkins undergraduate education, one true to the university's mission, faithful to its enduring character, and responsive to changing social, political, and economic forces. Fifteen years ago, our predecessors in CUE1 wrote:

Hopkins students are offered a wide array of outstanding academic programs. Students who anticipate later graduate or professional study are prepared exceedingly well; those who enter the professions directly demonstrate high levels of professional competence. Undergraduate education takes place in a stimulating environment that is culturally diverse and rich in its international dimensions. Like their faculty mentors, large numbers of Hopkins students are engaged in the process of research and discovery.

We believe this remains true. Thanks in part to the implementation of the recommendations issued in the CUE1 report (see Appendix A), undergraduate education at Hopkins has greatly improved since 2003. But it also remains true, as the CUE1 report noted, that education for Hopkins undergraduates does not

fully reflect our high principles and expectations. We, too, know that undergraduate education at Hopkins can be improved.

We have work to do and needs to be addressed. The commission urges the university to develop plans to implement the following recommendations and to identify resources to support them. The commission identified three mechanisms essential to successful implementation: formation of implementation committees by the deans of the Krieger School of Arts and Sciences (KSAS) and Whiting School of Engineering (WSE), creation of an Undergraduate Education Board, and expansion of the Center for Educational Resources. The recommendations are not all equally pertinent for all divisions of the university and should be implemented flexibly. In recognition of Hopkins' decentralized structure, the revitalization of the undergraduate experience should be the responsibility of the academic divisions offering undergraduate programs and should respond to the particular educational mission and the unique needs of those divisions. But the ends should be energetically pursued by all of us.

Of the 34 recommendations issued in 2003 by our predecessors, only 12 specifically addressed the undergraduate academic experience. In contrast, the charge issued to CUE2 focused almost exclusively on the undergraduate curriculum, teaching, and learning; our recommendations concern these areas.

Recommendations

RECOMMENDATIONS REGARDING THE CURRICULUM

Recommendation 1: Redesign the undergraduate curriculum to provide foundational abilities for life-long flourishing and learning.

This recommendation addresses the university's fundamental responsibility to prepare its students to flourish as informed, skilled, and effective members of society and of the world. To this end, the commission has identified six foundational abilities all graduates should develop during their undergraduate experience:

1. Students should recognize the importance of language and have a command of it as readers, writers, and speakers.
2. Students should develop facility with scientific, numerical, and algorithmic reasoning and be able to use computational and analytical methods.
3. Students should recognize the importance of complex creative expressions and cultivate their intellectual and emotional responses to aesthetic and cultural experiences.
4. Students should engage effectively as citizens of a diverse world informed by an understanding of historical inequities, bigotry, prejudice, and racism in our society.
5. Students should be reflective, effective ethical agents.
6. Students should be able to independently conceptualize and complete large-scale, consequential projects.

To ensure that students acquire these abilities, the curricular framework proposed here is broad as well as deep, balancing disciplinary training with interdisciplinary exploration while strengthening students' sense of community.

1a. Require participation in a first-year seminar.

A required first year seminar would set the tone for the undergraduate experience by providing students with a shared introduction to university life and the opportunity to work closely with full-time faculty as they explore scholarly topics. The seminars would also provide opportunity for students to begin developing the foundational abilities enumerated above.

1b. Establish the "Hopkins Semester" of intensive study.

This is an optional junior or senior year, semester-long, mentored, immersive experience, providing a high-level synthesis of concepts learned during students' first and second years of coursework. Design projects, artistic endeavors, research projects, commercial ventures, professional internships, and community-based projects all serve as possible means to achieve the learning goals intended.

1c. Meaningfully integrate curricular, co-curricular, and extracurricular learning.

The commission recommends that clear policies be developed for awarding credit or credentials based on learning outcomes for structured co-curricular experiences. This proposal would transform college experience from one composed solely of traditional elements to one in which these elements are better connected and sit amid a much broader range of learning activities within and beyond the classroom.

1d. Ensure instruction in foundational abilities.

The current distribution requirements system should be replaced with a mandate and mechanism by which students acquire newly defined foundational abilities in language and writing; scientific, numerical, and algorithmic reasoning; interpreting complex creative expression; citizenship in a diverse world; reflective ethical agency; and independent conceptualization and collaborative undertaking of large-scale, consequential projects.

All Hopkins educational programs leading to a bachelor's degree should include program outcomes and learning objectives clearly mapped to the foundational abilities and distribution areas. CUE2 recommends that the deans of the Krieger School of Arts and Sciences (KSAS) and Whiting School of Engineering (WSE) charge their departments and academic programs with evaluating and modifying existing curricula and designing new curricula, both course-based and non-course based, that ensures that every student is trained in all of the foundational abilities.

Recommendation 2: Increase the flexibility of the major requirements where needed to enable intellectual exploration.

The model of undergraduate education CUE2 recommends retains disciplinary expertise at its center. For students to develop boundary crossing competencies, however, they should be afforded opportunity to leave their disciplines and learn elsewhere. The commission recommends a minimum of 33% of all student credit hours be un-prescribed by major-specific requirements across all undergraduate majors in the Krieger School of Arts and Sciences and Whiting School of Engineering.

Recommendation 3: Enable professional school faculty to teach undergraduates more easily and often and facilitate the enrollment of undergraduates in our professional schools.

Johns Hopkins professional schools are a valuable resource for our undergraduate students and their presence is a distinguishing feature of a Hopkins education, but we can make them more readily accessible. Undergraduates should have access to the full breadth of talent represented in the university's faculty, whether it be through formal classroom instruction, mentorship, seminars, or other means. In addition, the provost should direct every division of the university to demonstrate that they have both individual courses and master's programs open to Hopkins undergraduates from as broad a range of undergraduate majors as is reasonable, ensuring that financial assistance be available so that all qualified students may access them.

RECOMMENDATIONS REGARDING TEACHING AND LEARNING

Recommendation 4. Provide students with an integrated partnership of faculty mentors, staff advisors, and life design counselors.

Individual mentoring is an essential element of successful undergraduate education. The commission recommends that each Hopkins undergraduate be provided an integrated team of a faculty mentor, an academic advisor, and a life design coach. This team would guide students from their acceptance into the university through their post-collegiate experience.

Recommendation 5. Improve course-based learning assessment methods and encourage grading policies that assess student performance relative to well-articulated academic standards.

To assess student learning of disciplinary knowledge and skills, and of foundational abilities, assessment should be individually based and reflect each student's performance on their own merits and without reference to the performance of other students. Students should receive clear feedback regarding their conceptual understanding and competence in order to achieve mastery in a discipline and student performance should be judged and graded relative to a standard of excellence as articulated by the faculty member. Under such practices, faculty will be able to clearly articulate the knowledge, skills, and abilities that students should have achieved at the end of a course (i.e., course level learning objectives) and will align assessments to provide formative and summative feedback to students regarding their attainment of those standards.

Recommendation 6. Establish a new system for the assessment of teaching and student mentoring by faculty.

The assessment of teaching and mentoring now in place at Hopkins requires immediate reform. The provost should charge the vice deans of education from across the University to determine comprehensive, transparent practices for the assessment of teaching and mentoring for all Johns Hopkins faculty.

The recommendations outlined above serve as the foundation of a strategic plan for undergraduate education. They are aspirational; details for their implementation will be developed separately. The commission does not intend that the recommendations obstruct ongoing creativity and innovation. To the contrary, they should initiate future innovation and renewed investment in undergraduate education at Johns Hopkins University.

Forward by Deans Wendland and Schlesinger

As the Commission on Undergraduate Education (CUE2) was in the last stages of completing its work, gathering input from the JHU community, and finalizing its report, the world faced the challenge of COVID-19. This pandemic has affected every aspect of our world, disrupting economic activity on an unprecedented scale, dislocating workers across the globe, and unfortunately resulting in the deaths of many individuals. In the United States, recent events also laid bare, again and anew, the frustrations of many with ongoing inequities and racism in our society.

Much has been written about the immediate effects of COVID-19 as well as the longer term, perhaps even permanent, changes we may see in our societies. In our opinion, the pandemic will not so much change the future as it will accelerate changes in the world of higher education that were already on the horizon. The national and global conversation that was taking place even before COVID-19, questioning the value proposition of a four-year, high cost, residential undergraduate experience, has only been brought into sharper focus and made more immediate. If the educational experience can so quickly be taken online and accessed remotely, then why should students return to campus? And if the online/remote access experience is inferior to the on-campus experience, might it nonetheless represent an attractive alternative at a lower price point? Given the important social issues facing our country and our world how can we ensure that all Hopkins graduates whether trained in the social sciences, the humanities, the natural sciences, or engineering have the tools, the knowledge, and the ability to engage in addressing these societal challenges? These are just some of the questions that emerge from the current context that make even more urgent the need to define a Hopkins undergraduate experience that integrates more of what we can offer our students beyond the traditional lecture. We need to better take advantage of the learning opportunities in our research enterprise, to harness the intellectual resources across all of Hopkins, and to recognize the unique talents of each of our students and offer them the framework and flexibility to pursue those talents towards their individual educational and career goals.

The CUE2 report and its aspirational recommendations are even more important for a post-COVID19 world and for a country intensely engaged in social discord than it was before. Some of the recommendations offer rich and unprecedented opportunities to shift the ethos of our undergraduate education and for holistic examination of complex issues of bigotry and racism in our institutions and culture. We feel an even greater sense of urgency to begin now the discussions and processes that will address how we as a community think about implementation of these recommendations.

We recognize the heterogeneity of our scholarly community, that different recommendations will be of greater importance or require a higher level of effort, and represent greater or lesser change, in different programs and disciplines. We also recognize that this report is a call to our faculty to, above all else, consider how aspirational recommendations could be implemented and what form they may take in different programs and disciplines.

The building of a reimagined Hopkins undergraduate experience will take years, not months; it will take intellectual and administrative effort by faculty, staff, and students. And it will not be easy. But one thing we are convinced of is that change is inevitable, and our objective is to ensure that Hopkins not be a victim of change but rather, to position Hopkins as a leader, as an institution that defines new educational models that are responsive to the forces of change in our world.

With that in mind, we hope that this report and its recommendations inspire and energize our multifaceted community to create and sustain an undergraduate experience second to none, an experience that will serve as a model for how generations of students across the arc of scholarship are equipped to face and surmount the challenges, the unpredictable challenges, of the future.

I. Introduction

The goal of the Second Commission on Undergraduate Education is to build on the distinctive strengths of Hopkins, its values, and its culture, as well as the various investments and commitments that have been made over the years. —CUE2 Charge

We begin with what we have inherited. Johns Hopkins has made two principal contributions to American higher education. First, it pioneered a model for a graduate-oriented university organized around the research enterprise and the production of knowledge. Second, it transcended the boundary separating theory from practice, and developed a model of applied learning that continues to animate its professional schools. What Hopkins' first president, Daniel Coit Gilman, said in his inaugural address remains true: our aim is to encourage and support individual scholars whose research and teaching will advance the sciences, the humanities, and the society in which we live. We believe that the key to education for undergraduates in this century is, first, to give them, as far as possible, the experiences of inquiry, research, and creative activity hitherto primarily associated with graduate students; and, second, to train them in applying that learning. In short, we aim to deepen the strengths that distinguish us—to make Hopkins more fully Hopkins.

Students drawn to Johns Hopkins value intense intellectual experiences among a small community of scholars; they have the confidence to pursue their ideas creatively, and value the freedom necessary for that pursuit; they have high expectations for themselves and a strong desire to succeed; and they value learning which benefits the society around them. In this regard, they are much like the faculty that teaches them. Any successful revision of Hopkins' undergraduate education will build from, and remain consonant with, the distinctive strengths of our students. It will capitalize on our being, and being known as, a small research university with a liberal arts backbone, and it will continue to respect and value the intellectual freedom and maturity of our students.

Reflecting on our mission, our history, and our students, the commission articulated a more detailed description of the ideal character of a Johns Hopkins education to help guide our ongoing innovation. We arrived at this description by reflection on the basic principles that have shaped our practices as teachers and intellectuals; studying pertinent scholarly literature; consulting visiting experts, other faculty, and students; and reviewing statements of other universities. That character includes the following:

The acquisition of fundamental principles and methods

Our students acquire strong foundations in the knowledge that undergirds their disciplines and become skilled in their methods. From this base, they learn to synthesize, conceptualize and apply the principles at the core of their chosen fields. Focusing on fundamental principles, they question the assumptions built into current practices and develop new ones.

The integration of disciplinary knowledge and practices

Hopkins students gain an understanding of how their chosen discipline or disciplines fit into larger intellectual enterprises by working independently and in groups. They look inside and outside their home

disciplines for expertise, forming networks of people to generate and effectively articulate questions, ideas, and creative works.

The innovative application of fundamental principles

Hopkins students are guided toward success through open-ended research, design, and creative activity from the moment they arrive on campus and develop the confidence to experiment. These activities reinforce their independence of mind, their skill in communication, and their ability to work with others. They become reflective thinkers with the discernment and interpretive powers needed to exercise judgment and recognize both their own achievements and those of others.

The cultivation of well-being

Hopkins students craft flourishing lives, suiting their distinctive talents, values, interests, and ambitions. Together they form a community in which students strive to reach their greatest potential with the support of faculty, staff and fellow students. With that assistance, they broaden their perspective on a changing world and further their desire and capacity for life-long learning.

The advancement of civic responsibility

The Hopkins student body is drawn from all segments of society and from across the globe. This community of scholars extends beyond the Homewood campus to include faculty, graduate students and post-doctoral fellows, and alumni from across the university. Forming this diverse community constitutes an essential aspect of students' education: it trains them to give of their talents; address unmet needs locally, nationally, and internationally; and nurture the well-being of the planet in support of all life, including human life.

In many regards, these qualities define not the ideal but the actual Hopkins education. We frequently attain the high standards they represent, but we do not do so consistently. The report that follows urges us to work together to ensure that all our students will benefit fully from their education.

II. The National Landscape

Early in our study, members of the commission surveyed the landscape of contemporary higher education. What follows is a brief description of three prominent features of that landscape. A more detailed survey can be found in a memo circulated to the commission and included as Appendix B of this document.

Johns Hopkins attracts an extraordinary faculty and student body, and finds innovative ways to cultivate both. We have reason to be proud that our student body has been ranked the most talented in the country. The past decade has seen dramatic increases in the test scores of matriculating students. More than that, the diversity of our student body has markedly increased. In recent years, we have developed the Gateway Sciences Initiative and developed a thriving set of Heart and Soul courses; created innovative humanities collaboratories and Gateway Computing courses; and broken up large courses and increased the number of students performing research. These initiatives and others like them have had noteworthy effects. We have much to be proud of.

These remarkable qualities stand out against what can easily seem a bleak national environment. The data have become familiar. Public support for higher education continues to erode. Belief in the intrinsic value of the liberal arts has profoundly diminished. Research reveals a belief that college education should be evaluated by its price and, further, that it is not worth that price. Policy makers have promoted vocational education and apprenticeships over more traditional college paths. Some scholars argue that the higher education system has not merely failed to reduce systemic inequality but has exacerbated that inequality. Studies show that post-graduate satisfaction with college is low, far too few students enjoy the deep experiential learning and faculty care that lead to post-graduation success.

Perhaps it is not surprising, then, that research and experience both suggest that current undergraduates are more anxious than their predecessors. According to the American College Health Association, more than 50% of American undergraduate and graduate students reported feeling overwhelming anxiety in the past year; more than 30% felt so depressed at times that it was difficult to function. The highly competitive academic and co-curricular atmosphere at Johns Hopkins compounds that anxiety and depression: our students report greater stress than those at other schools. Recognizing the grave significance of this situation, President Ronald J. Daniels commissioned the Task Force on Student Mental Health and Well-Being in March 2016 to review all factors impinging on the well-being of our undergraduate and graduate students. In its report, the task force issued a series of recommendations that inform the university's new mental health strategy. Reducing these obstacles to student well-being is essential to the success of all the recommendations we issue in this document, and to the education of our students generally. We need to cultivate an environment where the remarkable students we attract can flourish.

A second significant feature of the national landscape concerns the relationship between collegiate education and post-collegiate experience. Much of this complex conversation has concerned the competencies developed in college, and their contribution to students' life-long flourishing. How

coherent are the curricula designed to ensure that students acquire competencies? How valuable are core curricula? What is the role of the university in ensuring the civic education of the citizenry? What is the relation between the liberal arts and career preparation? In what follows, we attempt to respond to this complex set of concerns in a way consistent with the historical character of the university.

Finally, we point to the relationship between the economic and racial inequities in the United States, and the traditional understanding of higher education as, among many other things, a vehicle for social mobility. Ours is still a society with striking inequities in income, rates of violence, standards of living, and access to healthcare and education. The relationship between higher education and social mobility, and the university's role in its community, its accessibility, the availability of its resources to all its students, and its continuing support of its graduates, must be reexamined in light of these historical inequities. The commission emphatically underscores the university's obligation not only to offer financial aid to students, but to support students—especially those from underprivileged backgrounds—once they arrive on campus and after they leave, to further their self-confidence, autonomy, individual development, and social responsibility as they lead lives of consequences and distinction. It also envisions a growing role for the university in fostering social awareness and change, especially in the elimination of prejudice, bigotry, and racial and economic inequities. It must ensure that the promise of social mobility is equally accessible to all of its students.

We are not alone in confronting this changed national landscape: other schools are re-imagining undergraduate education alongside us. At the beginning of our deliberations, CUE2 reviewed several pertinent initiatives at peer institutions and innovative liberal arts colleges. Findings from these initiatives were summarized in a second memo available in Appendix B.

III. The Charge and Procedures of CUE2

CHARGE

The goal of the Second Commission on Undergraduate Education is to build on the distinctive strengths of Hopkins, its values, and its culture, as well as the various investments and commitments that have been made over the years. It will build on the foundational work completed by the first Commission on Undergraduate Education (CUE1) and leverage the various infrastructural and programmatic investments and innovations that have been made since CUE1. Indeed, the fact that the university has made substantial investments and improvements to its undergraduate curriculum over the past decade puts us now in a position to think big and lead.

The landscape of higher education has changed significantly since the last CUE1 report, and these changes are only likely to accelerate. Assumptions about the number of years of education, the manner of its delivery, the funding model, the range of participating students, teachers, support personnel, and more are all being questioned, and practices are already changing. Hopkins should be a thought leader in defining the nature of post-secondary education, advanced degree acquisition, and lifelong learning in the 21st century—just as it served as the model for the American Research University as we know it today.

The university's mission statement is as follows: *"The mission of the Johns Hopkins University is to educate its students and cultivate their capacity for lifelong learning, to foster independent and original research, and to bring the benefits of discovery to the world."* In line with this statement, we might define the goal of undergraduate education at Johns Hopkins University as follows: we seek to prepare our students for lives of inquiry and exploration, through which they will not only achieve personal satisfaction but will also benefit the communities, from local to global, with which they interact.

Broadly speaking, the commission's charge is to interpret this mission for the second and third decades of the 21st century, and to develop a new model for undergraduate education that instantiates our mission and will serve us for the next decade or more. In particular, since preparation for a life of exploration and inquiry should begin at Johns Hopkins, the commission should consider (1) how to encourage and support students to make their education their own—that is, how to liberate them to explore broadly, take risks, and pursue their own interests and passions; (2) how to create a holistic curricular, co-curricular and extra-curricular experience that encourages such exploration and meets the highest aspirations of excellence and distinctiveness; and (3) what pedagogy and infrastructure is needed to support (1) and (2).

Johns Hopkins is an R1 university with a strong liberal arts component. This configuration equips the university particularly well to prepare students for both lives and careers of exploration, inquiry, and consequence. Considering our specific resources and culture, and considering also current trends in undergraduate education both at our own university and beyond, the commission is asked to consider the following questions, listed in no particular order:

1. How can the strengths of Johns Hopkins as One University—that is, the resources of all the university's divisions—be marshaled in support of a new, more broadly-conceived model of

undergraduate education? How can the traditional gap between liberal and professional education be transcended, such that our graduate professional schools can contribute to a rich and diverse undergraduate education, while our undergraduates can take advantage of resources and opportunities afforded by the professional schools?

2. Research is at the core of our academic enterprise. What role does student research and scholarship, both inside and outside the classroom, play in the new model, and how can we ensure that all undergraduates have a significant research experience at some point in their careers at Hopkins?
3. How do we continue to provide students with the conceptual bases and skills that traditional majors provide, yet in a way that supports broader exploration and aspiration?
4. What are the core competencies that will enable our students to continue to learn and succeed throughout their lives? How do we ensure that all our students acquire these competencies?
5. In-classroom education is undergoing profound change worldwide, driven by ever more powerful technology, new research on learning, and the assessment movement. What pedagogies, delivery mechanisms, and forms of assessment should support the course-based dimension of this new model? What more can we learn from the Gateway Sciences Initiative and the experimental ethos that characterized it? Is there insight to be gained from our own research into pedagogy and learning mechanisms?
6. Learning increasingly happens outside the classroom, in the community, and in the larger world. How, then, do we accommodate and leverage internships, service learning, co-ops, work study, experiential education, and the like within a new, more broadly conceived model of undergraduate education? How can we foster the engagement our alumni and the community in supporting outside-the-classroom educational experiences?
7. Learning also happens within the community of undergraduates, which therefore should be sufficiently diverse in outlook, interests, orientations, and social and cultural origins to support this peer-to-peer dimension of undergraduate education. How do we ensure that our student cohorts embody the requisite diversity and all students feel adequately supported? How do we ensure that our students have the requisite cultural competency to thrive in a diverse world?
8. What role should emerging, non-traditional paths to degrees, such as transfers, direct entry programs and joint bachelor's/master's degree programs play in this new model?
9. How can Johns Hopkins improve affordability of its programs, enabling access to a much broader pool of talented students?
10. What role do the arts play in the Hopkins undergraduate education of the 2020s? Do our arts programs as currently configured meet the need?
11. It is reasonable to assume that fewer students will follow traditional career paths in the future. How can we strengthen the ties between in-class education, career preparation and alumni engagement to best support students' career aspirations?

12. How should Johns Hopkins assess the quality and efficacy of its undergraduate experience going forward?

PROCEDURES

The commission (the roster of which is available in Appendix C) began by exploring its charge, identifying principles that underlie undergraduate education in general, analyzing the elements of an ideal education at Hopkins in particular, and identifying internal and external challenges and opportunities as we strive for that ideal. The commission studied the two comprehensive memos already mentioned, which summarize the recent work of JHU's peers in this regard, undergraduate themes and ideas currently prevalent in pertinent literature, and inspiring work occurring at smaller liberal arts colleges in the U.S. and abroad. We consulted relevant scholarly recent literature on undergraduate education and reports published by institutions concerning their own undergraduate education, including American, Amherst, Brown, Caltech, Columbia, Cornell, Dartmouth, Duke, Georgetown, Harvard, MIT, Northwestern, NYU, Rice, Stanford, Chicago, Penn, Berkeley, North Carolina, and Vanderbilt.

These exploratory efforts culminated in the formation of working groups focused on seven topics:

1. The Character of a Hopkins Education
2. The Integration of Research into the Undergraduate Experience
3. Post-Graduate Pathways
4. Community-Based Learning/Applied Learning
5. Re-imagining Teaching and Learning
6. Accessing and Maximizing the Benefits of a Hopkins Undergraduate Education
7. The Conditions and Contexts of Learning

These groups were charged with analyzing pertinent data and developing a set of recommendations for the commission (further information concerning these working groups is available in Appendix D). Each group met with students, faculty, and staff; conducted interviews; and reviewed internal data. Those data most prominently included the 2016 Senior Survey, the 2017 Enrolled Student Survey, and the 2016-17 Annual Data Report from the Counseling Center. Additional internal material included reports concerning student attitudes toward housing, food services, study locations, and the recreation center; students' participation in intramural sports, student organizations, sponsored off-campus activities, research, internships, and study abroad programs; and the percentage of students working off-campus, taking medical leave, and suffering from health issues. We consulted enrollment statistics, student course evaluations, and reports from the Gateway Sciences Initiative, the Student Services Excellence Initiative, and the Center for Talented Youth. The Mental Health Taskforce and the Homewood-Peabody Well-Being Working Group were among the concurrent committees at Hopkins which we consulted. The seven working groups delivered a summary of their findings and recommendations to the commission as a whole. These findings and recommendations were synthesized into a draft statement and set of high-level draft recommendations in March 2018.

These high-level recommendations concerned three distinct yet overlapping areas: the faculty, the students, and the curriculum. A second set of three working groups were then formed, each centered on

one of these areas. Phase Two working groups received a two-fold charge:

1. Identify a minimum of two exemplars for each recommendation. At least one of these exemplars should be a Hopkins initiative or program that depicts the recommendation in action. Exemplars from other universities may also be included.
2. Develop a set of Hopkins-specific recommendations or implementation suggestions aligned with the broader recommendation. These should be derived from the working group recommendations but may also include new ideas.

These Phase Two working groups presented their findings at a half-day retreat on April 30, 2018. The findings and recommendations from both Phase One and Phase Two working groups were synthesized into a draft report in Summer 2018; that draft was further refined between Fall 2018 and Fall 2019, yielding the current document.

External Consultants: The following experts in higher education participated in commission retreats, symposia, and public Town Hall presentations (also included in Appendix E):

Susan Ambrose, Northeastern University

Randy Bass, Georgetown University

John Boyer, University of Chicago

Edward Burger, Southwestern University

Brandon Busteed, Gallup

Jonathan Cole, Columbia University

Sara Goldrick-Rab, Temple University

Steven Mintz, University of Texas

Janice Stein, University of Toronto

Nancy Weiss Malkiel, Princeton University

Carl Wieman, Stanford University

Communication with the Johns Hopkins Community: During our deliberations we have informed community members about the commission and solicited their input. Email communications from President Daniels and Provost Kumar announced the launch of CUE2 and offered updates regarding its progress. Our Town Hall series afforded the community opportunities to engage the commission and its visitors. A series of “Coffee with the Co-Chairs” events provided informal occasions for the exchange of ideas with the chairs of the commission, Deans Schlesinger and Wendland. We also considered more than 200 suggestions and email messages from Johns Hopkins community members. Finally, the Hub featured three articles about CUE2: one concerning its launch, one concerning the visit of Jonathan Cole, and one concerning the “Coffee with the Co-Chairs” series. After the draft report was released to our community, we sought input through an extensive number of individual interviews with chairs, faculty and DUSs in nearly all departments and programs in KSAS and in WSE. We also conducted another series of town hall meetings and gathered comments on the draft report through the website.

IV. Findings and Recommendations

INTRODUCTION

The timing of the commission's tenure has been fortuitous. The Student Services Excellence Initiative, JHU Student Mental Health Task Force, and the Homewood-Peabody Well-Being Working Group were active as CUE2 was formed, and commission members consulted with representatives of each group. During our tenure, the Office of Integrative Learning and Life Design was created, the university launched its participation in the Excellence in Academic Advising initiative, Mayor Michael Bloomberg announced a major gift intended both to make admissions to Hopkins need blind and to ensure that opportunities be open to all students, regardless of their financial status, the university announced creation in Washington D.C. of an interdisciplinary academic facility anchored by the School of Advanced International Studies, and President Daniels announced a plan to establish a much-needed student center. Our recommendations complement those that have emerged from these initiatives. Nonetheless, two issues require special emphasis.

The commission discussed “access” extensively: one working group devoted itself to this topic, and the full commission repeatedly returned to it. Making admissions to Hopkins need-blind is but one step of many that must be taken. As an instance of the sort of additional steps needed, the commission strongly endorses an expanded partnership with Baltimore City schools and students, including increased resources and support for the Baltimore Scholars program, to provide greater opportunity to attract and support diverse local talent. However, access should be construed not only as access to Hopkins but also access at Hopkins. The commission was concerned by evidence that the opportunities presently available at Hopkins are not available equally to all. Students on financial aid find that economic barriers to their full participation persist. Discussions with students revealed, for instance, that those with limited resources often cannot fully participate in internships and other enriching experiences during off-semester periods. Students also reported that those with limited financial resources often have reduced and less-safe housing options than those with greater financial resources. This can push them farther from campus and limit their access to enriching opportunities. It is important that the recent gift from Mayor Bloomberg has aimed not merely to make higher education available to all qualified students, but also, in the words of President Daniels, to provide all students with “full access to every dimension of the Johns Hopkins experience.” Making admissions need-blind has garnered significant attention from the press and public, making on-campus opportunities need-blind has been less widely heralded, but is no less important. The commission recognizes the significant efforts that the university has made to address this issue and urges that these efforts continue. We urge, again, that opportunities at Hopkins be free of economic obstacles.

The recommendations proposed here affirm the university's enduring commitment to further the success of all our students. The commission did not feel it was sufficient to address diversity by adding required courses, instead, it urged that our commitment to diversity be embodied systemically. The commission recognized significant efforts and progress in this regard, but we believe that the university must

increase investment in ongoing JHU initiatives that increase faculty diversity, including those teaching undergraduates, and offer new courses responsive to the demands of diversity. Furthermore, given that much of the learning on campus takes place among undergraduates, the creation and support of a diverse student body is essential. Access cannot be conflated with admissions, nor confined to financial aid. It must remain an abiding concern from matriculation to graduation and beyond. Every undergraduate student must enjoy equal opportunity to flourish, and every student, not just those identified as underserved or underrepresented, must learn to perceive and interpret the dynamics that perpetuate social stratification. Often, the strategies we deploy to increase the success of underserved students focus on these students' adjustment to the dominant university culture, rather than attempting to alter that culture. For this to change the entire campus must be engaged. We must make time and place in a JHU undergraduate education for collective reflection on the dynamics of our community. Vibrant discussion of community values should be an essential part of our culture.

A second commission working group was devoted to student wellness; the entire commission discussed this issue at length. Central among the issues considered were the university's competitive and stressful culture, our need to foster a strong, engaged, and more vibrant community of scholars, and many students' reluctance to take appropriate intellectual and career risks. All the recommendations issued below are aimed directly or indirectly to further student flourishing outside as well as inside the classroom. Most particularly, the provision of better mentoring, advising, and counseling; the elimination of student assessment relative to other students, commonly referred to as "the curve"; the further development of co- and extracurricular activities; and the development of the Hopkins Semester all will help student flourishing, broadly conceived. Again, these recommendations complement those more wide-ranging recommendations recently issued by the JHU Student Mental Health Task Force Report. And, again, the commission energetically applauds the announcement made during its tenure that a student center will be established, a long-standing goal that was among the recommendations of CUE1.

RECOMMENDATIONS REGARDING THE CURRICULUM

The research and deliberations of the commission stressed overlapping curricular and pedagogical issues. This chapter generally concerns the former and responds to these questions posed by our charge:

- How can the strengths of Johns Hopkins as One University—that is, the resources of all the university's divisions—be marshalled in support of a new, more broadly-conceived model of undergraduate education? How can the traditional gap between liberal and professional education be transcended, such that our graduate professional schools can contribute to a rich and diverse undergraduate education, while our undergraduates can take advantage of resources and opportunities afforded by the professional schools?
- Research is at the core of our academic enterprise. What role does student research and scholarship, both inside and outside the classroom, play in the new model, and how can we ensure that all undergraduates have significant research experience at some point in their careers at Hopkins?
- How do we continue to provide students with the conceptual bases and skills that traditional majors provide, yet in a way that supports broader exploration and aspiration?

- What are the core competencies that will enable our students to continue to learn and succeed throughout their lives? How do we ensure that all our students acquire these competencies?
- Learning increasingly happens outside the classroom, in the community and in the larger world. How, then, do we accommodate and leverage internships, service learning, co-ops, work study, experiential education, and the like within a new, more broadly conceived model of undergraduate education?
- How can we foster the engagement of our alumni and the community in supporting outside-the-classroom educational experiences?
- What role should emerging, non-traditional paths to degrees, such as transfers, direct entry programs and joint bachelor's/master's degree programs play in this new model?
- It is reasonable to assume that fewer students will follow traditional career paths in the future. How can we strengthen the ties between in-class education, career preparation and alumni engagement to best support students' career aspirations?

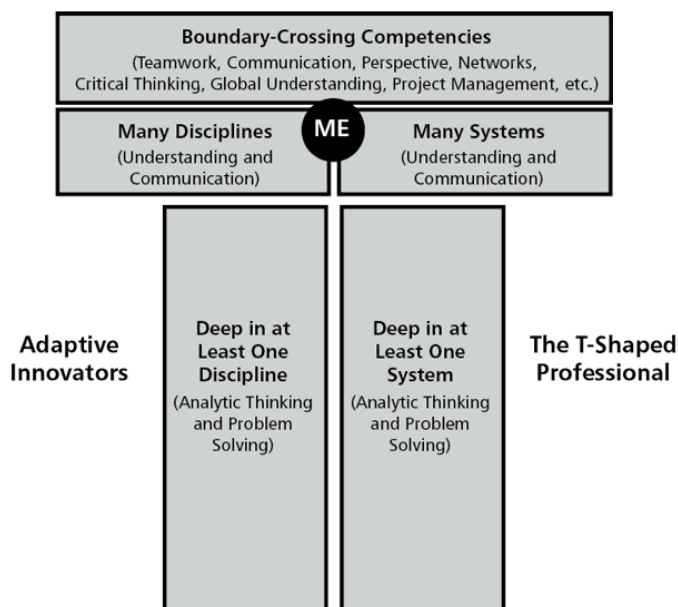
The recommendations developed by the commission are ambitious. By design they are aspirational and as such they avoid details regarding their implementation. The commission recognizes that implementation will require both cultural and institutional change. **To oversee and manage this change, we propose the establishment of a standing, universitywide Undergraduate Education Board.** This board will regularly review the implementation of specific CUE2 recommendations. The Homewood Academic Council will be consulted to ensure the clear demarcation of duties and responsibilities between these two bodies. In addition to advising the provost and Homewood deans on the implementation of CUE2 recommendations, the board should also advise the provost and deans about other universitywide issues pertaining to undergraduate education, review undergraduate degree programs, and set guidelines and policies that affect all undergraduate students. (See Appendix F for draft composition and mission).

Recommendation 1. Redesign the undergraduate curriculum to provide foundational abilities for life-long flourishing and learning.

This recommendation starts from our recognition that the university has a responsibility to prepare its students to flourish as informed, skilled, and effective members of their society and of the world. To ensure that we meet this responsibility, the commission recommends an ambitious new undergraduate curricular framework that balances disciplinary training, developed through the major, with interdisciplinary exploration while strengthening our students' sense of community. We should provide an education that is broad as well as deep, one resembling (to use language current in educational studies) a "T," rather than an "I."¹ As depicted in Figure 4.1, T-shaped education affords students with the opportunity to develop deep disciplinary knowledge in at least one area as well as the competencies associated with forming connections between disciplines that allow them to become adaptive innovators.

¹ T-Academy (2018).¹¹ <http://tsummit.org/t>

Figure 4.1 T-shaped Undergraduate Education



Currently, the university uses “distribution requirements” to ensure interdisciplinary breadth of academic experience. These requirements stipulate that students must earn a minimum number of credits in academic areas outside of their primary major. These areas include humanities (H), natural sciences (N), social and behavioral sciences (S), quantitative and mathematical sciences (Q), and engineering (E). Courses are assigned an area designator by the academic department, if taught within a Homewood academic department; if not taught within a Homewood academic department, they are assigned by the appropriate dean’s office.

A review of these requirements, and anecdotal evidence suggest that they are not successful. The means by which courses are evaluated for designation is unclear and inconsistent. In some departments, a significant percentage of classes required for the major can also be counted toward the distribution requirement, undermining the disciplinary breadth inherent to their intent. In KSAS, students can triple count a course toward a major requirement, a writing requirement (W), and a social science or behavioral science (S) or a Natural Science (N)/ quantitative and mathematical science (Q)/Engineering (E). This further thwarts the distributional intent of the requirements. Students majoring in Psychology, for instance, can satisfy 92% of the distribution and writing requirements through major courses alone. The current distribution system does not ensure that students are learning enough about other disciplines to make meaningful connections between and across these disciplines.

Before opening our discussion of curricular revision, commission members reviewed the practices of other institutions, studied scholarly literature (including that noted in this document and its appendices), and reflected on matters of principle. Members then articulated the foundational abilities a Hopkins undergraduate education should inculcate.

1. Students should recognize the importance of language and have a command of it as readers, writers and speakers. Students should be able to express clearly their ideas, opinions, beliefs and feelings; interpret varied texts accurately and subtly; argue lucidly and effectively; and recognize the many ways conventions and contexts shape both expression and comprehension.
2. Students should develop facility with scientific, numerical and algorithmic reasoning, and be able to apply a variety of computational and analytical methods to organize, summarize and evaluate hypotheses, inferences and quantitative information as they arise in public, professional and personal life. They should be able to create and assess the degree to which arguments are supported by empirical and quantitative evidence.
3. Students should recognize the importance of complex creative expressions in various forms and be able to interpret them reflectively. They should develop the means to deepen the quality of their lives by cultivating their intellectual and emotional responses to aesthetic and cultural experiences.
4. Students should engage effectively as citizens of a diverse world. Graduates should have developed a dynamic knowledge of local, national and global societies, alongside an understanding of historical inequities, prejudice, bigotry, and racism in our society. They should be able to articulate and examine their own beliefs, practices and values while being open to and respectful of the beliefs, practices and values of others.
5. Students should be reflective, effective ethical agents. To this end, they should recognize situations of ethical consequence inside and outside their fields of study, understand ethical principles, formulate their own views about those principles and their application, and act in principled fashion.
6. Students should be able to independently conceptualize and complete large-scale, consequential projects. They should be able to adopt, refine and use appropriate methods and means for such projects, and respond to unforeseen developments.

We continued our curricular discussion by studying models developed by peer institutions. The disquietude found in the reports issued has several sources difficult to detangle: an uncertainty about the relationship between liberal arts education and vocational/pre-professional training; a worry that the “open” curriculum has become a hodge-podge, box-checking exercise; and a concern that a highly-structured “core” curriculum is too rigid for the present needs of students in an increasingly fluid, rapidly altering society.

In its report, Columbia asks several questions of its curriculum: “Are what some have called the ‘containers’ of our undergraduate curriculum appropriately sized? We probably agree that a strong undergraduate curriculum should include general education (our core), specialist education (our majors) and opportunities for exploration (electives). Do we provide ample opportunity for all three of these goals?” Stanford has asked whether the intellectual breadth of a more “open” curriculum serves its undergraduates well. “Few

people question the value of intellectual breadth ... [but is 'sampling'] the optimal way of fostering true breadth in an age like ours, in which the boundaries of different fields are increasingly blurred?"

Stanford's answer to questions like these has been not to prescribe courses in disciplinary areas but to promise the acquisition and development of seven "essential capacities," which foster "ways of thinking, ways of doing." The capacities they list are aesthetic and interpretive inquiry, social inquiry, scientific analysis, formal and quantitative reasoning, engaging difference, moral and ethical reasoning, and creative expression. They have started to implement this shift in approach by establishing a first-year curriculum experience called "Thinking Matters." It seeks to inculcate a broadly applicable orientation to academic study rather than narrower forms of knowledge.

Other universities have issued similar statements. UC-Berkeley has said that its graduates should possess four core "competences" and four "dispositions." Graduates should be literate, numerate, creative, and investigative--these are the competences. They should also be open-minded, worldly, engaged, and disciplined--the dispositions. UC-Berkeley invokes vocational pressures in justifying its new approach: "students must prepare for fluid careers in a future where what you know is less important than how you think, learn and discover on your own." To do this, UC-Berkeley aims to "bring greater meaning and coherence to core requirements," in part by using new technology. For example, they are now using a planning tool called "Course Threads," which helps students, with faculty supervision, chart a "logically connected sequence of breadth courses."

Like Stanford and Berkeley, Washington University acknowledges the importance of articulating the essential skills and competences the university wishes its graduates to possess, but it emphasizes the even greater need to cultivate a longer list of "metacognitive skills and attitudes." These include an ability to think and act creatively, an ability to engage in both individual and collaborative research, an understanding of how knowledge is created and transmitted, the ability to integrate knowledge from several domains, resilience and the ability to adapt to change, intellectual curiosity, practical insight, and "a facility for making normative assessments as well as with establishing matters of fact." The challenge is how to instantiate these abstract goals in the curriculum. American University, for example, is tackling "quantitative literacy, writing, and information literacy training" by creating a variation on the core curriculum. It is putting in place a five-course sequence emphasizing skill/competency-oriented learning (e.g. "Quantitative Literacy I"). This is supplemented with an optional set of one-credit professional skills modules.

As the commission studied these varied models, members came to see that a new curricular framework could also address our need to strengthen students' sense of community, without constraining the curricular freedom they rightly value. Hopkins undergraduates choose to learn across a wide variety of settings and contexts--from the classroom to the residence hall; from the laboratory to the athletic field; from the library to the internship site. This diversity is one of our great strengths. The curricular framework we propose provides a common, shared vision for students as they accumulate a richly varied experience. The foundational abilities we describe would be developed in all these contexts, through both individual work and in teams, in brief and in extended projects, through an array of programs, courses and experiences.

The abilities would provide a common, shared vision for students as they accumulate a richly varied, independently designed education.

The proposed curricular framework has the following components:

Recommendation 1a: Require participation in a first-year seminar.

We begin with a pedagogical form invented at Hopkins—the seminar. **The commission recommends that every entering student be required to participate in a first-year seminar.**

These seminars would signal three messages for all students arriving on our campus: that they are now engaged members of a thriving academic community; that their intellectual passion will carry them in unexpected ways; and that what they do here can have worldly effects. These courses would ease students' entrance into college, while encouraging them to take risks and explore new topics—alone and with their new colleagues—while forming bonds with each other and with our faculty, starting on their first day of classes. In this way, these seminars would exploit Hopkins' distinctive combination of small size and unparalleled faculty. In short, they would aim to provide a shared experience of consequential and creative interdisciplinary exploration. They would be the foundation of their university education.

CUE2 reviewed several successful first-year seminar programs, including those developed by Amherst College, Stanford University, the University of Toronto, and UC-Berkeley. Amherst's first-year seminars, initially designed as one-year, interdisciplinary courses co-taught by faculty from two different disciplines, are an integral part of the college's curriculum and required of all students. The first-year seminars are now semester long and often taught by a single faculty member. The commission preferred more collaborative and interdisciplinary models that permit students to explore a single theme, topic, or problem in depth by exposing them to various modes of inquiry, and thus to understand their area of focus from several, overlapping, and sometimes opposed perspectives. In such courses, faculty model how to comprehend and address complex problems through interaction with peers in other disciplines. UC-Berkeley is experimenting with "Big Ideas" courses taught by faculty from different disciplines and usually across divisions/schools. A course on "Time," for example, is taught by a philosopher and a string theorist whereas a course on "Origins" is co-taught by a paleontologist, an astrophysicist and a Biblical scholar. Another model is "Duke Immerse": students join a cohort and spend an entire semester exploring a single "issue" (e.g. Uprooted/Re-routed: The Ethical Challenges of Displacement") from an array of disciplinary perspectives. It is "delivered as one cohesive whole occupying the entirety of a student's academic work for a given semester."

For the past several years, Hopkins has offered 40 to 50 freshman seminars each academic year in the Krieger School of Arts and Sciences. These 1-3 credit small classes, usually limited to about 10-15 first year students, explore specialized scholarly topics chosen by the instructor. As noted in Figure 4.2, 33% of first year students completed a freshman seminar in academic year 2018-19. As an initial step, the commission recommends 100% participation in a first-year seminar for all first year and transfer students in

the first semester that they matriculate. To achieve this goal, the University will need to at least double the number of seminars that currently target first year students, ensuring that they are aligned in terms of credit hour assignment and overarching pedagogical goals, outcomes, and structure.

Figure 4.2 Hopkins Freshman Seminars and Enrollment

Semester	Number of Freshman Seminars Taught	Number of Students Enrolled (percent of class)
Fall 2018	27	297 (23%)
Spring 2019	10	131 (10%)
Fall 2019	32	317 (23%)

Several models for a robust first-year seminar curriculum will be explored and piloted. However, all will aim to foster intellectual community, a sense of camaraderie, and a shared experience, and to establish foundational reading, writing, and critical thinking skills needed to transition effectively into university-level academic work. In one option the first-year seminars could begin to more specifically target the development of expository writing skills by pairing disciplinary expertise from faculty with writing instruction expertise from expository writing faculty. In another model, the first-year seminars would share a common theme and be coupled with regular public assemblies that gather new students for lectures by visiting scholars and public intellectuals. These assemblies would foster students' sense of participation in an intellectual community, and strengthen their identification with their new university. In yet another model, the seminars would explore a theme or question from different disciplinary perspectives and involve faculty with very different backgrounds. The implementation of the first-year seminars will be guided by the information gathered in pilot seminars, with the goal of identifying the model that achieves the commission's stated pedagogical goals and concern for scalability.

Faculty would be drawn from the professional schools as well as Homewood, furthering the university's One University initiative. Seminars aligned with JHU's interdisciplinary institutes and initiatives, for example, [21st Century Cities](#) and the [Agora Institute](#), would allow us to leverage the capacities of our broad array of academic centers.

The commission recommends that the provost's investment in this initiative should include an innovation competition that provides grant funding for course development. The [DELTA](#) (Digital Education & Learning Technology Acceleration) Grant program is an encouraging model. Selecting broad themes, for example—akin to those being chosen for the [Common Question initiative](#)—would allow faculty latitude to design seminars that engage them, cycling through themes on a regular schedule.

Recommendation 1b: Establish the “Hopkins Semester” of intensive study.

Research has been the core of Hopkins’ identity. One benefit such research has traditionally offered to some of our students is the in-depth experience of extended, immersive study. But this opportunity should be extended to our students, whether in creative activity, professional exploration, or research. To that end, CUE2 proposes to create a “Hopkins Semester.”

The commission conceives of this program as an optional junior or senior year, semester-long, mentored, immersive experience that will give students the time for a focused, deep, and rigorous exploration of one complex subject or endeavor either inside or outside their major department or program. While the Hopkins semester will not be required of every student, it should be available to every student. The commission expects that students themselves will be the driving force of these experiences: that they will propose and complete innovative projects that we don’t presently imagine. If the first-year seminars described in Recommendation 1a would be driven by the intellectual excitement of faculty given the opportunity to teach small seminars, the Hopkins semester would similarly be driven by the passions of the students. Students would be required to provide, and departments required to approve and assess, proposals for and reports on their experience that demonstrate the knowledge, skills, and abilities developed.

Team-based projects would also be possible. Such projects, whether creative or research-intensive, would develop the skills associated with collaborative communication on teams whose members bring distinct qualifications and play interdependent roles. Design projects, artistic endeavors, research experiences, commercial ventures, professional internships and community-based projects all could serve the spirit if not the ends of this recommendation—whether undertaken in the opera house, the archives, Congress, the laboratory, the community center, a startup venture, or the clinic. Pursuing one’s Hopkins Semester abroad immersed in a foreign language and culture would also, and particularly, be encouraged.

This intensive semester should facilitate a high-level synthesis of concepts and practices learned during students’ first and second years of coursework. It would ensure that students develop the foundational ability to identify, conceptualize and complete large-scale projects. The Hopkins Semester could satisfy the requirements of some core major courses, and perhaps upper-level courses as well, but need not. In addition, projects and activities before and after this semester could expand and extend the experience. Thus, for example, a project pursued intensively during the semester may be defined and developed before the semester and the activity may continue, albeit at a less intense level, after the semester (Note that the Hopkins Semester would be immersive: projects completed piecemeal across semesters would not qualify.) The guidance provided by faculty is an essential element of this recommendation, in part because it encourages mentorship. The Hopkins Semester could regularly be a transformative immersive experience—thus furthering one aim already established by the Office of Integrative Learning and Life Design.

In 1998, the Boyer Commission issued 10 recommendations for improving undergraduate education at research universities in the USA; the first recommendation was that research-based learning become stan-

dard. Following the Boyer Commission's lead, several US research organizations—including the Mellon Foundation, the Howard Hughes Medical Institute, the National Institutes of Health, and the National Science Foundation—have funded opportunities to include undergraduates in the research programs of science faculty and, to a lesser extent, those of humanities faculty. Many subsequent studies have demonstrated the benefits of undergraduate research experiences. “Evidence from an array of quantitative and qualitative studies supports the promise of undergraduate research as a catalyst for student development across disciplines, genders, and ethnicities. While cost factors, including money, time, and faculty priorities, need be considered during the creation of an undergraduate research program, the benefits to students are consistent with our greater expectations for liberal learning.”²

Undergraduate students who completed a mentored research program identified many areas from which they benefited including the interpretation and analysis of data, the ability to work independently and to integrate theory and practice. They also reported greater self-confidence and a clearer understanding of their career paths.³ Nevertheless, the benefits of such experiences are not limited to research programs, creative and experiential projects can have analogous results.

In 2018, 62% of Johns Hopkins seniors reporting participating in research in the Senior Survey, increased from 57% in 2016. Results of those surveys also suggest that students are generally satisfied with the opportunities to participate in research with a faculty member. The university presently supports undergraduate research in various ways, through the Provost's Undergraduate Research Award (PURA) (see Appendix G for 2017-19 Metrics), the Woodrow Wilson Undergraduate Research Fellowship Program, the Dean's ASPIRE Grant (in KSAS), and smaller initiatives, including the library-based program, The Freshman Fellows. But research experience is inconsistent across campus. We excel at supporting student research in the lab but not in the library. In 2014, only 19% of humanities students reported participating in research with a faculty member, and only 27% of social/behavioral sciences students reported doing so, this compared to 59% for natural sciences and 69% for engineering. As our investment in undergraduate research increases, support like that presently offered through PURA and the Dean's ASPIRE Grant should become more visible and more generously funded (See Appendix H).

Of our peers, only Princeton requires a capstone project for all undergraduates, it takes the form of a senior thesis. Others, like Stanford, make a point of encouraging all seniors to complete capstones. Some capstone experiences offered elsewhere resemble the Hopkins Semester we propose. George Mason University offers research semesters in biology. The University of Michigan offers a Humanities Collaboratory

² Lopatto, D. (2006). Undergraduate research as a catalyst for liberal learning. *Peer Review*, 8(1), 22-25. See also: Gillies, S. L., & Marsh, S. (2013). Doing science research at an undergraduate university. *International Journal of Arts & Sciences*, 6(4), 379; Hempstead, J., Graham, D., & Couchman, R. (2012). Forging a template for undergraduate collaborative research: A case study. *Creative Education*, 36(Special Issue), 859-865; Healey, M., & Jenkins, A. (2009). *Developing undergraduate research and inquiry* (p. 152). York: Higher Education Academy; Kuh, G. D. (2008). Excerpt from high-impact educational practices: What they are, who has access to them, and why they matter. *Association of American Colleges and Universities*, 19-34;

³ Lopatto, D. (2010). Undergraduate research as a high-impact student experience. *Peer Review*, 12(2), 27

that brings together faculty, graduate students and undergraduate research assistants over a semester. Duke offers an intensive research semester with seminars called DukeImmerse, a cohort model in which students spend an entire semester exploring a single issue from an array of disciplinary perspectives. Like the Hopkins Semester, DukeImmerse is one cohesive whole occupying the entirety of a student's academic work for a given semester. It involves daily interaction with faculty members and a collaborative project. About four such programs run each semester. Similarly, the "Immersion Vanderbilt" program encourages students to pursue creative and/or independent projects. The program is "inherently flexible to allow the student to work closely with a faculty mentor on a project that provides a depth of experience." Finally, standalone programs, like EUROScholars, enable students to use a study abroad semester for research.

For the Hopkins Semester to be viable within our traditional four-year program, departments will need to ensure that the sequencing of their courses allow for a full semester immersive experience. Additionally, advising services would need to assist arranging projects undertaken on campus and, in coordination with advisors in majors and career services, also assist arranging projects undertaken off-campus. The Undergraduate Education Board would be charged with developing best practices in setting learning objectives and assessment expectations for the Hopkins Semester. Departments will use those guidelines to develop student application, approval, and assessment processes. The board should also establish baseline expectations regarding faculty mentoring of students based on best practices. The commission recommends that financial support be made available to implement this recommendation and to make it equally accessible to all students.

Recommendation 1c: Meaningfully integrate curricular, co-curricular, and extracurricular learning.

The range of activities our undergraduates undertake is immense, carried out across campus, Baltimore, the country, and the world. Their passions, nourished in the classroom, drive them far beyond its confines. They apply and extend their learning, form new relations, and change the world around them. The rewards of their co-curricular and extra-curricular activities are distinctive, various, and essential to their education.

The task of the university is to support, improve, and integrate these activities. We should aspire to transform the college experience from one composed solely of traditional elements—lectures, papers, problem sets, and exams—to one in which these elements sit amid a much broader range of learning activities within and beyond the classroom. Such an experience would cultivate students' synthesizing capacities by encouraging what has been called "integrative learning":

an understanding and a disposition that a student builds across the curriculum and co-curriculum, from making simple connections among ideas and experiences to synthesizing and transferring learning to new, complex situations within and beyond the campus. ⁴

⁴ Rhodes, T. L. (2010). Making learning visible and meaningful through electronic portfolios. *Change: The Magazine of Higher Learning*, 43(1), 6-13.

A plan to develop such a fully integrated experience at Hopkins has already been initiated by the Office of Integrative Learning and Life Design. Central to that plan is the development of a co-curricular road-map that integrates coursework, intersession and summer experience, community activities, and social networks to ensure that all students are exposed to, and can access, the same rich opportunities. This education would include tools for students to document, reflect on, and assess all their educational activities, and would help them lay the groundwork for life-long learning and their post-graduate careers. In this way, it would also encourage them to become more reflective agents in their personal and professional lives while engaging as citizens of a diverse world—two of the foundational abilities noted above. **To support this initiative, the commission recommends that the Undergraduate Education Board develop clear policies on awarding credit or credential based on learning outcomes for selected, appropriate, structured co-curricular experiences relevant to disciplinary study.** Linking outcomes to academic requirements would send a powerful signal to faculty and students concerning the importance of co-curricular learning, and the importance of rigorously evaluating that learning. Such a policy would also guide faculty as they facilitate student reflection on their extramural work and evaluate their experience against outcomes defined by the program and university.

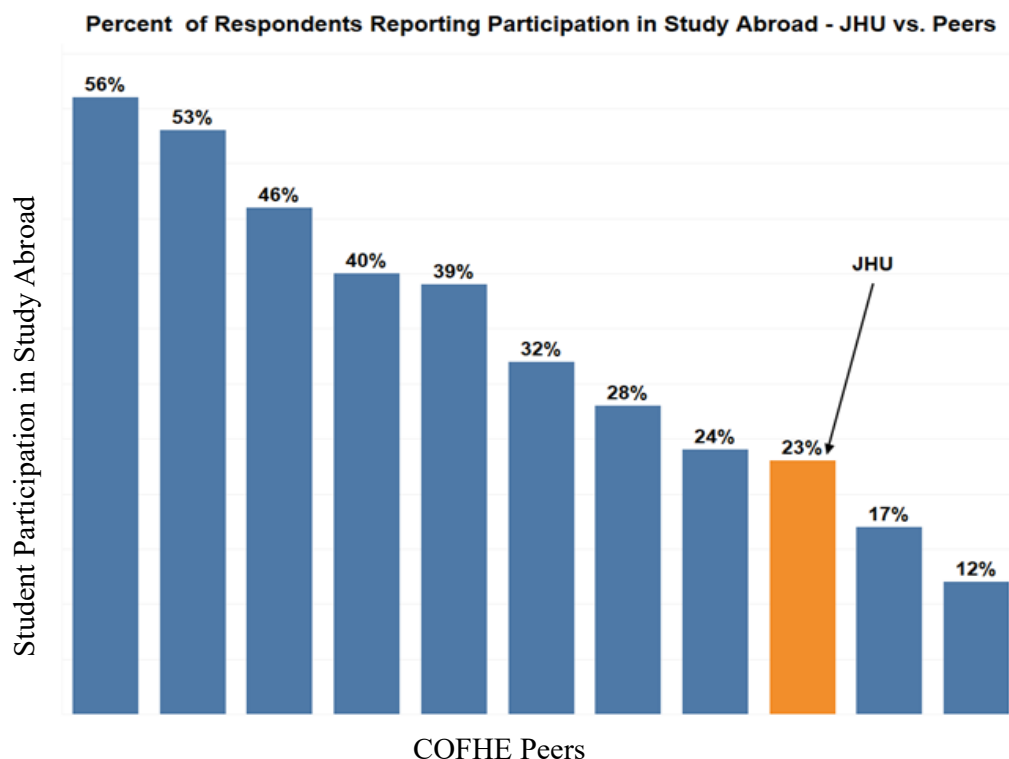
The National Leadership Council for Liberal Education and America's Promise (2007) stresses that "The Association of American Colleges and Universities (AAC&U) has long promoted integrative learning for all students as a hallmark of a quality liberal education, noting its essential role in lifelong learning." Increasingly, integrative learning is recognized as an empowering developmental process through which students synthesize knowledge across curricular and co-curricular experiences to develop new concepts, refine values and perspectives in solving problems, master transferable skills and cultivate self-understanding. An AAC&U-sponsored project on integrative liberal learning between 2012 and 2014 with fourteen small liberal arts institutions has helped illuminate a variety of practices that strengthen connections across learning experiences and encourage students to reflect on their goals with the aim of making intentional curricular and co-curricular choices, charting their own progress, and understanding the 'why'—and not just the 'what'—of their four years.⁵

Data concerning students' participation in extra- and co-curricular activities at Hopkins are scattered. In the 2016-2017 academic year, Johns Hopkins University had 409 student organizations, including fraternities and sororities. Currently, there are 395 student organizations, and this number is expected to surpass 400 as the year progresses, given organizations that are currently going through the process of being established. In the 2016 Senior Survey, 63.1% of students reported having participated in at least one student organization, including fraternities and sororities, during their time as an undergraduate. As noted in Appendix I, participation varies across majors.

⁵ Ferren, A. S., & Anderson, C. B. (2016). Integrative learning: Making liberal education purposeful, personal, and practical. *New Directions for Teaching and Learning*, 2016(145), 33-40.; see also Kehoe, A., & Goudzwaard, M. (2015). ePortfolios, badges, and the whole digital self: How evidence-based learning pedagogies and technologies can support integrative learning and identity development. *Theory Into Practice*, 54(4), 343-351.

Figure 4.3 reveals that 23% of 2018 Senior Survey respondents reported studying abroad, a low rate among our peers. In the same survey, students also reported that they would have liked to spend more time involved in extracurricular activities, volunteering, relaxing and socializing. Data about JHU sponsored off-campus activities are harder to ascertain, but the numbers appear quite low: 3.0% of students have participated in off-campus activities sponsored by the Office of Student Leadership and Involvement, for instance; 2.4% have participated through the Center for Social Concern.

Figure 4.3 Participation in study abroad as compared to peer institutions, 2018 Senior Survey



Note: The comparisons include COFHE peers, but are not labeled per COFHE data sharing agreement.

Other universities, including Boston University and University of South Carolina, have created models for integrating co- and extracurricular activities into student experience, and created infrastructures to enable, document, and reward those activities. Among the most robust of these models is the [21st Century Badging Challenge](#) developed by the Educational Design Lab in association with public and private universities in the Washington D.C. area. Engaging faculty members and about 40 students from each participating institution, the program determines rigorous assessment criteria for its badges, in order to present a comprehensive signal to employers about student achievement. The University of South Carolina (USC) has developed the USC Connect program, which provides learning pathways that start in the first year, take students outside of the classroom, and enable them to create substantive portfolios. Successful students graduate with “leadership distinction” designated on their diplomas and transcript. Finally, the

University of Mary Washington and Emory University have both piloted projects to provide a personal web space to all incoming students, in this space, students will develop integrated, holistic e-portfolios that include both curricular and co/extra-curricular evidence of their activities.

Again, some of the resources for a more fully integrated learning experience at Hopkins are already at hand. The Center for Social Concern (CSC) has been particularly active in encouraging students to engage with the Baltimore community. CSC supports both extra-curricular engagements, through hosting student organizations, and curricular experiential learning opportunities, through a faculty fellows' program. The CSC's France-Merrick Civic Fellowship allows students to undertake community work. In collaboration with the Whiting School of Engineering's Center for Educational Outreach, CSC helps sponsor the Charm City Science League, an organization of over 100 student volunteers who work with teams of middle-school students to prepare for Science Olympiad and robotics competitions.

Implementation plans for the development of a more fully integrated undergraduate experience have already been formed by the Office of Integrative Learning and Life Design. Features of that plan include embedding career staff in academic programs and communities; replacing career services with scalable life design programs that integrate coursework, connections, and experiential learning; developing learning modules for staff and faculty on life design; creating dynamic websites, online platforms, and a digital presence; and drafting a narrative of life design for admissions, departments, centers and alumni relations. Departments should be charged with developing policies for the assessment of co-curricular activities where warranted, in consultation with the Undergraduate Education Board. The university's new learning assessment platform provides an opportunity to develop Comprehensive Learner Records for each undergraduate student. These records are digital, official documents issued by the institution that provide a richer expression of the learning outcomes or competencies mastered during a student's experience than traditional transcripts and diplomas as they capture course-based, co-curricular, and extracurricular learning.

Recommendation 1d: Ensure instruction in foundational abilities.

The above three recommendations (1a-c) are intended to prepare students with the foundational intellectual skills and dispositions articulated by the commission. Together they will begin to shift the culture of undergraduate education at Hopkins to one more energetically devoted to the cultivation of student capacities rather than to the accrual of credentials. But that shift will also require more systemic structural change. **To that end, the commission recommends that the current system of distribution requirements be replaced with a mandate that students acquire foundational abilities in writing and language; scientific, numerical and algorithmic reasoning; interpreting complex creative expression; citizenship in a diverse world informed by an understanding of social, cultural and institutional aspects of prejudice, bigotry, and racism; reflective ethical agency; and the independent conceptualization and collaborative undertaking of large-scale consequential projects.** The primary responsibility for ensuring that students acquire these abilities lies with the deans of KSAS and WSE.

The deans will coordinate the work of the departments across schools to map both major and school-level program outcomes as well as course and non-course-based learning objectives to the foundational abilities. Majors require that students know a segment of human knowledge deeply and develop some mastery in its ways of thinking. But that knowledge should be integrated within a broader disciplinary environment such that students gain an understanding of how their chosen discipline or disciplines fit into larger intellectual enterprises. So, while many of the foundational abilities will be cultivated in courses required for the major, the aim of the commission is not for the students to acquire the foundational abilities solely within the confines of the major. On the contrary, the spirit of this recommendation is to encourage students to explore outside their majors, to cultivate the foundational abilities through course work in other departments and disciplines, or contexts, and through co-curricular activities. Again, this integration is one sign of what makes Hopkins distinctive—its blending of a liberal arts educational philosophy with that of a research university.

Further, the foundational abilities are not expected, nor meant, to be inculcated in single courses. Rather, the goal is to provide opportunities to cultivate them in various contexts across the curriculum, distributed over the four-year arc of instruction. For example, learning how to write effectively cannot be achieved in a single course in expository writing, developing reflective ethical agency will not be achieved in a single course on practical ethics, and the history of racism in this country and its pernicious and insidious social consequences cannot be understood and internalized with a single course on African-American history. While such courses could serve as the foundation for delivering initial instruction on these foundational abilities, the curriculum will have to evolve to provide regular opportunities for students in all majors to engage with the foundational abilities (e.g. to practice writing regularly and throughout their four years in college, in and outside of their majors and disciplines, to study ethics or to examine questions of injustice, historical inequities and racism in many different contexts).

CUE2 recognizes that this recommendation will require the schools to develop more sophisticated and robust means of assessing students' knowledge, skills, and abilities as well as evaluating courses, non-course learning experiences, and programs. Multifaceted assessment of program outcomes and learning objectives will provide students, departments, and schools with formative and summative data that illustrate students' success in achieving the abilities. Such data should be evaluated by the school regularly to ensure continuous improvement, inform the need for curricular revision and appropriate allocation of resources. Coordination between the schools and with assessment boards will proceed as necessary in consultation with the Undergraduate Education Board.

The articulation of these six foundational abilities also provides opportunity for academic innovation. Faculty should be encouraged to develop new courses that span disciplinary boundaries, thereby targeting development of skills on the horizontal bar of the "T." For example, a competitive academic innovation fund could be established to develop new classes that require students to apply their disciplinary knowledge in a team of students with varied expertise from a variety of disciplinary backgrounds to address a contemporary cultural, scientific, social, or economic challenge. Several models for such team-based learning already exist within our university upon which the infrastructure for such courses could be built.

Several engineering departments already engage industrial partners to sponsor student projects, while the Center for Social Concern builds connections between extracurricular student projects and Baltimore communities.

The recently pioneered [Classics Research Lab](#) provided a mechanism for a team of students to undertake a reconstruction of the contexts of and influences upon the work of Victorian scholar John Addington Symonds, pioneering a humanities-centric approach to problem-based learning. A pilot to teach Multidisciplinary Engineering Design in Fall 2019 showcased 18 students from across 6 engineering majors engaged in 4 different projects with external partners. And in 2018, a [Hack Your Life Design Challenge](#) engaged 18 teams of students from Mechanical Engineering at JHU and the Maryland Institute College of Art. The challenge provided students with the freedom to explore different ways in which engineering and art can intersect.

The pathways students take to develop the foundational abilities in lieu of fulfilling distribution requirements will be widely varied and driven by their individual interests and needs; the schools will be responsible for ensuring that the implementation of this recommendation fulfills its spirit, that it compels deep exposure to and practice in the foundational abilities. CUE2 recognizes that the students' success will require careful advising, mentoring, and coordination by faculty, staff, peers and others. Recommendation 4 below describes a new system of advising, mentoring, and coaching, which would provide the support needed for this new curricular framework. Certainly, the burden of ensuring that students acquire these foundational abilities will be considerable, but the curricular framework described here highlights one great strength of our university—that it provides students with a combination of great institutional resources and individual attention. This vision aims to ensure that all our students benefit from that distinctive strength while enrolled, and flourish after they graduate.

Recommendation 2: Increase the flexibility of the major requirements where needed to enable intellectual exploration.

The model of undergraduate education CUE2 recommends places disciplinary expertise at its center. Being trained in a distinct set of methods and acquiring the knowledge particular to a discipline are essential features of an undergraduate education. Moreover, without strong disciplines one cannot imagine strong interdisciplinary programs, but disciplinary expertise must be rooted in a liberal education. The best scholars, as President Gilman remarked in his inaugural address, “will almost invariably be those who make special attainments on the foundation of a broad and liberal culture.” This education contributes to their flourishing, independent of and beyond any credentials we might issue. Again, Hopkins is distinctive as a research university with a liberal arts backbone. We should make this distinction more visible.

Our faculty habitually forge connections among disciplines: undergraduates should be encouraged to do the same. For students to pursue the leads provided by disciplinary training, they should be given room to leave their disciplines and learn elsewhere. As urged by its charge, the commission proposes to build on the positive features, including curricular flexibility, which distinguish us. The curriculum of any universi-

ty, as Jonathan Cole remarked in his Town Hall Presentation, “should dovetail well with the identity of the university and represent a realization of its basic principles and goals.” Hopkins has offered its students flexibility since its founding. That flexibility assumes maturity of the students and aims simultaneously to promote that maturity, cultivating the independence of thought necessary for life-long learning.

The diversity of our students implies diversity of thought, ambition and goals; as a result, curricula should not assume that one path will suit all students, even within a discipline. Data from student focus groups and the most recent surveys indicate that our students continue to value this flexibility and are dissatisfied when it is absent. The initiative, breadth, and independence assumed by a flexible curriculum also are valued by industries presently driving the global economy. According to [a recent study](#) conducted by Hart Research Associates and published by the American Association of Colleges and Universities, “employers recognize capacities that cut across majors as critical to a candidate’s potential for career success, and they view these skills as more important than a student’s choice of undergraduate major.” Nearly all those surveyed (93%) agree that “a candidate’s demonstrated capacity to think critically, communicate clearly, and solve complex problems is more important than their undergraduate major.” Many prominent civic and business leaders have confirmed this view and have offered full-throated endorsements of a broad and liberal education, rather than a narrow, exclusively technical or exclusively non-technical one.

Institutional data in Figures 4.4-7 show that curricular flexibility, as measured by the fraction of credits restricted by a student’s major, not inclusive of school-level requirements that encourage broad education, varies widely across departments, and is highly restricted in some. The Department of Philosophy requires the completion of 33 credit hours (27% of the total needed for graduation). Biomedical Engineering requires roughly three times that number, 104 (80% of the total needed for graduation). Data also suggest some majors at Hopkins are outliers among their peers at other universities, requiring a greater percentage of credits to be completed in the major. Of the majors and peers studied by CUE2, our majors in Biomedical Engineering, Civil Engineering, Computer Science, Environmental Engineering, Materials Science and Engineering, and Mechanical Engineering in WSE, and KSAS’s Biophysics, Chemistry, Environmental Science and Studies, Physics, Anthropology, Political Science, Art History, Classics, History, Latin American Studies, and Writing Seminars all have markedly less flexibility than similar majors at peer institutions. While not as striking, several other majors in both schools also appear quite restrictive. This is just one possible metric for curricular flexibility, which may also be discouraged by strict course sequencing, course offerings that occur only annually, and lack of on-line options that could facilitate participation of students undertaking opportunities at remote sites. Collectively, these conditions thwart students’ attempts to secure the top of the “T” shaped education described earlier.

Figure 4.4 Flexibility in KSAS natural sciences majors as compared to peers⁶

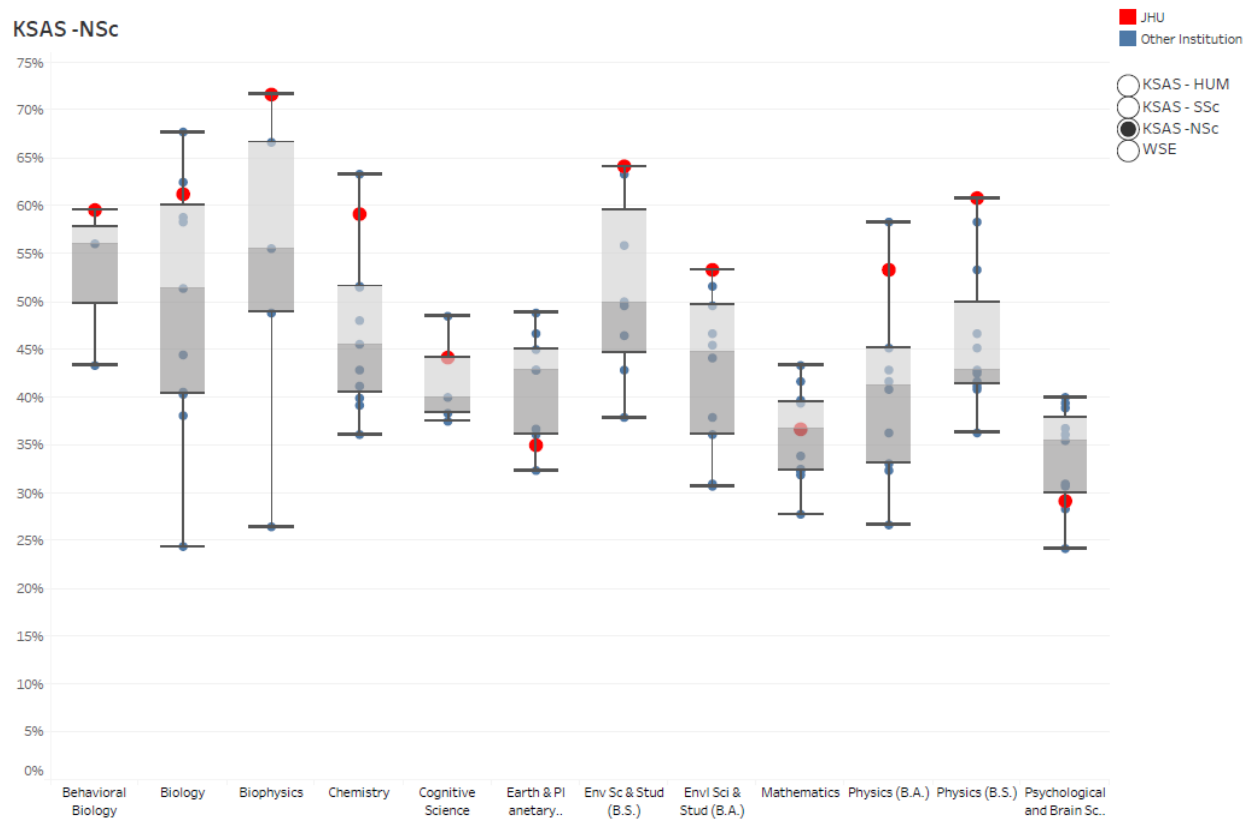
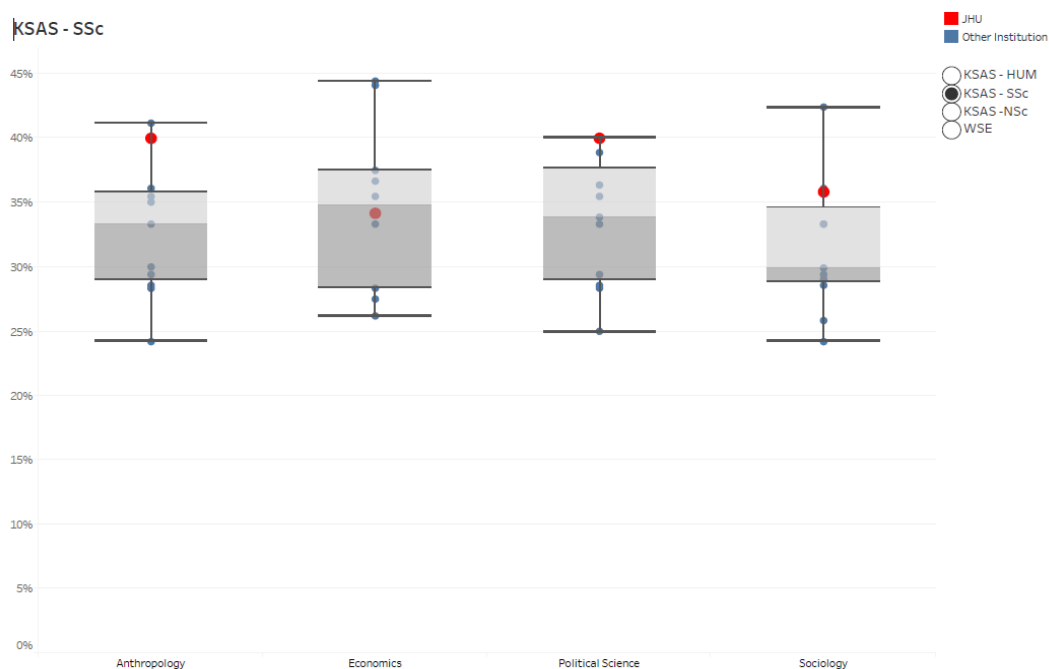


Figure 4.5 Flexibility in KSAS social sciences majors as compared to peers



⁶ Peers for majors housed in the Krieger School of Arts and Sciences included Brown University, University of Chicago, Columbia University, Duke University, Emory University, Stanford University, University of Pennsylvania, Washington University, Yale University

Figure 4.6 Flexibility in KSAS humanities majors as compared to peers

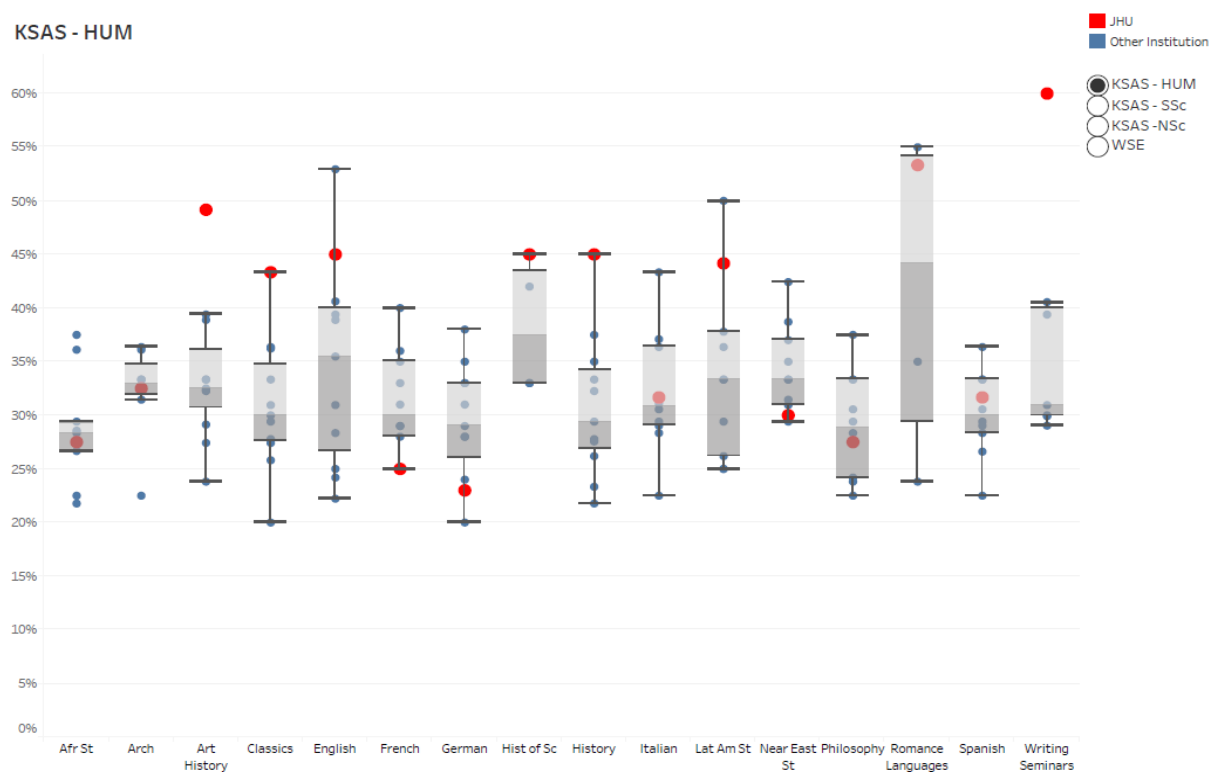
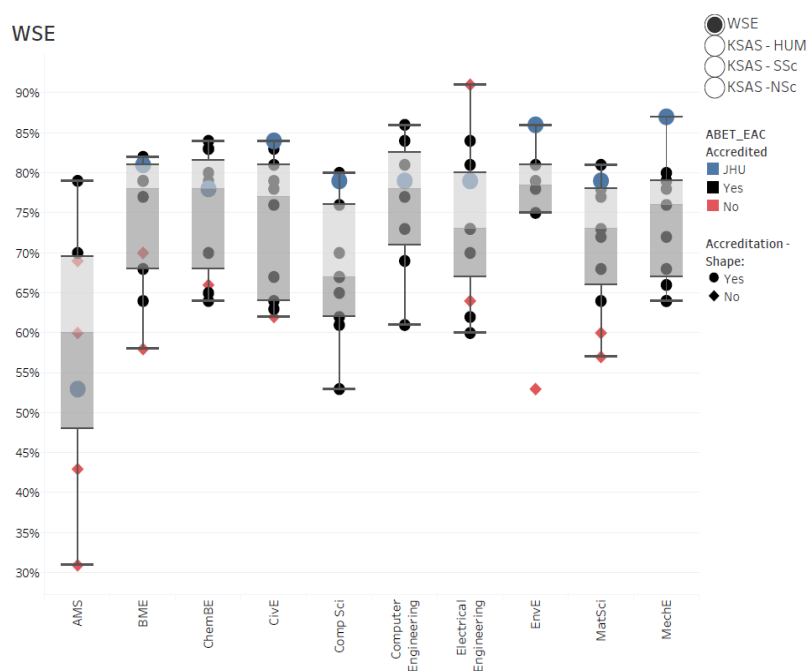


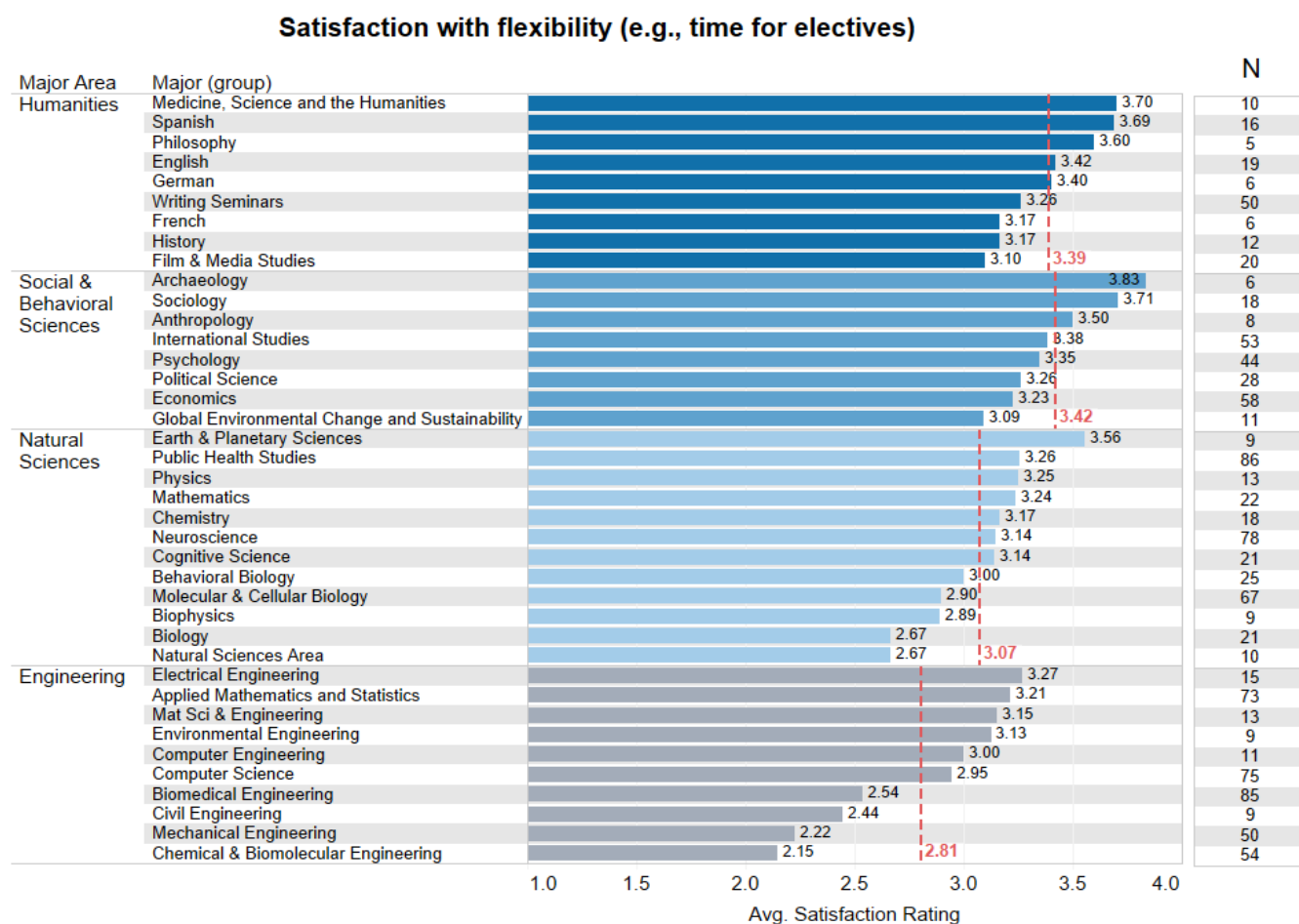
Figure 4.7 Flexibility in WSE engineering majors as compared to peers⁷



⁷ Peers for majors housed in the Whiting School of Engineering included California Institute of Technology, Carnegie Mellon University, Columbia University, Cornell University, Georgia Institute of Technology, Massachusetts Institute of Technology, Stanford University, University of California Berkley, University of Illinois at Urbana-Champaign University of Michigan

As noted in Figure 4.8, the 2018 Senior Survey findings document dissatisfaction with the lack of flexibility of the curriculum in several engineering majors including Biomedical Engineering, Civil Engineering, Mechanical Engineering, and Chemical and Biomolecular Engineering. Dissatisfaction is also noted in a few Natural Sciences majors within the Arts and Sciences, including Biology. There is room for improved satisfaction across number of other majors as well. Figure 4.9 shows a significant negative correlation ($R^2 = 0.4996$) between major flexibility as measured and student satisfaction with flexibility.

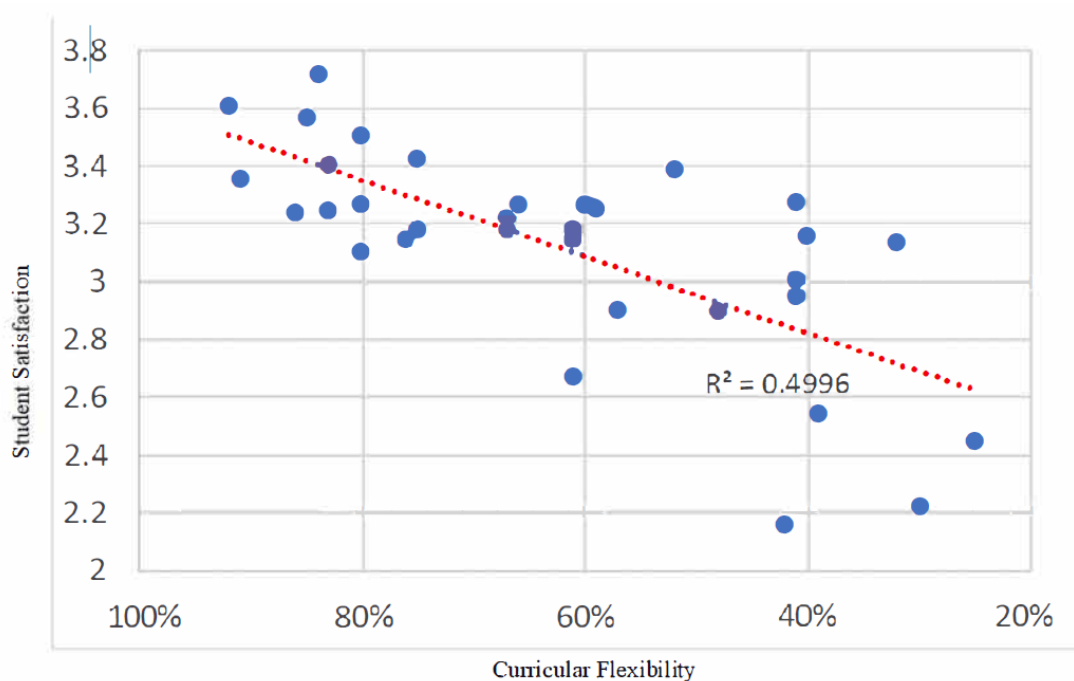
Figure 4.8 2018 Senior Survey satisfaction with curricular flexibility



1 = Very dissatisfied; 2 = Generally dissatisfied; 3 = Generally satisfied; 4 = Very satisfied.

Students could rate more than one major; hence counts are of the number of ratings for that major. The red lines indicated a weighted average.

Figure 4.9 Correlation between curricular flexibility and student satisfaction with flexibility



Both the disparity between departments and the restrictiveness in some departments have detrimental effects. The disparity creates a widely disparate experience among our undergraduates; in conversations, students also report that it contributes to the segregation of the schools. Inflexible and high requirements tend to advantage students from high schools that offer AP credit, who can complete their requirements more quickly. Increasing student flexibility within the major thus aligns with the Hopkins Universal Design for Learning Initiative. Unsurprisingly, those students with the most restrictive majors have the lowest participation rates in study abroad programs, for instance. Our highly restrictive majors may also partly explain why Johns Hopkins is not cited in surveys that identify leaders in enabling students to participate in internship opportunities.⁸ These challenges are exacerbated by the lack of online undergraduate courses and/or ability to take Hopkins undergraduate classes from a remote location. Finally, highly restrictive requirements also would prevent the implementation of a separate CUE2 recommendation. The requirements of some majors at present would make graduation in four years impossible, were a student to participate in the Hopkins semester (see recommendation 1b, above).

We have considered various methods of implementation. One would require that the deans, provost, or Undergraduate Education Board establish a minimum number of credit hours that must be left free of departmental or general requirements. Another would require that departments demonstrate that their requirements are at or below the median of peer institutions. A third could combine these, and require that

⁸ For example: US News survey <https://www.usnews.com/best-colleges/rankings/internship-programs>

the deans, or provost, establish a number of credit hours that must be left free of departmental or general requirements, but granting exemptions to departments that demonstrate that their still high requirements are at or below the median of peer institutions, or that the major requirements are themselves multidisciplinary in character.

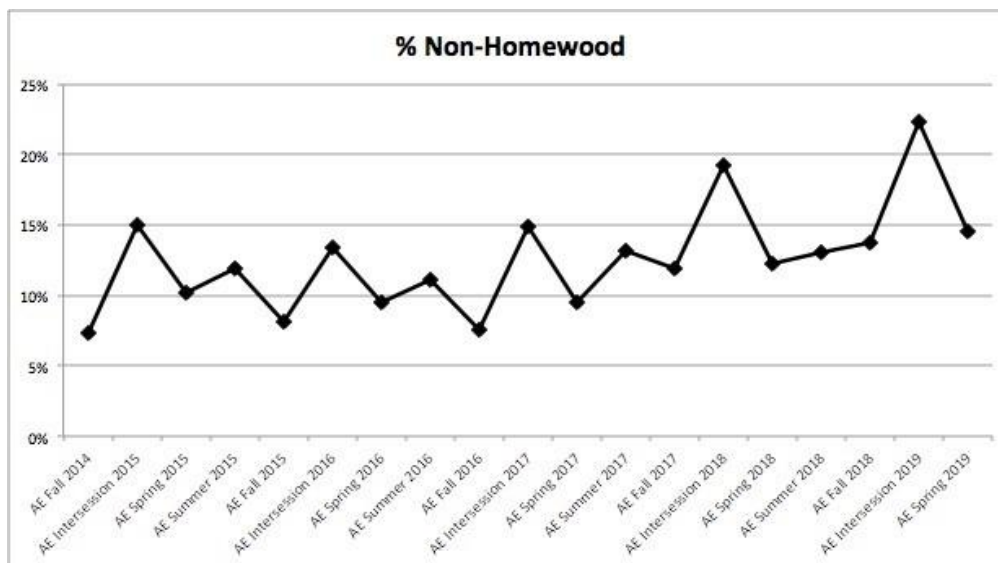
We recommend that a minimum of 33% of all student credit hours be un-prescribed by major-specific requirements across all undergraduate majors in the Krieger School of Arts and Sciences and Whiting School of Engineering. We note that while some of the foundational abilities discussed in recommendation 1d will naturally be acquired within a student's major, some of the foundational abilities that reside entirely outside of the disciplinary domain will need to fall within this 33%. Furthermore, because increased flexibility would serve faculty members by freeing them of the burden of major requirements, the commission recommends that the university create an innovation fund to support imaginative courses and programs and generalize pedagogical successes. In the implementation phase of CUE2, and as mentioned above, it will be necessary to examine in detail the cases of majors that are considered restrictive in terms of credit hours because they are already inherently interdisciplinary. Often these majors maintain flexible pathways through the major and already provide opportunities to develop the foundational abilities.

Recommendation 3: Enable professional school faculty to teach undergraduates more easily and often and facilitate the enrollment of undergraduates in our professional schools.

The rigid demarcation between undergraduate and graduate education is increasingly anachronistic. Johns Hopkins professional schools are a valuable resource, not available at our peer institutions. They should be readily accessible to our undergraduates. We must learn how to integrate the disciplinary breadth characteristic of a liberal education with the depth and opportunities available to our students through our professional schools.

Many professional faculty members contribute to directed research experience for our students, but they teach less frequently at Homewood—though the numbers are increasing, as demonstrated in Figure 4.10. In the Fall of 2014 7% of undergraduate courses were taught by non-Homewood faculty; five years later, in Spring 2019, 15% percent were taught by non-Homewood faculty. The percentage during the summer unsurprisingly is higher, ranging from 12 to 13% between 2015 and 2018. The scarcity of online undergraduate course options and lack of infrastructure for high quality distance education provision exacerbates the geographic boundaries between Homewood and the professional school campuses. **Undergraduates should have access to the full breadth of talent represented in the university's faculty. Barriers between Hopkins campuses should be lowered.**

Figure 4.10 Percentage of undergraduate courses taught by non-Homewood JHU faculty



Several recommendations in this report provide opportunity for broader incorporation of all Johns Hopkins University faculty in the undergraduate experience. For example, faculty from the professional schools could teach in the first-year seminar series. They could also partner with Homewood faculty to innovate team-based, interdisciplinary problem-solving courses. Recently, SAIS faculty began offering undergraduate courses in strategy and statecraft as well as international economics as complements to existing International Studies courses using an inter-campus, hybrid delivery model that could be emulated by other professional schools.

As part of this recommendation, the commission urges that all Johns Hopkins students (assuming adequate pre-requisites and qualifications) be permitted to pursue programs leading to bachelor/professional master's (3+2 or 4+1) degrees. All professional faculty should endeavor to develop rigorous joint BA/BSS master's programs. Our primary intent, however, is not to establish new joint or dual degree programs, nor is it to do what is already possible in many cases, namely, for students to seek a master's degree in their undergraduate majors. Rather, it is to encourage students to explore advanced study and potential careers, regardless of major, across the university. The commission imagines combinations that may not be possible or easily possible today. The Computer Science major who pursues a master's in International Studies at SAIS, the History major who takes courses at the Carey school, or the Physics major who pursues a master's in Biomedical Engineering. The implementation of this recommendation would not only serve our students well and provide faculty at the professional schools additional opportunities to instruct and mentor undergraduates, but would serve our ongoing "One University" initiative.

First Destination survey data from 2018 data tell us that approximately 35% of our students pursue graduate school immediately after graduation. Not all of those students matriculate into JHU programs, but

the Whiting School of Engineering and Bloomberg School of Public Health are the top two graduate schools of choice. In fact, 22% of graduating Engineering students and 6% of Arts and Sciences students take advantage of the opportunity to remain for a fifth year to acquire a master's degree at the Whiting School.

Several of our peer institutions offer co-terminal degree programs. [Emory](#) provides a series of 4+1 options, and [Stanford](#) has a robust co-terminal degree program available across nearly 50 programs. Their co-terminal degree program allows undergraduates to study for a Master of Arts or Master of Science degree while completing their bachelor's degree(s) in the same or a different department. Admitted co-terminal students must have a minimum of one quarter overlap between their undergraduate and graduate degree programs in order to qualify. [Harvard](#) has an advanced standing program that allows selected students in some departments to apply for a fourth-year master's degree.

Implementation of this recommendation will require buy-in from our professional divisions. The provost should direct every division of the university to demonstrate that they have both individual courses and master's programs in place open to Hopkins undergraduates from as broad a range of undergraduate majors as is reasonably possible. The existence of these programs would then be advertised directly to undergraduates while advisors would help direct students to them. In addition, the creation of online undergraduate courses, with distance education classrooms at each of the Johns Hopkins' campuses, should be actively pursued.

RECOMMENDATIONS REGARDING TEACHING AND LEARNING

This section of our report responds to several of the questions presented in our charge.

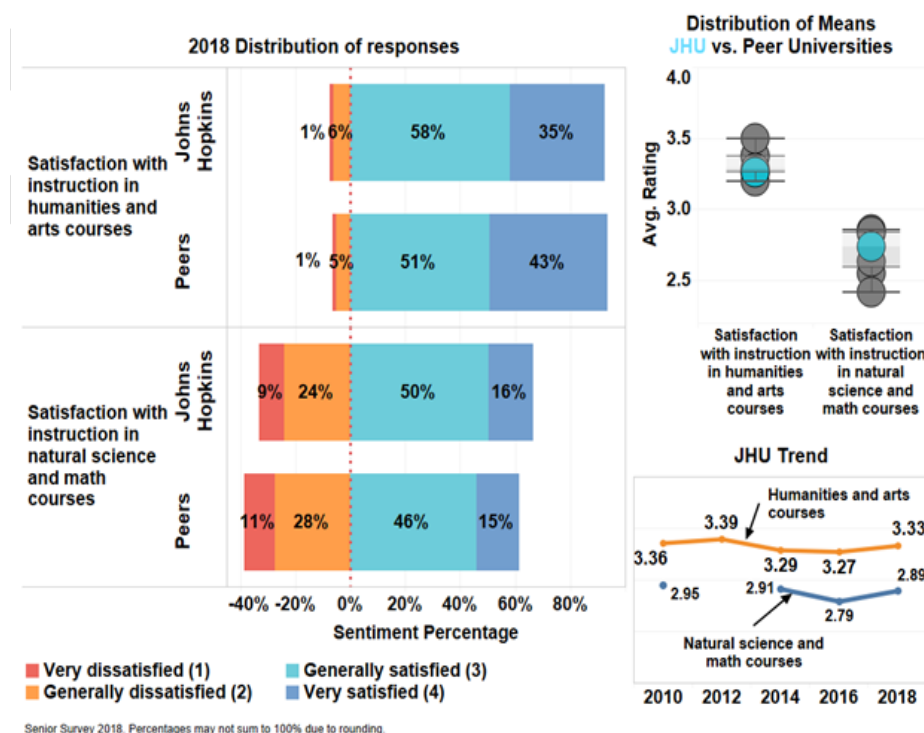
- In-classroom education is undergoing profound change worldwide, driven by ever more powerful technology, new research on learning, and the assessment movement. What pedagogies, delivery mechanisms, and forms of assessment should support the course-based dimension of this new model? What more can we learn from the Gateway Sciences Initiative and the experimental ethos that characterized it? Is there insight to be gained from our own research into pedagogy and learning mechanisms?
- Learning increasingly happens outside the classroom, in the community and in the larger world. How, then, do we accommodate and leverage internships, service learning, co-ops, work study, experiential education, and the like within a new, more broadly conceived model of undergraduate education? How can we foster the engagement of our alumni and the community to support outside-the-classroom educational experiences?
- How should Johns Hopkins assess the quality and efficacy of its undergraduate experience going forward?

In responding to these questions, and developing our recommendations, the commission was guided by the general principles articulated above: the commitment to greater flexibility and the determination to cultivate foundational abilities. For those principles to be followed, we argue, students require individualized attention in conditions that recognize achievement and fosters cooperation rather than stress. Faculty will require ample resources in order to provide this individualized attention, and a transparent and creditable system of assessment. The recommendations below aim to ensure these changes in our culture.

These recommendations concerning teaching and learning, like those concerning the curriculum, are ambitious and will require both cultural and institutional change. **To help facilitate that change, we recommend the significant expansion of the Center for Educational Resources. It should be charged with serving the entire university with more robust and more amply supported programming as well as an expanded mission for educational research.** The center's expanded mission should be at least five-fold: 1) To train faculty, students, and staff in pedagogy through the Best Practices in University Teaching workshop and similar efforts; 2) To foster public discussion of teaching through an annual education symposium; 3) To act as a resource for faculty who engage in innovative efforts and research that require design and assessment; 4) To expand the use of high-quality, state-of-the-art educational technologies and software by faculty and others in undergraduate education; 5) To create a research nexus capable of leading efforts in the scholarship of teaching and learning by current Hopkins faculty and new hires appointed to the center. The teaching and learning centers of our peers offer various models to aid in this transformation (See Appendix J). These models should be consulted, their success and applicability to Hopkins determined, as we develop our center.

The commission also noted recent reports concerning students' satisfaction with course instruction. As illustrated in Figure 4.11, results from the 2018 Senior Survey indicate that their satisfaction varied across the schools and disciplines. Satisfaction with instruction in natural science and math courses was low both at JHU and at peer schools. Satisfaction with instruction in humanities and arts courses was much higher: 94% of respondents at JHU reported being satisfied, a figure like that at peer schools. Differences by gender and low-income status were not significant, but URM students were less satisfied than non-URM students, and first-generation students were less satisfied than non-first-generation students. Women were more satisfied than men.

Figure 4.11 Student satisfaction with instruction from 2018 Senior Survey



Recommendation 4: Provide students with an integrated partnership of faculty mentors, staff advisors, and life design counselors.

Students should be able to count on the significant, positive presence of faculty, staff, and administrators from matriculation to graduation and beyond. In our vision, each undergraduate student would have an integrated group of, at least, a faculty mentor, an academic advisor, and a life design coach; this group would remain connected to that student throughout their undergraduate career. The role of the integrated team is neither to coddle the students nor to make their experience less rigorous. On the contrary, the team will be designed to result in the synergy that would enhance the unique type of support that each member of the integrated group can contribute, and to ensure that all students are able to take full advantage of all the opportunities available to them in the classroom and outside of it, at Hopkins and beyond.

The provision of these support teams will require a redesign and revitalization of academic advising services, integrating it more deliberately with career services and with faculty mentoring. Because students build cohorts through their affinity and passion for topics and interests, mechanisms should be implemented to facilitate better alignment with, and maintenance of, the relationships among students, alumni, faculty, staff, and graduate students who share those passions and affinities. Providing this support infrastructure will also require creation of and investment in faculty mentoring programs.

We understand mentorship to be distinct from advising in both purpose and execution. Mentors help students develop interests, affirm identities, and achieve life goals. Mentors can include staff, alumni, peers, and community partners, but the central role should be played by faculty members who serve as mentors best simply by sharing their intellectual enthusiasm. To be sure, students must be active participants in seeking out and building their own mentor relationships. Faculty members should expect to serve as mentors, and the university should actively encourage and support them as in that role. Because courses most naturally initiate mentoring, the university should increase the number of small courses—research seminars, discussions, collaboratories—that enable substantial relations among teachers and students. One benefit of the first-year seminars we propose is that they can provide a natural basis for early mentorship.

As noted in the introduction to this section of the report, the timing of these initiatives is fortuitous, coinciding with the launching of the Office of Integrative Learning and Life Design, that office has already begun to implement several of the advances described below. Additionally, we will have the benefit of our participation in the Excellence in Academic Advising initiative, launched in coordination with [NACADA](#), a national organization of academic advisors, and the Gardner Foundations. Along with several other committees, this pilot program is assessing the preconditions for successful academic student support in KSAS and WSE. This guidance should be afforded the highest priority, so that academic advisors can be properly provisioned to support each student's successful navigation of the various choices involved in academic life, from course selection to choosing their major and minor areas of study, to ensuring development of the foundational abilities and completion of a Hopkins Semester, to tapping into university resources to sustain health, well-being and fulfillment, to seeking help when unforeseen challenges arise. Most, perhaps all, of the experiences linked by the Gallup-Purdue Index Inaugural National Report (shown

in Figure 4.12) concerning post-collegiate satisfaction with college depend upon mentoring: having at least one professor who excited the student about learning; having professors who cared about the student as a person; having a mentor who cared about the student's hopes and dreams; having worked on a project that took a semester or more to complete; having an internship or job that helped the student apply what he or she was learning; and being extremely active in extracurricular activities. More, importantly, mentoring has been shown to be effective in increasing the persistence of non-traditional students⁹. The benefits of better integrating academic advising and career counseling has also been urged by scholars for the past several decades.¹⁰

Figure 4.12 Findings from the Gallup-Purdue Index Inaugural National Report

The Undergraduate Experience: Support and Experiential and Deep Learning	
	% Strongly Agree
I had at least one professor at [College] who made me excited about learning.	63%
My professors at [College] cared about me as a person.	27%
I had a mentor who encouraged me to pursue my goals and dreams.	22%
All three	14%
I worked on a project that took a semester or more to complete.	32%
I had an internship or job that allowed me to apply what I was learning in the classroom.	29%
I was extremely active in extracurricular activities and organizations while attending [College].	20%
All three	6%
All six	3%
Institutional Characteristics: Type of School Doesn't Matter Much to Engagement	
Similar percentages of employed graduates of not-for-profit private colleges and employed graduates of public colleges are engaged at work. Graduates of private, for-profit institutions, however, are considerably less likely to be engaged at work (29%) than are graduates of private, not-for-profit institutions (40%) or public institutions (38%).	

As depicted in Figure 4.13, 22% of 2018 Senior Survey respondents reported that they know no professor, or only one professor, well enough for them to provide a professional recommendation. This figure is dispiriting. All students should know more than one professor who could write them an effective letter of recommendation. The numbers vary across our schools and fields. Students in the humanities fare better than those in the sciences and engineering: 14% of humanities students report that they know at most one faculty member sufficiently to ask her for a recommendation; in social and behavioral sciences the figure is 24%; in engineering the figure is 26%. In the same survey, 86% of Johns Hopkins respondents were satisfied with faculty availability, versus 91% at peer schools, a significant difference. Humanities respondents were significantly more satisfied than others, reflecting much better student-faculty ratios (see Figure 4.14).

⁹ F. Bettinger, E. P., & Baker, R. B. (2014). The effects of student coaching: An evaluation of a randomized experiment in student advising. *Educational Evaluation and Policy Analysis*, 36(1), 3-19.

¹⁰ McCalla-Wriggins, B. (2009). Integrating career and academic advising: Mastering the challenge. *NACADA Clearinghouse of Academic Advising Resources*.

Figure 4.13 Student-reported number of faculty who know them—distribution of responses for JHU vs. peer universities

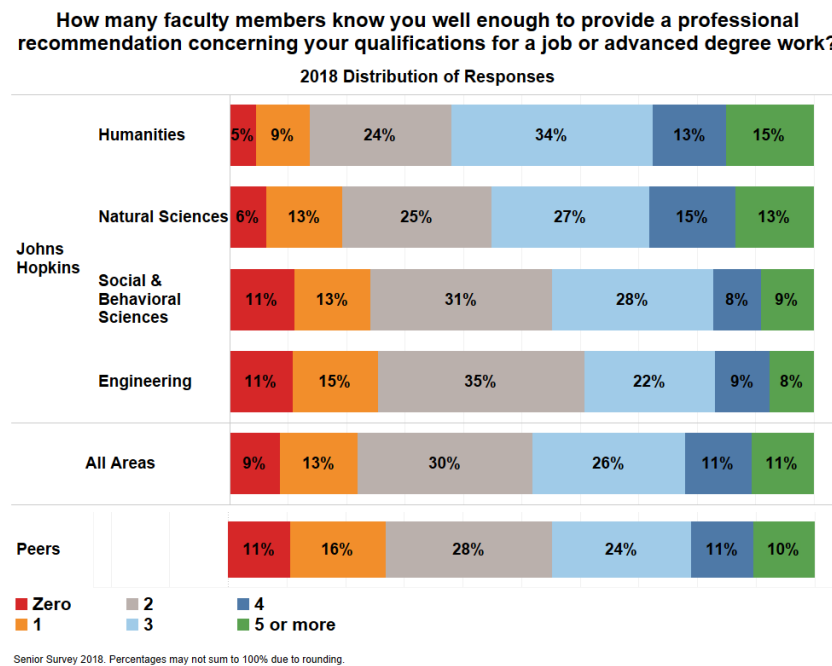
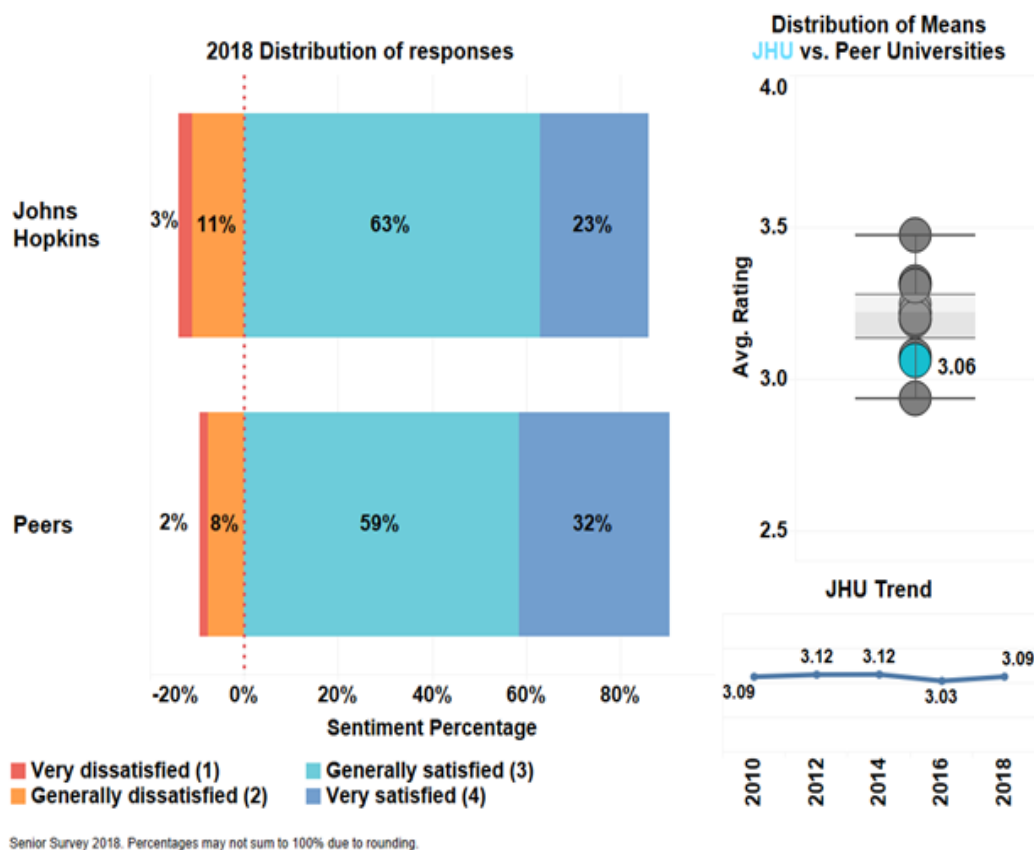


Figure 4.14 Student satisfaction with availability of faculty outside of class from Senior Survey 2018



Advising models vary widely among our peers, and few appear to have partnered faculty mentoring, academic advising, and career counseling in the way envisioned by CUE2. Hopkins has an opportunity to lead in this area. Of note, University of Chicago assigns a four-year academic advisor and career coach, as well as a PhD student, to each undergraduate upon admission. Perhaps the closest model is James Madison University, which has merged its academic advising and career center into a single advising unit, enabling the integration of academic and career plans, and providing a model that students intuitively understand. This should be our goal, too.

Recommendation 5: Improve course-based learning assessment methods and encourage grading policies that assess student performance relative to well-articulated academic standards.

The commission feels compelled to address the crucial role of well-designed assessment on student's learning and in creating a learning environment that supports student success. To achieve mastery in a discipline, students must receive clear feedback regarding their conceptual understanding and competence. **To provide adequate formative and summative feedback regarding student learning, assessments should evaluate each student's performance with respect to well-articulated academic standards rather than relative ones, so as to mitigate a harmful competitive atmosphere while retaining the highest academic standards.**

A substantial amount of educational research has been devoted to the development of assessment practices. One feature of such research-based practices has been a shift to criteria-based and away from norm-referenced assessment. Norm-referenced assessment, sometimes referred to colloquially as "grading on a curve," produces a pre-determined proportion of high, medium and low scorers. Such assessments provide students only with measures of performance relative to peers and tend to focus on measuring student ranking. As noted by Gipps in *Towards a theory of educational assessment* (1994), "since students cannot control the performance of other students they cannot control their own grades; this is widely considered to be an unfair approach for looking at pupils' educational performance."¹¹ Norm-referenced grades provide information only regarding relative learning, not mastery itself. As such, students do not receive clear feedback as to the nature of their competencies and shortcomings. Notably, considering the findings of the recent Provost's Task Force on Student Mental Health and Wellness, these assessment practices have been reported to have negative effects not only on student learning, but also on student mental health. Within the context of law schools, it has been reported that "Norm-referenced grading ... not only fosters a stress-inducing competitive atmosphere, but it also interferes with the deep learning created by intrinsic motivation, autonomy, support, and self-efficacy."¹²

¹¹ Gipps, C. (2011). *Beyond Testing (Classic Edition): Towards a theory of educational assessment*, Routledge.

¹² Rose, L. (2011). Norm-referenced grading in the age of Carnegie: why criteria-referenced grading is more consistent with current trends in legal education and how legal writing can lead the way. *Legal Writing: J. Legal Writing Inst.* 17, 123.

At present, only a minority of Hopkins faculty grade on a curve. In a CUE2 commissioned qualitative survey of undergraduate faculty who taught a course of 40 or more students in the past two academic years, 28% of respondents (n=135) reported using norm-based grading. Data are not available regarding most peer institutions, but it is notable that at least one peer, MIT, expressly discourages norm-based grading. There is no convincing argument that norm-based grading increases standards, since under this regime grades make no explicit reference to any standards.

The commission proposes that faculty be supported in implementing more current methods for assessing student learning. Alternate practices to curving have been well-documented, and include straight grading, specification grading, and competency-based grading. It is important that best practices for student assessment be promulgated among all instructional faculty, and expectations regarding assessment be made clear at the school and departmental level to optimally support collaborative learning and creative exploration. **Whatever system is used, student performance should be evaluated with respect to a standard of excellence as articulated by the faculty member.**

Grading against well-articulated standards is anticipated to have a highly salutary effect on students' perceptions of the relationship between grades and the process of learning. Many students attending CUE2 focus groups and Coffee with the Co-Chairs meetings shared relevant experiences. One student reported that she stopped studying with classmates after she realized they were her "direct competition for a final grade." Another student described the stress caused by his uncertainty, until letter grades were posted, about what grade his 46% class average would receive. He also described his confusion when he discovered that it meant he received an "A." Such experiences, which are not uncommon, reveal the ways in which norm-referenced grading undermines rigor at the university, since students may be certified as highly capable when standards have not been met. Moving to criteria-based assessment will provide clear and high standards, and simultaneously set an expectation that all students could be acknowledged for achieving the highest possible level of excellence.

Assessment remains the purview of the faculty member teaching each course. It is furthermore the job of the faculty to ensure that the objective and subjective measures of expected performance are well explained to the students and are aligned to the assessment mechanisms. These should be reviewed regularly by the departments. Further, the university's Vice Deans of Education (VDE), a group routinely convened by the Office of the Provost, and the University Council on Learning Assessment (UCLA) should issue a best practices statement regarding student learning assessment methods. Exemplary professional development for faculty regarding assessment should be regularly offered and participation expected, particularly for new faculty joining the university.

Recommendation 6: Establish a new system for the assessment of teaching and student mentoring by faculty.

By consensus, the assessment of teaching and mentoring now in place is seriously flawed. Teaching evaluation in the Homewood schools relies almost exclusively on results from student course evaluations. Research has shown that the raw numbers provided by such evaluations can be misleading, and that the qualitative evaluations are consistently biased against female and underrepresented minority faculty.¹³ Further, the responses aren't correlated to learning outcomes.¹⁴ It is also unclear how those results are meaningfully and consistently incorporated into promotion and tenure decisions.

Surveys of faculty, including a [2014 AAUP survey](#), report that faculty support assessment models unlike those we and most universities have in place. There are many alternative models. Northwestern developed a Continuing HE Credits (CHEC) program to foster and reward faculty commitment to high quality undergraduate teaching, credits earned for excellent teaching can be collected in various ways that support the faculty member's scholarship and can be a positive factor in salary decisions. The University of Texas developed a [Provost's Teaching Fellows Initiative](#) to offer a model for creating a sustainable structure to advance the teaching mission of the university. [Washington University](#) has developed procedures that use self-assessment, peer review; student evaluations, and amply researched the field, their recommendations were supported by the [AAUP 2014 Statement on Teaching Evaluation](#).

The VDE from across the university should be charged by the provost with determining best practices for comprehensive and transparent assessment of teaching and faculty mentoring for all Johns Hopkins faculty. The VDE should also identify the most appropriate school-based governance bodies and methods for establishment of relevant policies and procedures. The outcome should be an unequivocal university message that the demonstrated ability of Johns Hopkins faculty to teach well is required for both promotion and tenure.

¹³ Boring, A., Ottoboni, K., & Stark, P. (2016). Student evaluations of teaching (mostly) do not measure teaching effectiveness. *ScienceOpen Research*.

¹⁴ Uttl, B., White, C. A., & Gonzalez, D. W. (2017). Meta-analysis of faculty's teaching effectiveness: Student evaluation of teaching ratings and student learning are not related. *Studies in Educational Evaluation*, 54, 22-42..

V. Remaining Issues in the Charge

One feature of the commission's charge, indirectly addressed in the recommendations above, requires notice here. As charged, the commission also discussed the role that the arts play in Hopkins undergraduate education. We recognize that Hopkins has invested greatly in arts programs in the past years, most especially the Film and Media Studies program. We also have significantly expanded the Writing Seminars department, and we continue to integrate education at Peabody and Homewood. We applaud these advances and hope that the recommendations may indirectly expand the role of the arts in undergraduate education by encouraging the exploration of disciplinary experiences and passions outside of major requirements. Of particular note, here, is the commission's articulation of complex creative expression as a foundational ability, above, whereby students experience aesthetics and culture as both an intellectual and emotional response to art as discipline.

VI. Implementation

This report describes a model of undergraduate education for the future of Johns Hopkins. The model capitalizes upon the most important feature of education at Hopkins: the earnest intellectual passion of our extraordinarily talented faculty and students. The commission's respect for this passion motivated the two overarching goals of its recommendations: a commitment to greater curricular flexibility; and its determination not to merely issue credentials, but to cultivate the capabilities needed to be successful citizens of the world.

As we move from the articulation of the report toward implementation, we must draw from the experiences with CUE1. In 2003, CUE1 delivered 34 concrete, discrete and independent recommendations, the majority of which were successfully implemented and greatly improved the undergraduate experience at Hopkins. In contrast, the 6 recommendations in this report are aspirational, interconnected and open-ended. Such is the dynamic landscape of higher education in the 21st century. Implementation will require constant examination and assessment of our undergraduate programs. It will have to acknowledge carefully the differences in the academic cultures and pedagogical missions of KSAS and WSE. It will also have to take into consideration the intrinsic heterogeneity among the disciplines represented by the many departments and programs in the Homewood schools, and respond creatively, and nimbly. The deans in KSAS/WSE will be charged with establishing the appropriate committees to implement CUE2's recommendations. They will be held accountable by, and will report on their progress annually to, the Undergraduate Education Board.

The six recommendations in this report would transform Johns Hopkins' undergraduate education. They invite a shift in our culture and in the complex ethos of the undergraduate experience. Yet, while this report serves as the basis of such a transformation, it is not a finite set of recommendations. Rather

than discouraging ongoing creation and innovation, it provides the scaffolding and infrastructure to guide innovation and investment in education for the next decade or more. As we provide for each of our students the foundations for a life well lived, more than ever Hopkins undergraduates in the coming decades can be participating members, not spectators, in our collective mission.

Appendices

APPENDIX A: EXECUTIVE SUMMARY FROM CUE1

EXECUTIVE SUMMARY FROM FIRST COMMISSION ON UNDERGRADUATE EDUCATION (CUE1)



Johns Hopkins University

Commission on Undergraduate Education

Final Report | May 15, 2003

EXECUTIVE SUMMARY

In January 2002, President William Brody and Provost Steven Knapp charged a newly formed Commission on Undergraduate Education with diverse members from across the Hopkins community to identify the core values that should characterize a Hopkins' undergraduate experience and to develop recommendations for specific actions that would improve the quality of undergraduate education, both inside and outside the classroom, in all five University divisions that offer undergraduate degrees: the Krieger School of Arts and Sciences, the Whiting School of Engineering, the Peabody Institute, the School of Nursing, and the School of Professional Studies in Business and Education.

During the next 12 months, Commissioners organized themselves into four working groups (Academic Experience, Advising and Career Support, Diversity, and Student Life), reviewed relevant reports from peer institutions and national associations, examined undergraduate survey data, spoke with key campus faculty and administrators, met with external consultants, and conducted focus groups in order to assess the current state of affairs and to make recommendations for improvement in undergraduate education. An interim report was produced and distributed in late January 2003. Subsequently, over two-dozen community meetings were held during February, March and early April to discuss CUE's interim recommendations. After consideration of all the comments and suggestions from members of the meetings and from a special e-mailbox set up to receive feedback, this final report was created, endorsed by the full Commission and sent to President Brody and Provost Knapp.

The Commission believes that the mission of Johns Hopkins University with respect to undergraduate education is to prepare students to be informed and engaged global citizens. Undergraduates in all programs should hone critical thinking skills and develop their creativity. Those preparing for advanced study or the professions should achieve mastery of their disciplines. Graduates should be ready to engage in a lifetime of learning related both to their chosen career and to their personal interests.

In the Commission's view, to great extent, the University fulfills that mission. Hopkins students are offered a wide array of outstanding academic programs. Student who anticipate later graduate or professional study are prepared exceedingly well; those who enter the professions directly demonstrate high levels of professional competence. Undergraduate education takes place in a stimulating environment that is culturally diverse and rich in its international dimensions. Like their faculty mentors, large numbers of Hopkins students are engaged in the process of research and discovery.

Notwithstanding the many positive aspects of our undergraduate programs, students' current levels of satisfaction with both their academic and social experiences at Johns Hopkins are lower than we should find acceptable and do not reflect the educational experience that the University can and should provide. In terms of institutional reputation and our own values, we cannot afford to continue business as usual. Ours is an institution that accepts excellence as a threshold criterion for any undertaking. We expect to be competitive for the very best faculty and students. We expect to engage in world-class research. Our goal should be to offer the very best quality undergraduate experience.

To meet this goal, we have work to do and needs that must be addressed. The single most important undergraduate need at Johns Hopkins is to strengthen the sense of community. The second is the need for better integration of the elements of the undergraduate experience and for a healthier sense of balance. A third need around which many of the recommendations cohere is the need for undergraduate education at Hopkins to be more personal. There is also a need to reconcile the gap between the perception of not caring and the reality that many do indeed feel passionately about the satisfaction and success of undergraduates. And, finally, the need to be more intentional about undergraduate education is a fifth need and the focus of many of the recommendations.

The following 34 recommendations from the Commission cover four broad areas of undergraduate life at Johns Hopkins: the academic experience, advising and career support, diversity, and student life. Not all these recommendations are equally important in the context of each of the different divisions. The Commission does, however, think there are several that should be given priority as a result of their potential impact. These are the provision of small group or "capstone" experiences for upperclassmen; guaranteed university housing for Homewood students; and a significant increase in the diversity of the undergraduate student body. The Commission urges the five schools to develop plans to implement these recommendations and to identify resources to support them. Together, we think they have the potential to enhance significantly undergraduate education in this research-intensive environment.

Recommendations Regarding the Academic Experience

1. Assign specific responsibility for assuring the quality of undergraduate education to a senior level administrator in each school's dean's office and regularly bring together those individuals to facilitate discussion of undergraduate concerns across the University.
2. Appoint a faculty Director of Undergraduate Studies in each department or degree program that offers an undergraduate major.

3. Conduct broad reviews of the quality of undergraduate degree programs on a regular cycle, in addition to, or as part of, existing reviews of academic departments.
4. Assure that juniors and seniors have access, within their majors, to small classes and to appropriate small group experiences, including "capstone" courses.
5. Expand the opportunities available to first-year students for intellectually engaging academic experiences in a small group format.
6. Provide various faculty incentives for good teaching, and ensure deliberate and appropriate recognition of teaching excellence in faculty evaluation for promotion and tenure.
7. Increase support for faculty and graduate students in teaching effectiveness -- including pedagogical consultation, assistance with enhancing teaching and learning through instructional technologies, and strengthening the course evaluation system -- and improve the campus physical infrastructure to enable such.
8. Support actively efforts to ensure that all members of the University community are educated about what constitutes academic integrity and understand their obligations to act with honor in each and every academic matter.
9. Encourage efforts to broaden the mix of academic interests in the student body in order both to enrich the intellectual discourse and to match student enrollments more closely to academic resources.
10. Ensure that the undergraduate experience has a significant international dimension by offering students attractive opportunities for foreign study and internships, coursework with an international character, and campus activities and programs that take advantage of the University's rich international resources.
11. Thoroughly study the current weekly course schedule and class scheduling practices to determine whether adjustments might be made to enhance the quality of the undergraduate experience.
12. Give final examinations only during the final examination period.

Recommendations Regarding Advising and Career Support

13. Strengthen faculty engagement in advising by making expectations clear, by providing mentoring and orientation, and by more explicitly including effective service as an advisor as one of the considerations for salary and promotion decisions.
14. Improve communication and leverage activities among the career support services offices, departmental advising coordinators, academic and pre-professional advising staff, alumni offices' staff, and other related service providers.
15. Explore the centralization of some advising/career support resources, such as study abroad, internships, and fellowships.

16. Create a position within the Johns Hopkins Alumni Office that, in concert with the various school career support service offices, would develop networking and internship opportunities for undergraduates.
17. Assure undergraduate access to professional career planning and development services, including employment support for the growing number of undergraduates who choose not to go directly to graduate/professional school and desire employment after earning their baccalaureate degrees.
18. Assure adequate physical and technical facilities (including a state-of-the-art website and electronic student portfolios) for career support services offices in each school.
19. Assure that each school tracks its graduates' post-baccalaureate activities, whether advanced study or employment.
20. Include an evaluation of academic advising and career support in all undergraduate satisfaction surveys.

Recommendations Regarding Diversity

21. In the area of student recruitment, significantly increase the diversity of its undergraduate student body so that, within five years, Johns Hopkins is in the top decile of its peer group in the enrollment of under-represented ethnic minority students. Toward that end:
 - Prepare a detailed plan for enrolling African-American, Latina/o, and Native-American students, complete with action steps, funding requirements, and an aggressive timetable.
 - Endorse the proposal of the Homewood Admissions' Office to establish "The Baltimore Scholars Program" to provide full scholarships (tuition and fees) to graduates of Baltimore City Public Schools who are admitted to an undergraduate program, beginning with the entering class of 2004.
 - Develop linkages with other Hopkins ethnic minority outreach programs, including successful diversity initiatives by the Center for Talented Youth, and consider forging partnerships with community colleges.
22. Take steps to increase significantly the retention and graduation rates of all undergraduates so that, within five years, these rates at Johns Hopkins compare favorably with those of peer institutions. To accomplish this:
 - Prepare a detailed plan to improve both retention and graduation rates of all students, complete with action steps, funding requirements, and an aggressive timetable.
 - Improve the retention and graduation rates of subgroups of students who are lagging behind their peers. A systematic study should be undertaken to identify the factors that cause students not to persist and to provide a basis for designing appropriate programmatic support and interventions to achieve this goal.
23. Increase significantly the number of under-represented ethnic minority faculty over the next five years by preparing a detailed plan complete with action steps and an

aggressive timetable.

24. Assess, within the schools, whether the content of the curriculum taken as a whole provides undergraduates with sufficient opportunities for exposure to diverse disciplines, fields, languages, cultures, and ideas, and where needed, expand the offerings to do so.
25. Assure an array of offerings that reflect the diversity of our campus, city, and nation, including developing a special speaker's series to bring the University community together for at least two major events each year that would focus on issues of diversity.
26. Increase efforts to recruit under-represented ethnic minority staff, especially in those areas that provide student services, and prepare a detailed plan for hiring under-represented administrative staff, complete with action steps and an aggressive timetable.

Recommendations Regarding Student Life

27. Create a coherent, comprehensive residential program, supported by appropriate housing and dining services, that provides Hopkins undergraduates who live in University housing with a variety of living/learning options that support and enhance their academic experience while strengthening the sense of campus community.
28. Begin immediately to develop new residences at Homewood which would, over a period of no more than 10 years, guarantee four years of housing to all Arts & Sciences and Engineering undergraduates who wish to remain in University housing. Explore the feasibility of accommodating Nursing, School of Professional Studies in Business and Education, and Peabody students in Homewood residential options.
29. Explore the possibility of a "freshman campus" on the west side of Charles Street.
30. Develop campus facilities to support the need for informal, social interaction as well as for group study.
31. Provide interdivisional programming and intramural sports opportunities (including field space) that create a greater sense of community for Homewood, Peabody, Nursing, and SPSBE students.
32. Increase participation and leadership of academic administrators in student life, making their presence known on their campuses.
 - Academic administrators should engage regularly with students in both formal and informal situations.
 - Deans of each school should meet formally with their student councils every month.
 - The President and Provost of the University should meet each semester with Student Council leadership.
33. Improve food quality and service at Homewood so that it can effectively function

as an essential element in community building.

34. Support partnerships to enhance the Charles Village neighborhood and to develop additional amenities that could improve the quality of life for Charles Village residents as well as Hopkins faculty, students and staff.

APPENDIX B: PRELIMINARY MEMORANDA

First Memorandum: Digest of Reports by Peer Institutions

To: Beverly Wendland and Ed Schlesinger, Co-Chairs of the CUE2

From: Gabe Paquette (Provost's Fellow on the CUE2) and Janet Schreck (Assistant Vice Provost for Education)

Re: *Digest of the Reports on Undergraduate Education undertaken by Peer Institutions*

Date: July 17, 2017

The Office of the Provost collected more than a dozen reports from peer institutions that resulted from strategic planning processes akin to our CUE2. As you are aware, these reports are available from the shared CUE2 file. There is a great deal of variation to be found in the reports: some are long and detailed while others are short and briefly state core principles to guide curricular change. We have attempted to distill the reports into a short memo for your use. We have not ventured beyond the reports, and we largely take them at face value, merely relaying their contents in condensed form. It is possible that some of programs described in the reports have been discontinued or now exist in significantly revised form. For example, the implementation of the respective Stanford and Georgetown undergraduate planning processes have been reported on in the *Chronicle*. Indeed, Stanford has gone well beyond its initial report: its new "Stanford 2025" website offers an exciting discussion of "Open Loop", "Paced Education", and "Axis Flip", clusters of themes of great relevance to the CUE2. We also do not address several peer institutions that we will want to examine closely (e.g. **Yale**, **Dartmouth**, **Princeton**) since they have not produced reports in the past decade (to the best of our knowledge). In any case, even after taking into account these caveats, we hope that this memorandum will be of use to you and, if you deem fit, to the other members of the Commission.

What should graduates know/be able to do? Competencies ("that are needed and valued in the world" [Brown]), "Habits of Mind", "Sensibilities", "Capacities" and other Learning Outcomes

Our peer institutions are grappling with whether the undergraduate experience that each of them offers, including the curriculum itself, produces graduates with the skills/competencies/abilities that are required to be "successful" (broadly conceived) in non-academic settings upon graduation. The disquietude that is found in numerous reports results from several factors that are difficult to disentangle, including: the connection between liberal arts education and vocational/pre-professional training; concern that the "open" curriculum has become a frivolous hodgepodge; and (conversely) concern that a highly-structured "core" curriculum has become rigid and is not as nimble as it must be in this current age of acceleration and disruption.

The first concern, regarding the connection between liberal arts education and the skills needed for professional success, may be approached in several ways (and we will touch on some of these obliquely in subsequent sections of this memo). **Georgetown** is wary of what it perceives as a "false dichotomy that pits ... holistic education against a more pragmatic preparation for workplace success". Instead, the university avers, "education designed for the whole person ... prepares students for a lifetime of success in a rapidly changing, complex, and uncertain world". As discussed later, this is merely one of several possible responses.

The question of curricular change is something that most of our peer institutions have addressed explicitly. **Columbia** has begun to question the structure of the its famed core curriculum: “Are what some have called the “containers” of our undergraduate curriculum appropriately sized? We probably agree that a strong undergraduate curriculum should include general education (our core), specialist education (our majors) and opportunities for exploration (electives). Do we provide ample opportunity for all three of these goals? Are there adjustments that might be made ...?” **Stanford** has asked whether the intellectual breadth of a more “open” curriculum serves its undergraduates well. “Few people question the value of intellectual breadth ... [but is ‘sampling’] the optimal way of fostering true breadth in an age like ours, in which the boundaries of different fields are increasingly blurred?”

Stanford’s answer is that instead of “prescribing courses in particular disciplinary areas, our new model promises the acquisition and development of 7 essential capacities, which we term ‘ways of thinking, ways of doing’”. These are Aesthetic and Interpretive Inquiry; Social Inquiry; Scientific Analysis; Formal and Quantitative Reasoning; Engaging Difference; Moral and Ethical Reasoning; and Creative Expression. **Stanford** has started to implement this shift in approach by establishing a first-year curriculum experience called “Thinking Matters”. It seeks to inculcate an orientation to academic study applicable broadly/universally instead of substantive, disciplinary (and presumably narrower) forms of knowledge. **Stanford**’s aim is to “develop a sense of what a genuine question or problem is, and what it means to think about an important idea with the sort of disciplinary, creative and critical reasoning characteristic of a university-trained mind”.

Other universities, notably **UC-Berkeley**, have issued similar statements: its graduates should possess 4 core “competencies” and 4 “dispositions”. Graduates should be literate, numerate, creative, and investigative (competencies) and also open-minded, worldly, engaged, and disciplined (dispositions). **UC-Berkeley** invokes vocational pressures in justifying its new approach: “students must prepare for fluid careers in a future where what you know is less important than how you think, learn and discover on your own”. **UC-Berkeley** believes one way to achieve its goals is to “bring greater meaning and coherence to core requirements”. New technology may facilitate pursuit of this goal. For example, the university is now using a planning tool called “Course Threads”, which helps students (with faculty supervision) chart a “logically connected sequence of breadth courses”.

Like **Stanford** and **Berkeley**, **Washington University** acknowledges the importance of articulating the essential skills and competencies the university wishes its graduates to possess, but it emphasizes the even greater need to cultivate “metacognitive skills and attitudes”. These include: an ability to think and act creatively; an ability to engage in both individual and collaborative research; an understanding of how knowledge is created and transmitted; the ability to integrate knowledge from several domains; resilience and the ability to adapt to change; intellectual curiosity; practical insight; and “a facility for making normative assessments as well as with establishing matters of fact”. The challenge is how to take these somewhat abstract goals and “operationalize them”, instantiating them in the curriculum. **American University**, for example, is tackling “quantitative literacy, writing, and information literacy training” by creating a variation on the core curriculum. It is putting in place a 5-course sequence emphasizing skill/competency-oriented learning (e.g. “Quantitative Literacy I”). This is supplemented with an optional set of 1-credit professional skills modules.

How should the undergraduate academic experience be (re-)designed in order to best develop the desired competencies/capacities?

A. Mentored Research and Capstone Experiences

Northwestern makes the importance of mentored research explicit: “the long-term satisfaction of undergraduates tends to be high among those who have had the chance to cultivate lasting bonds with faculty members ...”. **Rice** justifies the expansion of undergraduate research opportunities on the following intellectual and professional grounds: “the range of complex challenges facing our world will be solved by students who are educated to understand the limits of the knowledge they are given in the classroom, who are capable of applying bodies of knowledge to new areas in search of creative solutions, and who can tackle open ended and ambiguous problems that require original thought and analysis”. For this reason, and along similar lines, **Georgetown** seeks to develop “programs of study that shift from predominantly formal coursework to a substantially different balance of coursework and credit bearing mentored immersive learning through independent and collaborative projects”. **Georgetown** maintains that while mentored research has long been among the most expensive modes of instruction, the landscape has changed” and “the ubiquity of technology, the explosion of communication tools that enable collaboration at a distance, and the rise of adaptive learning environments all make it possible to revisit the conditions for mentored learning and research over time and distance”.

Some institutions emphasize a more capacious understanding of what constitutes a “capstone” experience, one which might but might not entail mentored research. **Stanford** suggests that a mentored, well-designed capstone experience is more important than mentored research per se: “the crucial priority is not the duration or format, but the result: to ensure that every senior at **Stanford** has a culminating intellectual experience designed to foster synthesis and reflection”. **Vanderbilt** places even less emphasis on encouraging students to undertake a traditional, research-based thesis. In its “Immersion Vanderbilt” program, it encourages students to pursue creative and/or independent projects, which is “inherently flexible to allow the student to work closely with a faculty mentor on a project that provides a depth of experience”. It should be noted that even institutions that do not privilege a research-based capstone still emphasize the indispensability of faculty mentoring.

B. Learning beyond the Classroom: Extra-Curricular, Co-Curricular, and Experiential Modes of Learning

Several leading writers on the future of undergraduate education have noted that we find ourselves on the brink of a “post-course era”; that is, universities can no longer assume that “the formal curriculum—composed of bounded, self-contained courses—is the primary place where the most significant learning takes place”.¹ Numerous peer institutions are grappling with how the worldly commitments and pursuits of their undergraduates can be merged harmoniously with academic study. **Brown**, through its Swearer Center for Public Service, has created a series of concentrations that integrate community-based learning (CBL), entrepreneurial activities, and professional internship experiences into the curriculum. Students who pursue this route end up with a concentration on their transcript called “engaged scholarship”. The concentration culminates in a “thesis or capstone that demonstrates the relevance of academic work to external

¹ Randy Bass, “Disrupting Ourselves: The Problem of Higher Learning in Higher Education”, *Educause Review* (2012), p. 24.

audiences”. In addition to the academic concentration, through a new Center for Entrepreneurship Education, **Brown** has created “Breakthrough Labs [“B-Labs”]”, which serve as a venture accelerator (including for social enterprises). The B-Lab is an eight-week (summer) program that provides students with tools, concepts and experience to undertake ventures. While not credit-bearing, this experience and training helps to develop some of the core skills/competencies that **Brown** hopes that its students will develop prior to graduation.

Vanderbilt does not go as far as **Brown** in creating a concentration/minor based on extramural engagement, but it is devising “a more flexible model of credit that rewards and recognizes the learning involves as students pursue experiences that enrich their understanding of the world”. **Duke** has created a “Bass Connections” program that “enables students to connect their classroom learning with complex societal challenges through problem focused educational pathways”. Small groups of students and faculty work together on one of several themes (e.g. “Brain and Society”, “Energy”) over the course of an academic year. **Duke** also runs a “Winter Forum”, where hundreds of students return to campus 3 days before Spring classes commence to explore a single pressing global issue from a range of perspectives. Faculty participate plus invited leaders from industry, finance, government etc.

Stanford helpfully refers to this sort of fusion of academic training and extramural, non-academic experience as “adaptive learning”, defined as “the capacity to integrate new and old experience, to adapt knowledge and skills to novel circumstances, that protects our students from professional obsolescence and prepares them for the unpredictable challenges facing them”. This forms part of its “determination to breach the silos of students’ lives”.

C. Small (and intensive) is beautiful: immersion programs, residential colleges, and small-scale, cross-disciplinary learning communities

The merits and demerits of residential colleges and “houses” on the **Yale/Harvard** model have been debated for more than a century. Some US universities have embraced the model well after their founding. **Vanderbilt**, for example, invested heavily to establish a residential college system from scratch in the early 2000s. Its 10 colleges are guided by residential faculty and each of them serves as a “dining-activity complex intended to foster a sense of community”. The exact connection between the learning outcomes sought and the residential college system eludes us, but charitably it might be said that a close-knit community of scholars and students generates conditions conducive to the acquisition and development of the competencies/habits of mind considered desirable.

Other universities have sought to gain the benefits of a tight-knit intellectual community without a bricks-and-mortar residential college system. “**Duke Immerse**”, for example, is a cohort model in which students spend an entire semester exploring a single “issue” (e.g. Uprooted/Re-routed: the Ethical Challenges of Displacement”) from an array of disciplinary perspectives. It is “delivered as one cohesive whole occupying the entirety of a student’s academic work for a given semester”. It involves “daily interaction” with faculty members and a collaborative/group project. About 4 such programs run each semester. **UC-Berkeley** has established a similar program on a pilot basis (The “Chernin Fellows Program”, based in the English Department), which it intends to scale up. It provides “personalized education in the context of a research university”, involving one-on-one interaction with faculty, discussion groups, events designed for other Chernin Fellows etc.

D. Addressing differences in high school preparation among admitted/incoming students

Of course, if all graduates are meant to develop the same competencies/skills/sensibilities prior to graduation, differences in preparation must be addressed. **Amherst** claims that students from low-income and otherwise disadvantaged backgrounds benefit especially from “early opportunities for undergraduate research, project and field-based learning, civic engagement, internships, theses and other capstone projects”.² Preparing and retaining students from under-represented groups for certain fields of study has been prioritized by some institutions. For example, **Brown** has “Catalyst”, a summer bridge program, chiefly for STEM fields.

Centers for Teaching and Learning (CTLs) & Faculty Engagement with New Technologies and Pedagogies

Many of our peer institutions have established, or intend to establish, CTLs. Among the CTLs established by non-peer institutions, Notre Dame’s CTL has received numerous plaudits. **Brown** has created the Sheridan Center to bring its “Writing Center, Science Center and Tutoring Services under one roof”. It has invested in increasing support for “writing, research, data analysis, problem solving and communication skills”. **Amherst** established a CTL in order to “introduce, support and coordinate pedagogical developments that promote student success”. This effort goes beyond training faculty in new classroom technologies, invaluable as those are. Rather, among other goals, it “provides support to develop and implement introductory course sequences that make explicit the intellectual abilities fundamental to specific fields and to interdisciplinary approaches”.

Our peer institutions have grappled with the issue of (re-)training faculty to integrate new technologies and research-led insights about learning outcomes into their teaching as well as the best incentives to induce faculty to embrace such (re-)training. For new faculty, whether tenure-track or already tenured, there are few obstacles. **Northwestern** has put in place a teaching training program for first-year faculty. At **UC-Berkeley**, all new faculty attend a mandatory sequence of “Teaching Excellence Workshops” organized by the university’s CTL. Participation is linked to tenure and promotion: “we do not give tenure to mediocre teachers”. In addition to the mandatory workshops, **UC-Berkeley** is undertaking peer evaluation of teaching, instead of relying on student evaluations, in assessing teaching effectiveness.

But what about existing faculty members? How can they be encouraged to embrace new pedagogical practices and technologies? To some degree, our peer institutions recognize that a “culture shift” is needed. **Stanford** argues that the university must “enhance the visibility and recognition of teaching, build community around teaching, and share best practices”. **Stanford** notes that it is necessary to “provide incentives for faculty to acquire information, feedback and mentoring and to deploy good teaching practices”.

Several institutions have given serious thought to the matter of incentives. **Northwestern** will “initiate a Continuing HE Credits (CHEC) program to foster and reward faculty for commitment

² This subject is one that deserves much greater attention, yet **Amherst’s** report is the only one that explicitly mentions such “high impact practices”; that is, college experiences correlated with the most powerful leaving outcomes (and further correlated with high retention and persistence rates). The 2008 Survey of Student Engagement enumerates these and they are discussed in detail in George Kuh, *High Impact Educational Practices* (2008). A further [2013 report](#) published by the AACU goes into further detail.

to high quality undergraduate teaching”, a scheme “loosely inspired by continuing medical education credits” model. “An indispensable component of such a program is that accumulated credits could be ‘cashed in’ in various ways that support the faculty member’s scholarship ... CHECs [could be] a positive factor in salary decisions ... the CHEC program may give faculty members tangible reasons to think that their time spent on teaching is valued”. **UC-Berkeley** has created ten “Collegium Chairs”. These are endowed chairs given to the university’s most renowned teachers. The holders of these chairs “meet and work as a group to think about, examine, and improve the overall quality of teaching, not only in their individual classrooms but throughout the university”.

Our peer institutions have recognized that some of the most innovative teaching emerges from cross-disciplinary and often cross-divisional collaborative (“team”) teaching.³ **MIT** intends to “create an ecosystem that promotes educational connections” across the university, highlighting new incentives to encourage faculty collaboration. **Vanderbilt** has inaugurated a “curriculum incubator that seeds faculty to develop new courses across the undergraduate and professional school boundaries”. **Vanderbilt** claims that it has removed (financial) barriers that discourage team teaching across schools and divisions. **Washington University** also has studied this issue and, in addition to resolving the ever-looming “tuition flow” problem, is working to remove other impediments to cross-school/divisional team teaching. These include: determining how such courses count toward teaching loads; different academic calendars and credit structures; and the principles governing the allocation of TAs.

Online and blended learning & “Modularity”

Interestingly, few of the reports that we read delved into the details of online and blended learning even though this is a challenge all institutions are compelled to address. It may be that the genre of the CUE-type report does lend itself to such detail. In any case, copious and excellent scholarship and material exists to fill in the gaps. Unsurprisingly, **MIT**’s report is an exception. That institution hopes to “expand the use of diverse pedagogies and blended learning models”. The aim is to “infuse greater flexibility into the core undergraduate curriculum”. Offering courses for credit in hybrid or (entirely) online formats might provide students with schedule flexibility that might permit students to study abroad, pursue a non-academic project etc. The opportunities and perils of “modularity” also are discussed chiefly in **MIT**’s report, as greater modularity is a possible direction for its curriculum. **MIT** defines a module as “a self-contained unit comprising a set of outcomes. An outcome is what a student knows or is able to do as a result of a learning experience”. The university envisions two paths to greater modularity. In the “top-down” model, existing courses are “decomposed” into modules whereas in the “bottom up” model, the curriculum is “re-engineered” by first identifying the core concepts and then building modules/courses (and subsequently the curriculum) around them.

³ **UC-Berkeley** is experimenting with “Big Ideas” courses taught by faculty from different disciplines (and usually across divisions/schools). So, a course on “Time”, for example, was taught by a philosopher and a string theorist whereas a course on “Origins” was co-taught by a paleontologist, an astrophysicist and a Biblical scholar.

Second Memorandum on Undergraduate Education

To: Beverly Wendland and Ed Schlesinger, Co-Chairs of the CUE2

From: Gabe Paquette (Provost's Fellow on the CUE2) and Janet Schreck (Assistant Vice Provost for Education)

Re: Second Memorandum on Undergraduate Education

Date: August 16, 2017

It is an exciting and propitious moment to re-think, re-imagine, and reform undergraduate education. There is no shortage of good, provocative writing on the future(s) of higher education, especially undergraduate education.⁴ As described in our first memorandum, faculty, students, and administrators on many campuses are engaged in processes that resemble our CUE2, and some universities have begun to re-design the curriculum and undergraduate experience as a whole. In fact, indicative of this flurry of activity, the American Academy of Arts and Sciences has convened its own commission to study undergraduate education in the U.S.

In the first part of this memorandum, we offer an overview of new approaches to teaching and learning and how these are informing debates about the future of undergraduate education. We offer some examples from across the spectrum of higher education institutions to suggest how the new scholarship on teaching and learning might find institutional expression. In the (considerably shorter) second part of the memorandum, we examine how the relationship between the liberal arts education and professional education/vocational training/non-academic has been conceived. As our first memorandum adumbrated, some of our peer institutions are experimenting with infusing the liberal arts curriculum with training programs more generally associated with professional schools/vocational training as well as reviving the once-robust (but now somewhat atrophied) civic dimension of a liberal arts education.

Please share this memorandum with the members of the CUE2 if you believe that it would helpfully inform the Commission's work.

PART I

New Approaches to Teaching and Learning: "High-Impact Practices", "Active/Engaged Pedagogies", Technology's Enormous Potential, and the Role of the Faculty

A. Definitions and Approaches

"For a long time," former Harvard President Derek Bok observed, "methods of teaching were largely matters for conjecture, intuition, and personal experience rather than careful testing".⁵ This is no longer the case. The past decade has witnessed an explosion in scholarship on learning technologies and the pedagogical practices to achieve optimal learning outcomes. Numerous institutions are refashioning their curricula (and undergraduate experience as a whole) to take

⁴ The new literature is vast and expanding at a frightening rate. For a curated sample, see the pieces in the [Chronicle](#), [Fast Company](#), and the [Washington Post](#), along with this [report](#) by the firm Deloitte. [Georgia Tech](#) even has a center devoted to the future direction of the university!

⁵ Derek Bok, *Higher Education in America* (Princeton: Princeton UP, 2013), 203.

into account the new insights offered by recent research.⁶ A useful point of departure is George Kuh's *High-Impact Educational Practices* (2008),⁷ a study that has informed the work of those contemplating and undertaking the sort of reform that CUE2 is charged to study. Kuh, a professor at Indiana University, identified four learning outcomes: broad knowledge of human cultures and the physical and natural world; intellectual and practical skills (from written and oral communication to quantitative reasoning); personal and social responsibility (including civic engagement and ethical reasoning); and integrative and applied learning ("synthesis and advanced accomplishment across general and specialized study").

Kuh's research indicated that these learning outcomes were best achieved through a series of practices/methods. Broad Knowledge was best acquired via common intellectual experiences (exploring "big questions"); undergraduate research; learning communities (several courses linked to a "big question"); and a capstone experience. Intellectual and Practical Skills were best inculcated through first-year seminars; writing intensive courses; collaborative assignments and projects; and undergraduate research. Personal and Social Responsibility was cultivated by means of common intellectual experiences; service and community-based learning; collaborative assignments; and opportunities to exercise/employ ethical reasoning. Integrative and Applied Learning was best fostered in learning communities; undergraduate research; service-learning and community-based learning; internships and capstone experiences. It should be noted that a single type of learning experience/pedagogical approach (e.g. learning communities) can help to achieve several learning goals. Kuh himself suggests that ideally students will engage in 2 or more such "high-impact practices" during their college careers, most urgently in the freshman and senior years.

"High-impact practices" are also examples of what some scholars call "engaged learning", which "involves ongoing experimentation rather than just passive absorption of information". Service Learning, Learning Communities and Undergraduate Research are prime examples of engaged (sometimes called "active") learning pedagogies. Service-learning is a form of "experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development". The case for service-learning (or community-based learning) as a key "engaged learning" practice is encapsulated in a 2007 article by former Bates College President Donald Harward. Learning communities "involve a group of students who share common classes and/or co-curricular experiences, but they vary greatly from campus to campus in terms of the number of linked classes, the incorporation of a residential component and the use of a thematic focus (e.g. environmental conservation, social justice). Undergraduate Research is "defined broadly to include scientific inquiry, creative activity and scholarship ... undergraduates are responsible for co-creating knowledge through the process of inquiry, as opposed to receiving, memorizing and

⁶ The Derek Bok Center for Teaching and Learning at Harvard offers a [good overview](#) of research-based teaching methods, with links to relevant scholarly literature.

⁷ George D. Kuh, *High-Impact Educational Practices: What They Are, Who Has Access to Them, and Why Do They Matter* (Washington, D.C.: AACU, 2008). The practices are considered "high impact" because of their connection to higher retention/persistence rates, academic performance and learning outcomes, overall satisfaction, and "engagement with educationally fruitful activities", like collaborative learning, close relationships with faculty mentors etc.

re-presenting knowledge from faculty experts”.⁸ It should be added that the common feature of all of these practices is deep and sustained faculty engagement, which creates an environment in which students are unafraid to “fail” and in which alternative metrics of success (beyond GPA and traditional markers of classroom “achievement”) are recognized and valorized.⁹

While some scholars have studied the types of teaching practices that advance learning outcomes for students over the duration of their time in higher education, other scholars have focused on the types of course/syllabus/classroom-specific practices that optimize learning outcomes. *How Learning Works* (2010), by Northeastern’s Susan Ambrose and her colleagues, is perhaps the most comprehensive and influential book in a rapidly expanding field. Ambrose and her coauthors identify seven principles they claim are key to ensuring that learning outcomes sought are achieved. These are: Students’ prior knowledge can help or hinder learning; how students organize knowledge influences how they learn and apply what they know; Students’ motivation determines directs and sustains what they do learn; To develop mastery, students must acquire component skills, practice integrating them, and know when to apply what they have learned; Goal-directed practice coupled with targeted feedback enhances the quality of student learning; Students’ current level of development interacts with the social, emotional and intellectual climate of the course to impact learning. Sometimes, Ambrose claims, faculty’s lack of awareness of these principles leads to gaps that hinder learning. For example, metacognition (i.e. “the process of reflecting on and directing one’s own thinking”) often falls through the cracks: “metacognitive skills tend to fall outside of the content areas of most courses, and consequently they are often neglected in instruction”.¹⁰

While Ambrose’s principles are applicable to all disciplines, other scholars have sought to devise principles with their own branch of learning in mind. A key example in the Sciences is the recent work of Nobel Laureate Carl Wieman of Stanford University, which has attracted considerable attention. Wieman summarizes the essential elements for effective learning in the Sciences in the following way: “Students must strenuously and explicitly practice the cognitive components of expertise. This includes the unique disciplinary knowledge, the discipline-specific structures by which knowledge is organized and applied, and the ways in which experts monitor their thinking when learning and problem solving; students must receive effective feedback to guide their thinking while carrying out such practice; students must be motivated to do the hard work of learning; instructional activities need to be consistent with the basic mechanisms and limitation of how the brain processes and remembers information”.¹¹

Johns Hopkins’ Gateway Sciences Initiative also generated and disseminated numerous strategies that serve as best practices for teaching undergraduate STEM and gateway science courses, inspiring a pedagogical culture-shift toward active, collaborative learning. In a report to

⁸ Lynn E. Swaner, “The Theories, Contexts, and Multiple Pedagogies of Engaged Learning: What Succeeds and Why?”, in Donald W. Harward, ed., *Transforming Undergraduate Education: Theory that Compels and Practices that Succeed* (Lanham, MD: Rowman and Littlefield Publishers, 2012), 78-83 passim.

⁹ There is a burgeoning literature on the importance of “learning to fail” and its connection to learning outcomes, resilience, and improved student mental health. [Here is an article](#) in the *New York Times* about **Smith College** in Massachusetts and [here is a piece](#) by Southwestern University president Edward Burger in InsideHigherEd.com. **Harvard** and other universities are undertaking [a joint project](#) on student resilience.

¹⁰ Susan Ambrose et al., *How Learning Works: Seven Research-based Principles for Smart Teaching* (San Francisco: Jossey-Bass, 2010), 4-7, 190-191.

¹¹ Carl Wieman, “[Applying New Research to Improve Science Education](#)”, *Issues in Science and Technology* 29:1 (2012): 25-32; the list is reproduced in his *Improving How Universities Teach Science: Lessons from the Science Education Initiative* (Cambridge, MA: Harvard UP, 2017), 160.

the Council of Deans in Fall 2016, a recommendation was made to apply GSI findings from its 23 instructional enhancement and pedagogical innovation projects and expand them to the university across four main lines: Encourage the differentiation of introductory course options to meet the varied nature of incoming students and ensure that every student can succeed; Increase options for first-year research experience to promote learning through discovery and build expertise through scientific exploration; Institutionalize PILOT learning program across the curriculum and support its continued expansion; Provide more active learning spaces by reconfiguring a portion of traditional classrooms to ensure that every active learning class has an available learning classroom.

B. Obstacles to Adoption/Implementation of “High-Impact” etc. Practices

To what degree have these insights infiltrated and informed the university curriculum? Though it is too early to know whether, for example, Wieman’s work, which has garnered national attention, will have an impact, the early returns are not promising. As a recent book surveying university teaching practices concludes, “Neither [Kuh’s] list nor the other rich research on effective pedagogies has produced a revolution in the undergraduate experience. NSSE results, for instance, reveal only a modest increase in the number of students participating in high-impact practices from 2006 to 2012, and the proportion of first-generation college students engaging in these practices continues to lag behind the rates for undergraduates who have college-educated parents”.¹² Why have universities, as a whole, been slow to adopt these insights and adapt their practices accordingly? One answer, to be sure, is that large universities are anything but nimble “start-ups”: changes happen slowly and incrementally. Michael Crow, the enterprising president of Arizona State, notes that “inherent design limitations in our universities hamper rapid change in response to real-time demand, impeding our potential to develop appropriate organization structures and trans-disciplinary curricula”.¹³

Another factor precluding adoption is cost. Fortunately, technological advances may mitigate that obstacle, as Part C of this section indicates. But there are other explanations. Wieman contends that “the largest barrier to faculty change is the formal incentive system”. For him, the department is the key determinant of change: “the primary determinant of departmental success was the overall quality of organization and management within the department”. Drawing on his experience with the SEI, Wieman contends that a “substantial competitive grant program for departments to improve undergraduate education was clearly effective”, particularly when coupled with the presence of “science education specialists (SEs) with expertise both in their discipline and in teaching embedded in departments to work with the faculty”.¹⁴ The notion of incentivizing departments, instead of individual faculty, has gained traction elsewhere. The University of Louisville, for example, gives a \$30,000 reward to an academic department or unit on its campus that “works collegially and collectively on teaching and learning”.¹⁵

¹² Peter Felten et al., *The Undergraduate Experience: Focusing Students on What Matters Most* (San Francisco: Jossey-Bass, 2016), 21.

¹³ Michael Crow and William Dabars, *Designing the New American University* (JHU Press, 2015), 306; William Massy notes that another obstacle to change is “over-decentralization of teaching activity” in his *Re-engineering the University: How to be Mission-Centered, MarketSmart and Margin-Conscious* (Baltimore: JHU Press, 2016), 41.

¹⁴ Wieman, *Improving How Universities Teach Science*, 3.

¹⁵ Felten, *Undergraduate Experience*, 61.

We might extend Wieman’s analysis of incentives and teaching more generally. As a past president of the Carnegie Foundation for the Advancement of Teaching, Ernest Boyer noted almost 3 decades ago, “[t]o bring teaching and research into better balance, we urge the nation’s ranking universities to extend special status and salary incentives to those professors who devote most of their time to teaching and are particularly effective in the classroom. Such recognition will signify that the campus regards teaching excellent as a hallmark of professional success”.¹⁶ It is clear that the modern research university is far from realizing that vision. Clark Kerr, the legendary Chancellor of the University of California, more than half a century ago described the “cruel paradox” of the research university, in which “a superior faculty results in an inferior concern for undergraduate teaching”.¹⁷ Part of the problem, as is generally acknowledged, is the nature of graduate training, especially at top research universities, which puts only slight emphasis on pedagogical training, leaving newly-minted PhDs ill-prepared for the classroom. As former Princeton President William Bowen remarks, “[i]t is a bit shocking that so many college faculty are let loose on undergraduates with practically no training in the work of teaching— itself a sign of the regrettably low esteem in which the main work of most universities is held by too many of those who lead and manage them”.¹⁸ Indeed, if a recent (clever if hyperbole ridden) book is to be believed, the contemporary university is straying ever further from Boyer’s ideal, almost reveling in Kerr’s “cruel paradox”, and supplying further cause for Bowen’s shock.¹⁹ But will training faculty (and graduate students on their way to faculty careers) in new techniques, technologies and pedagogies be enough? Would well-funded, empowered, and renowned Teaching and Learning Centers—such as those at Vanderbilt, Notre Dame, and Harvard—prove a panacea? There is good, data-supported reasons for believing that it would help a great deal, and is therefore partial solution. Some experienced commentators have asked whether the very structure of the university needs to be rethought to optimize undergraduate learning outcomes. Jonathan Cole, former provost of Columbia and leading writer on higher education, has remarked that “[t]here should be far greater integration of the curriculum across fields ... the absence of integration reflects the current structure of the university, which is divided into ‘knowledge units’ that are defined by individual disciplines rather than the knowledge needed to address complex problems”.²⁰ As our first memorandum made clear, some of our peer research institutions are heeding this call. Some small liberal arts colleges (SLACs) already have programs in place. A good example is **Southwestern University’s** Paideia

¹⁶ Ernest Boyer, *Scholarship Reconsidered: Priorities of the Professoriate* (New York: Carnegie Foundation for the Advancement of Teaching, 1990), 58.

¹⁷ Kerr, quoted in Andrew Delbanco, *College: What it was, is and should be* (Princeton: Princeton UP, 2012).

¹⁸ Bowen and McPherson, *Lesson Plan*, 126.

¹⁹ “The large (and even small) lecture hall is nowadays the site of an unspoken student-professor conspiracy. Many professors want to focus on research and get their teaching over with. As a result, they don’t demand too much of students ... My appeal to students is to recognize that professors who game the transaction this way are not good teachers, no matter how knowledgeable or entertaining they might be. Remember, it’s easy for a professor to skim your essay, to scribble a few illegible comments on it, to sleepwalk through a lecture, to overlook your many grammatical infelicities and your appalling failures of logic. The system is set up for professors not to care about you. And, ironically, it punishes those who do ... While teaching undergraduates is normally a very large part of a professor’s job, success in our field correlates with a professor’s ability to avoid teaching undergraduates ... Doing a lot of teaching is construed as a sign that one is not doing well”. In Jacques Berlinerblau, *Campus Confidential: How College Works, or Doesn’t, for Professors, Parents and Students* (Brooklyn and London: Melville House, 2017), 140-141, 190-191. Berlinerblau is a professor at Georgetown.

²⁰ Jonathan Cole, *Toward a More Perfect University* (New York: Public Affairs, 2016), 49.

Program, which inculcates a propensity to make connections across disciplines through a first year seminar and related coursework.

Some analysts believe that reforms such as these do not go far enough. Some commentators, like Kevin Carey, contend that the modern university in its current incarnation is irreparably flawed and incapable of responding effectively to forces portending its “disruption”.²¹ Roger Schank, a noted cognitive scientist and artificial intelligence theorist, calls for eliminating departments, majors and even courses, as traditionally conceived, since the chief object of education (in his view) is the development of cognitive processes that underlie learning (e.g. prediction, modeling). From a different yet still radical perspective, Columbia’s Mark Taylor proposes to organize problem-focused departments, or “zones of inquiry”, which might include “Mind, Body, Law, Information, Networks, Language, Space, Time, Media, Money, Life and Water”.²²

C. Efforts to institutionalize new pedagogies

Georgetown’s Randy Bass observes that the challenge facing universities is “how to make courses more closely resemble high-impact practices, with similar results”. He asks “how do we reverse the flow, or flip the curriculum, to ensure that practice is emphasized at least as early in the curriculum as content?”²³ As our previous memorandum described, Bass is spearheading the curriculum re-design effort at Georgetown. Other institutions have sought to integrate or respond to the insights proffered by Kuh, Ambrose and others. Many of these are what are grouped together as Small Liberal Arts Colleges, or SLACs. While not research institutions, several have implemented innovative programs from which Hopkins might learn.

Regardless of size, it is clear that the potential of new pedagogical technologies is being realized. “Adaptive Learning”, for example, is gaining adherents. It has been described as a “more personalized, technology-enabled, and data-driven approach to learning that has the potential to deepen student engagement with learning materials, customize students’ pathways through curriculum, and permit instructors to use class time in more focused and productive ways”. Former Princeton President William Bowen concludes that “carefully designed adaptive learning structure with multiple feedback loops can yield essentially the same learning outcomes as a traditional course but with much less face-to-face staff time and less time invested in the course by students”.²⁴

Carnegie Mellon, for example, launched an “Open Learning Initiative”, consisting of “online courses that automatically adapt to an individual student’s performance through intelligent tutoring systems that provide personalized feedback and hints as students struggle to master course content and skills” in a way that resembles the best practices enumerated by Ambrose and others. Faculty members use this data and then spend face-to-face time with students more

²¹ The university is “a deeply flawed, irrational institution designed to be bad at the most important thing it does: educate people”. See Kevin Carey, *The End of College: Creating the Future of Learning and the University of Everywhere* (New York: Riverhead Books, 2015), 36.

²² Schank and Taylor are discussed in Jeffrey J. Selingo, *College (Un)bound: The Future of Higher Education and What it Means for Students* (Boston: New Harvest, 2013), 148-149.

²³ Randy Bass, “Disrupting Ourselves: The Problem of Higher Learning in Higher Education”, *Educause Review* (2012).

²⁴ Report by Adam Newman, “Learning to Adapt: The Case for Accelerating Adaptive Learning in Higher Education” (2013), described in William G. Bowen and Michael S. McPherson, *Lesson Plan: An Agenda for Change in Higher Education* (Princeton: Princeton UP, 2016), 129.

productively. At least two dozen courses in statistics, biology and other core/foundation subjects have been designed. As the OLI's director, Candace Thille has stated, "I think of this as a combination of a TA and a book. We spend a lot of faculty time on activities that a computer can do better".²⁵ The **University of Texas's** [Institute for Transformational Learning](#) is engaged in similar project, but aims to provide similar feedback *across* courses, for the duration of a student's college career, to shape their overall experience, functioning like a data-driven advisor (as opposed to the "TA" model used at **Carnegie Mellon**).

Several enterprising SLACs have integrated "high-impact" and related practices, in some cases overhauling or fundamentally restructuring the undergraduate experience. For example, the [Odyssey Program at Hendrix College](#) in Arkansas requires students to pursue at least 3 experiences composed of pre-approved activities in the following six categories: Artistic creativity, global awareness, professional and leadership development, service to the world, undergraduate research and special projects.²⁶ **Susquehanna University** in Pennsylvania redesigned its curriculum in response to the NSSE results. All students experience 6 high-impact practices and often all of them. Its "[Central Curriculum](#)" is a proxy for a core, but emphasizing learning practices instead of (disciplinary) content areas. The rest of the curriculum built around it.²⁷ **Elon University** in North Carolina created an impressive [Center for Engaged Learning](#), which directs the university's effort to integrate undergraduate research, learning communities, and co-curricular activities (e.g. internships) into the student experience, thus fundamentally recasting it.

Several institutions have drawn on Ernest Boyer's work on "learning communities", with its emphasis on intensive, sustained relations between faculty and students and within student cohorts.²⁸ [Dickinson College](#), a SLAC in Pennsylvania, has made a significant investment in the "learning communities model". At **Dickinson**, "Learning Communities are an extension of the First-Year Seminar Program. Two or more seminars are linked or clustered around a theme. They enroll students in a common residential learning environment. The Learning Communities at Dickinson allow first-year students to participate in a community with other students who have an opportunity to work closely with faculty, staff and other students. By selecting to participate in a Learning Community, students and faculty commit to taking the learning out of the classroom and into the residence hall, the community, and the wider world". In 2017-18, the Learning Communities themes are "Resisting Exclusion and Social Inequality" and "Humans and the Natural World" and there are 46 seminars from which to choose. **Loyola University**

²⁵ Felten, *Undergraduate Experience*, 63; Selingo, *College (Un)bound*, 95-96; While technology's potential for improving pedagogy is infinite, irresistible, and irrefutable, higher education leaders recognize the complexity of its impact. See the [interesting lecture](#) by former Stanford President John Hennessey, for example, in which he speculates on the ways that new technologies will (and will not) transform higher education in the coming decades. Furthermore, the words of former JHU Dean and latterly President of Williams College, Adam Falk, should be heeded: "We should fiercely resist the reflexive conclusion that because our students come to Williams with different modes of encountering and absorbing information (multitasking, multimedia, short attention spans) we must become like them if we are to reach them and educate them. Rather, I believe our task to be the opposite: to understand both the advantages and deficits that this new world of continuous information flow provides and use the brief opportunity of students' time in college to reinforce the capacity and disposition for slow, reflective and difficult engagement with ideas. In fact, our students are, more than ever, hungry for just this sort of experience" See Adam Falk, "Technology in Education: Revolution or Evolution?", in Rebecca Chopp, Susan Frost and Daniel H. Weiss, eds., *Remaking College: Innovation and the Liberal Arts* (Baltimore: JHU Press, 2014), 97.

²⁶ Felten, *Undergraduate Experience*, 106.

²⁷ Selingo, *College (Un)bound*, 197-198.

²⁸ Ernest Boyer, *Campus Life: In Search of Community* (1990).

Maryland launched its award-winning, first-year “Messina” program in 2013. Messina is a mandatory first-year experience that features two linked seminar courses connected by one of four themes. Students live in residence halls in close proximity to other students enrolled in the same seminar courses. Messina offers opportunities for students to participate in events, performances, and excursions designed to extend learning beyond the classroom, build stronger communities around learning, and establish deeper relationships with faculty, administrators and fellow students. The recipient of a \$500,000 NEH grant, the Messina program has collected copious assessment data to document student learning outcomes. In order to provide undergraduate students an “opportunity for deeper, more meaningful, and connected learning in a shared residential and academic environment,” the University of San Francisco has expanded living-learning communities beyond the first year, offering living-learning opportunities to students throughout their four-year experience. **Wesleyan University** in Connecticut does not have “learning communities” per se, but rather “colleges” that span the disciplines within a particular division (i.e. College of Social Studies, College of Letters). The Colleges use a cohort model where each cohort takes a prescribed sequence of writing-intensive “tutorials” and “colloquia” characterized by frequent faculty-student interaction. Sophomores entering a college take the same set of courses for the entire year. There is a capstone research requirement in the senior year.

SLACs and universities built on Jesuit educational foundations are not the only institutions drawing on “high-impact practices”, as our first memorandum on US-based peer institutions made clear. **The University of Toronto’s Munk School of Global Affairs** has launched a cohort-based, first-year seminar model (involving 2 seminars and a lab) called MunkOne, which emphasizes collaborative problem-solving, small-group activities, and intensive interaction with the faculty. **UCLA** recently launched a “Freshmen Clusters” program is a year-long, collaboratively taught, interdisciplinary program featuring an array of linked small seminars and group tutorials. And the **Hopkins Medical School** has experimented with learning communities for over a decade!

Finally, it should be said that many SLACs have experimented with required short, intersession (“January”) terms to enhance undergraduate education, provide a space for supervised nonacademic co-curricular work, and/or courses that provide opportunity for breadth across the curriculum. St. Mary’s College in California has created a mandatory intersession. Students take a single course that does not fulfill any requirements of the student’s major. As director of the program states, “This is the time they explore anything but what they are specializing in”.²⁹ **Colby College** in Maine requires students to complete 3 intensive “Jan Plan” terms over their four years, everything from less traditional academic courses to community-based learning to Study Abroad experiences and more.

PART II

Liberal Education, Professional Education, and Post-Graduate Employment: to partition, to bridge, to combine or to align?

There has been a fair amount of skepticism, if not outright opposition, to the notion of combining (or at least blurring the boundary separating) the liberal arts and professional education (to say

²⁹ Selingo, *College (Un)bound*, 196.

nothing of vocational training). This critical stance dates at least to John Henry Newman's classic *The Idea of a University* (1852) where liberal knowledge was defined as "knowledge which stands on its own pretensions, which is independent of sequel, expects no complement, refuses to be informed (as it is called) by any end, or absorbed into any art, in order duly to present itself to our contemplation".³⁰ Stefan Collini, a professor emeritus at University of Cambridge, has updated Newman for our times: "making it obligatory to pursue certain narrow forms of economic and social impact in the short term ends up damaging the quality of research and thereby reducing its benefit to society ... Society actually obtains the greatest benefit from universities by encouraging them to concentrate on the things they are particularly good at, and not by trying to turn them into some form of company laboratory or apprenticeship scheme".³¹ Other US-based commentators have offered analyses that complement that of Collini. Columbia professor Andrew Delbanco, for example, argues that "rising pressure on colleges to show measurable results such as job attainment and post-college earnings is already pushing aside other values" less easily measured.³² Anthony Kronman, former dean of Yale Law School, pushes back against any utilitarian conception of the university, which is "not just a place for the transmission of knowledge but a forum for the exploration of life's mystery and meaning".³³ Harvard's Louis Menand argues that "the divorce between liberalism and professionalism as educational missions rests on a superstition: that the practical is the enemy of the true. This is nonsense". But Menand warns that it would be a "catastrophe" if "the culture of the university will become just an echo of the public culture ... [academics] need to ignore the world's demand that they reproduce its self-image".³⁴ Universities thus need to maintain a delicate balance, unafraid to engage with the world while not entirely surrendering the benefits of the cloister.

A different approach to the connection between liberal education and professional education has been to reject the premise that the liberal arts (the Humanities especially) and professional schools (and post-university, non-academic employment) are incompatible as faulty. Universities might maintain their distance from the non-academic world, the argument goes, because what students gain from a liberal arts education (whether capabilities, competences or "skills") is more than adequate to succeed beyond the university quad. Many prominent business leaders, including Hopkins alumnus Samuel Palmisano (former CEO of IBM), have offered full-throated endorsements of a liberal education as extremely useful preparation to post-university employment based on personal experience and anecdotal evidence. More [in-depth surveys](#) and a recent [book](#) on how liberal arts majors thrive in Silicon Valley appear to confirm.³⁵ Gallup has done some [interesting work](#) to measure the impact of college education on the "well-being" of alumni, instead of a narrow tracking of post-graduate employment success and income. These are valuable insights. Still, there is great demand from prospective and current undergraduates for training that has immediate applicability in postgraduate, non-academic jobs. There is nothing in the literature that indicates that such training cannot be added on top of (or be provided in addition to) a liberal arts education. The debate heats up when the question of integrating

³⁰ Quoted in Delbanco, *College*, 34.

³¹ Stefan Collini, *Speaking of Universities* (London and New York: Verso, 2017), 26.

³² Delbanco, *College*, 184.

³³ Anthony Kronman, *Education's End: Why our Colleges and Universities Have Given up on the Meaning of Life* (New Haven: Yale University Press, 2007), 6.

³⁴ Louis Menand, *The Marketplace of Ideas: Reform and Resistance in the American University* (New York: W.W. Norton & Co., 2010), 57, 158.

³⁵ Selingo, *College (Un)bound*, 155-156.

professional or vocational training into the curriculum arises or when it is proposed to re-align a liberal arts education to meet more explicitly the demands of the market.³⁶

From a different angle, some prominent university leaders have called for greater engagement with the wider world, arguing for the crucial civic function (and societal benefits) of liberal education. As Derek Bok argues, “Faculties currently display scant interest in preparing undergraduates to be democratic citizens, a task once regarded as the principal purpose of liberal education and one urgently needed at this moment in the US”.³⁷ A number of universities have heeded this call and have sought ways to erode the boundary separating “pure” and “applied”, “theory” and “practice”, viewing those divisions as either arbitrary and artificial or else unattuned to the anxieties and aspirations of today’s students.

There is no shortage of university programs seeking to bridge the gap between the world of the liberal arts and the world of non-academic work, whether private sector, public sector or nonprofit sector. We described some of our peer institutions developing such programs. Here we mention some models drawn from SLACs. **Wagner College** in New York has developed a program called the “[Practical Liberal Arts](#)”, “where the liberal arts provide the aforementioned breadth and depth of the human experience, professional education promotes conceptualization, design, implementation, assessment, reflection and revision”.³⁸ **Mt. Holyoke College**’s “[Making the Link](#)” program seeks to connect the liberal arts with post-graduation employment: “Drawing on research about integrative learning and high-impact practices, faculty worked together through a planning process that ‘imagined curriculum-to-career that was not just an add-on that was delivered beyond the faculty—parallel to the regular curriculum—or in one specialized program serving a few students’”. It has entailed a significant degree of curricular and pedagogical change. Departments now collaborate with the career center, academic advising etc. to ensure that “‘the curriculum-to-career idea is embedded strategically: in assessment initiatives, communication plans, staffing and infrastructure decisions, alumnae relations and ongoing curricular development’”.³⁹

Bates College in Maine is implementing a similar program, called “[Purposeful Work](#)”. According to the college’s website:

“Purposeful Work is a college-wide initiative that helps students identify and cultivate their interests and strengths and acquire the knowledge, experiences and relationships necessary to pursue their aspirations with imagination and integrity. Purposeful Work encourages collaboration and risk-taking. It supports failure and reinvention. When coupled with a liberal arts education, Purposeful Work prepares students for success in the modern economy. At Bates, Purposeful Work begins with Orientation, continues

³⁶ The debates are fascinating, if discomfiting. There may be unintended consequences to such an orientation. As Richard Arum and Josipa Roksa note, “if we treat students as consumers, will they in fact prioritize academic learning at the core of their institutional demands? There are many reasons instead to expect students as consumers to focus on receiving services that will allow them, as effortlessly or as comfortably as possible, to attain valuable educational credentials that can be exchanged for later labor market success”. See Arum and Roksa, *Academically Adrift: Limited Learning on College Campuses* (Chicago: University of Chicago Press, 2011), 17.

³⁷ Derek Bok, *Universities in the Marketplace* (2003), quoted in Delbanco, *College*, 149; see also Michael Roth, *Beyond the University: Why Liberal Education Matters* (New Haven: Yale University Press, 2014).

³⁸ Barry N. Checkoway, Ricard Guarasci and Peter L. Levine, “Renewing the Civic Purpose of Liberal Education”, In Harvard, *Transforming*, 112.

³⁹ Felten, *Undergraduate Experience*, 23-24.

through our First Year Seminar, and spans a student's college career with opportunities to explore, reflect and build their skills. It includes skill-specific courses taught by alumni and industry leaders. And it includes a network of Bates internships that are available to every student".

Wake Forest University (NC) also makes post-university careers a focus from beginning of freshman year. The university anticipates the question liberal-arts majors often have: "What can I do with a major in ...?" As the university administrator overseeing the program says, "The feeling is that if it's not a practical major they are unemployable and that's sad". Wake Forest collects job data on graduates with various majors, conduct web-based panels with alumni who majored in a given discipline. Wake Forest complements this effort with a career development, replete with a credit-bearing course that helps students demystify the job search, budgeting etc.⁴⁰

Some universities have focused efforts on capturing learning beyond the traditional transcript as a way to bridge the gap between the academic training and employment. The Education Design Lab at **Georgetown University** houses the 21st Century Badging Challenge, a project that is creating models for nonacademic credentials in order to send a "united signal to employers." Partnering with numerous public and private colleges and universities, the Design Lab engages faculty members and about 40 students from each participating institution to identify the skills and criteria needed for the badges. They also determine the kinds of rigorous assessment used to determine whether or not students have earned a badge. Employing this approach, badges have been developed for collaboration, creative problem solving, critical thinking, cross cultural competency, empathy, oral communication, and resilience.

Similarly, universities and colleges seeking to integrate the liberal arts and public/community service are not far behind those institutions more oriented to vocational training. The **University of South Carolina** has created the "USC Connect" program. It offers four learning pathways outside of the classroom: community service, global learning (study abroad), research, and peer and civic engagement. "Starting with a first-year seminar, University 101, students are challenged to learn in integrative ways and to use e-portfolios to document the products of and reflections on their learning experience in and out of class." Students can graduate with a "graduation with leadership distinction" on their diploma and transcript. They earn this distinction by performing 100s of hours of community service, completing related coursework, making public presentations, and presenting their e-portfolio.⁴¹

⁴⁰ Selingo, *College (Un)bound*, 204-205.

⁴¹ Felten, *Undergraduate Education*, 91.

APPENDIX C: CUE2 MEMBERSHIP

Co-Chairs

Ed Schlesinger, Dean of Whiting School of Engineering
Beverly Wendland, Dean of the Krieger School of Arts and Sciences

Faculty

Michael Falk, Materials Science and Engineering
Bertrand Garcia-Moreno, Biophysics
Pablo Iglesias, Electrical and Computer Engineering
Stuart Leslie, History of Science
Renée Marlin-Bennett, Political Science
Andrew Miller**, English
Gabriel Paquette*, History
Daniel Robinson, Applied Mathematics and Statistics
Sridevi Sarma, Bio-Medical Engineering
Joel Schildbach, Biology
Pamela Sheff, Center for Leadership Education

Divisional Representatives

Eliot Cohen, School of Advanced International Studies
Darrell Gaskin, Bloomberg School of Public Health
Paul Mathews, Peabody

Staff Members

Ashley Costello, Senior Administrative Coordinator, Department of History of Art
Laura Graham, Administrator, Department of Computer Science
Michael Reese, Associate Dean of University Libraries and Director, Center for Educational Resources
Stephen Ruckman, Senior Adviser to the President
Janet Schreck***, Associate Vice Provost for Education
Fritz Schroeder, Vice President for Development and Alumni Relations
Andrew Wilson, Dean of Academic and Student Services

Alumni Members

Matthew Daimler, Whiting School of Engineering '99
Samuel Lichtenstein, Krieger School of Arts and Sciences '11
Natalie Lorenz-Anderson, Whiting School of Engineering '89

Student Members

Gale McFarlane, Krieger School of Arts and Sciences
Nathaniel McKeever, Whiting School of Engineering
Phil Shin, Krieger School of Arts and Sciences
Catharine Wain, Whiting School of Engineering

*Provost's Fellow to CUE2 (through June 2018)

**Provost's Fellow to CUE2 (July 2018-June 2019)

***Senior staff to CUE2

APPENDIX D: WORKING GROUP THEMES

PHASE 1

The Character of a Hopkins Education

What competences, proficiencies, dispositions and habits of mind should characterize a Hopkins graduate? To what degree does the current Hopkins undergraduate experience (the curriculum and co-curricular activities taken together) cultivate such competences and proficiencies and inculcate such dispositions and habits of mind? How does the architecture of the curriculum (i.e. modes of assessment, the academic calendar, unimaginative definition of what constitutes a “course” etc.) hinder attainment and exploration and, if so, how might it be altered?

The Integration of Research into the Undergraduate Experience

Hopkins was America’s first and remains one of its leading research universities. A sizable percentage of our students undertake a significant research experience. But many of our students graduate without gaining significant research experience. Should research be a required component of a Hopkins undergraduate education? Or, how can we develop a culture that supports an unwritten expectation that all students engage in research? In either case, how should research be integrated into the undergraduate experience? Can we incorporate research into the curriculum and undergraduate experience such that traditional undergraduate laboratory courses are no longer needed? Regardless of which route is taken, what barriers prevent students from pursuing research? How are undergraduates introduced to the practice and the results of research? Are these introductions sufficient preparation to undertake mentored research projects?

The Link between Undergraduate Education and Post-Graduate Pathways

Hopkins undergraduates pursue diverse paths after graduation, including professional/graduate education and employment in various sectors. However, the connections between undergraduate education and post-graduate pathways are not always present or obvious. With several notable exceptions, Hopkins undergraduates have few opportunities to take classes and pursue degree programs at Hopkins’ world-class professional schools and graduate programs. This separation departs from President Gilman’s original vision of the integration of undergraduate and graduate communities. Should Hopkins continue to demarcate the undergraduate liberal arts experience from graduate and professional education or should the boundary between them be made permeable? Can and should elements of professional and graduate training be incorporated into the undergraduate curriculum? For those students planning to pursue employment directly after completing their undergraduate degree, does the liberal arts education received at Hopkins prepare them adequately to compete for, and succeed in, challenging and meaningful jobs? Is the distinction between “liberal arts” education and “professional” education useful or meaningful?

The Place of Community-Based Learning, Co-Curricular Activities, and Applied Learning

A great deal of learning takes place outside of the traditional classroom setting and many students apply what they have learned on campus to the world beyond it. How should a Hopkins undergraduate education account for extramural learning and integrate the insight gained by

students who apply their academic training in service, internship, and entrepreneurial activities? In particular, how can students' civic engagement with communities in Baltimore align with their academic pursuits?

Re-Imagining Teaching and Learning

The advent of new technologies has stimulated exciting changes in higher education. New insights into the “science of learning” and the identification of “high-impact” pedagogical practices are readily acknowledged. To what degree is the Hopkins undergraduate experience informed by these recent developments? How does Hopkins assist and incentivize faculty to learn about and incorporate such innovative practices? At present, even the most committed undergraduate teachers recognize that incentive structures prize research excellence, graduate training, and professional accolades above all else. How can the university's commitment to excellence in undergraduate education re-orient faculty energies toward new pedagogies?

Accessing and Maximizing the Benefits of a Hopkins Undergraduate Education

Revamping the undergraduate experience will amount to little if its benefits are not widely accessible. What innovative ideas, processes, approaches could be implemented to ensure the broadest access to a Hopkins education while recognizing the practical limitations on funding and support needed to provide that education? To what degree does Hopkins consciously structure the undergraduate experience with access in mind? Does the undergraduate experience (as presently designed) attend sufficiently, sensitively and constructively to factors that may impede students from deriving maximum benefit from the academic and extracurricular resources available to them at Hopkins? In particular, is it designed with various forms of diversity (inter alia, socioeconomic, racial, disparate academic preparedness) in mind?

The Conditions and Contexts of Learning

The pre-modern university was committed to educating the “whole person”, for the cultivation and refinement of the mind was considered inseparable from wider human flourishing. Without broader well-being, learning would suffer, if it could happen at all. What broader social and environmental conditions are needed on campus to ensure our students are not hindered in their ability to achieve academic success? Are these present at Hopkins? How, for example, can a Hopkins education be further embedded in an ecosystem of care, one in which a mental health crisis is confronted and mitigated before a student's academic performance is imperiled? More generally, how can Hopkins better cultivate a campus culture where students prize learning for its own sake, feel encouraged to take intellectual risks, and embrace the failures inherent to exploration, creation, and learning?

PHASE 2

Three Phase 2 groups were formed around CUE2 initial draft recommendations:

Faculty

Building the faculty of the future. Hopkins faculty, and the graduate students they train, should be at the cutting edge of, and contribute to, the science of learning. As educators, they must be equipped with the most effective pedagogical approaches and tools, including technologies, which maximize student learning. Their teaching will be attentive to diverse learning styles and disparate collegiate preparation. Every department will develop and implement a process to train its faculty in teaching, with ample latitude to account for the diversity of disciplines. In all cases, faculty (and graduate students) will be provided with the necessary training, resources, and incentive structures to realize their potential as teachers; at the same time, tenure, promotion, and merit salary increases processes will take quality of and commitment to teaching into account.

Faculty must be empowered to innovate. Organizational structures should accommodate and not hinder experimentation. Assumptions about the current delivery of undergraduate education must be revisited. For example, disciplinary logics and pedagogical practice may determine that pathways through disciplines vary in form, shape, and number of courses. Regardless of its concrete manifestations, faculty should be unfettered as they aim to improve, if not utterly transform, how they teach their subject, and develop their students.

The expansion of student interaction with faculty in non-Homewood schools/divisions. At the moment, Hopkins undergraduates chiefly have access to faculty on the Homewood campus, but are largely unable to study with faculty from other divisions/schools. By building new bridges between schools and divisions, students will enjoy the opportunity to “rub minds against minds” with all JHU faculty. This might entail faculty in other divisions teaching on the Homewood campus, the employment of technology to remove geographic barriers, and the creation of mentored research opportunities for undergraduates in other divisions.

Academic/Curriculum

Full Integration of undergraduate and graduate education. The traditional demarcation is increasingly anachronistic, for intellectual as well as practical reasons. All students accepted to Hopkins should be able to roam widely across JHU’s schools in accordance with their aspirations and abilities, moving seamlessly from introductory to advanced levels of study. Building on successful, existing programs, the line between undergraduate and graduate programs should be permeable and the sharp delineation between graduate and professional schools should be abandoned. Among the most likely result of such a change would be the expansion of dual, integrated and joint degree programs, subject to limitations identified by the professional schools and graduate programs. This will entail building bridges between schools on the basis of new models of mutuality.

Increased curricular flexibility with new pathways to guide choice. Majors are often assemblages of courses bound together by requirements that seldom consider 1. Other disciplines; 2. The intellectual aspirations of students; and 3. The curriculum as a whole. Majors should be streamlined with the number of courses reduced and capped. Shrinking majors will

free up time and intellectual energy for students to explore other disciplines, providing a broader education with a balance of science and humanities.

In order to support students as they explore, and to structure their experience, optional “core pathways” for first- and second-year students should be developed. Inherently interdisciplinary, they should enable students to explore a single theme/topic/problem in depth by exposing them to various modes of enquiry and to thus understand their area of focus from myriad, overlapping (and sometimes quite opposed) perspectives. Such pathways might be thematic, but they also might be career-oriented, such as constellations of courses oriented toward careers in the public service. In addition to optional core-pathways, students might be induced to explore new, unfamiliar areas through additional mechanisms and structures. Students will be guided through these pathways by a collaborative of professional advisors, faculty mentors, and career counselors.

Long-term, faculty-mentored research, design or creative endeavor. Hopkins is at its core a research institution and its graduates’ experience should reflect that core value and distinctive feature. At the same time, it is recognized that “research” is a broad term that should encompass a range of long-term activities embodying the spirit of innovation and enquiry under the guidance of a faculty member, including design, the arts, and community-based research projects. This may be a “capstone,” senior-year experience, but it might take place earlier in a student’s academic career. Conceivably, it might occur off campus, whether at a start-up or a NGO. Regardless of its location or the form it takes, this long-term experience should be mentored by faculty to ensure it coheres with the academic curriculum. Experiences will be designed to meet clearly defined learning objectives, will be authentically assessed, and will be recorded in a manner that documents the learning that has occurred.

Student Experience

Bridging the divide between the curricular and co-curricular. The concept of student learning should not be constrained by the architecture of formal courses. Hopkins should help students lay the groundwork for life-long learning and postgraduate careers in myriad settings by providing opportunity and tools for them to assess, reflect on, and document their learning and personal growth across several related experiences, including curricular, co-curricular, and extracurricular. Such experiences should occur on campus, in communities in Baltimore, across the United States, and around the world and be viewed as an essential component of undergraduate education.

Creating an infrastructure of wellness, flourishing and long-term fulfillment. Cultivation and refinement of the mind is intrinsically tied to wider human flourishing of undergraduate students. Creating cohesive cohorts through core pathways (see #4) in years 1 and 2, improving faculty and peer mentoring, and developing shared experiences in non-academic settings (and spaces) would create an environment in which self-care, sense of belonging, and wellness are at the core of, instead of mere adjuncts to, the undergraduate experience. This infrastructure would serve to decrease the likelihood of acute crises, and also encourage intellectual risk-taking, learning from “failure”, and resilience.

APPENDIX E: JOHNS HOPKINS COMMUNITY TOWN HALL PRESENTATIONS

Dr. Janice Stein

Professor and Founding Director of the Munk School of Global Affairs
University of Toronto
October 24, 2017

Dr. John Boyer

Dean of the College
University of Chicago
October 27, 2017

Mr. Brandon Busteed

Executive Director, Education & Workforce Development
Gallup
October 27, 2017

Dr. Nancy Weiss Malkiel

Professor Emeritus and former Dean of the College
Princeton University
November 16, 2017

Dr. Jonathan Cole

Provost and Dean of the Faculties, Emeritus
Columbia University
November 28, 2017

Dr. Edward Burger

President
Southwestern University
January 22, 2018

Dr. Steven Mintz

Professor and Director, University of Texas System's Institute for Transformational Learning
University of Texas, Austin
January 22, 2018

Dr. Randy Bass

Vice Provost for Education
Georgetown University
January 22, 2018

Dr. Sara Goldrick-Rab

Professor of Higher Education Policy and Sociology
Temple University
March 12, 2018

Dr. Susan Ambrose

Senior Vice Provost for Educational Innovation
Northeastern University
March 29, 2018

Dr. Carl Weiman

Professor
Stanford University
April 11, 2018

APPENDIX F: DRAFT MISSION AND COMPOSITION FOR UNDERGRADUATE EDUCATION BOARD

Mission

The Undergraduate Education Board advises the Provost about University-wide issues pertaining to undergraduate education and provides coordination among different programs. It reviews undergraduate programs and sets guidelines and policies that affect all undergraduate students. The Board respects the strong tradition of local autonomy of the Schools and seeks to enhance the visibility and prominence of undergraduate education across the University.

Composition

The Board is composed of distinguished faculty whose expertise reflects the broad range of intellectual disciplines represented by the University's undergraduate programs. The distribution of the members ensures that the full range of intellectual inquiry is represented on the Board. It is composed of voting faculty members drawn from the schools that grant undergraduate degrees (KSAS, WSE, Peabody), six non-voting members from SOM, BSPH, SAIS, Carey Business School, School of Nursing and School of Education, voting undergraduate members from KSAS, WSE and Peabody, and a non-voting member from the Provost's office. The Homewood Academic Council will be consulted to ensure that governance responsibilities of HAC and the Board are clearly demarcated.

APPENDIX G: PROVOST'S UNDERGRADUATE AWARD (PURA)

Metrics 2017-2019

PURA 2017-18 STUDENT DATA

	Applicants	Awardees	% of Awardees
Gender (self-identified)			
F	97	23	58%
M	75	17	43%
Unidentified	0	0	0%
	75	40	100%

Primary Division			
Krieger School of Arts and Sciences	105	26	65%
Peabody	0	0	0%
Whiting School of Engineering	67	14	35%
	172	40	100%

Year			
Early Grad	1	0	0%
Senior	69	21	53%
Junior	64	14	35%
Sophomore	38	5	13%
Freshman	0	0	0%
	172	40	100%

General Research Area			
Engineering	62	14	35%
Humanities	20	5	13%
Natural Sciences	71	14	35%
Social Sciences	19	7	18%
	172	40	100%

Ethnicity (self-identified)			
Hispanic	17	5	13%
Non-Hispanic	152	35	88%
Not Known	3	0	0%
	172	40	100%

Race (self-identified)			
2 or more	4	0	0%
American Indian/Native/Indigenous	n/a	n/a	n/a
Asian	102	25	63%
Black	7	3	8%
Middle Eastern/North African/of Arab Descent	n/a	n/a	n/a
Not known	6	2	5%
White	53	10	25%
	172	40	100%

PURA 2018-19 STUDENT DATA			
	Applicants	Awardees	% of Awarded
Gender (self-identified)			
F	103	34	71%
M	60	13	27%
Unidentified	1	1	2%
	164	48	100%

Primary Division			
Krieger School of Arts and Sciences	110	30	63%
Peabody	2	2	4%
Whiting School of Engineering	52	16	33%
	164	48	100%

Year			
Early Grad	0	0	0%
Senior	60	15	31%
Junior	67	25	52%
Sophomore	36	8	17%
Freshman	1	0	0%
	164	48	100%

General Research Area			
Engineering	48	15	31%
Humanities	13	8	17%
Natural Sciences	80	18	38%
Social Sciences	23	7	15%
	164	48	100%

Ethnicity (self-identified)			
Hispanic	17	5	10%
Non-Hispanic	144	43	90%
Not Known	3	0	0%
	164	48	100%

Race (self-identified)			
2 or more	8	3	6%
American Indian/Native/Indigenous	2	0	0%
Asian	101	27	56%
Black	11	4	8%
Middle Eastern/North African/of Arab Descent	2	0	0%
Not known	3	1	2%
White	37	13	27%
	164	48	100%

APPENDIX H: UNDERGRADUATE PARTICIPATION IN RESEARCH WITH FACULTY 2016-2018

2016 Senior Survey Results - Research With Faculty

Did you participate in research with a faculty member?

Major 1	Overall			Gender						URM Status					
				Male			Female			URM**			Not URM		
	Total N*	N Research	% Research	Total N	N Research	% Research	Total N	N Research	% Research	Total N	N Research	% Research	Total N	N Research	% Research
Engineering	251	186	74%	167	126	75%	84	60	71%	36	24	67%	215	162	75%
Natural Sciences	231	137	59%	88	60	68%	143	77	54%	70	31	44%	161	106	66%
Social and Behavioral Sciences	151	62	41%	47	21	45%	104	41	39%	25	14	56%	126	48	38%
Humanities	75	21	28%	21	4	19%	54	17	31%	14	2	14%	61	19	31%
All Academic Areas	708	406	57%	323	211	65%	385	195	51%	145	71	49%	563	335	60%

*Survey respondents

**URM = Underrepresented minorities (Hispanic, Black, Native American; U.S. citizens or permanent residents only)

Thinking about your entire experience at Johns Hopkins, how satisfied are you with each of the following?

Opportunities to participate in research with a faculty member.

Major 1	Overall	Gender		URM Status	
		Male	Female	URM	Not URM
Engineering	3.38	3.40	3.34	3.13	3.42
Natural Sciences	3.2	3.31	3.14	2.94	3.31
Social and Behavioral Sciences	2.87	3.00	2.81	3.04	2.83
Humanities	2.95	3.22	2.88	2.60	3.00
All Academic Areas	3.19	3.32	3.07	2.99	3.23

4 = Very satisfied

3 = Generally satisfied

2 = Generally dissatisfied

1 = Very dissatisfied

You indicated that you participated in the following. Tell us how satisfied you are with your experience.

Research with a faculty member

Major 1	Overall	Gender		URM Status	
		Male	Female	URM	Not URM
Engineering	3.35	3.36	3.33	3.33	3.35
Natural Sciences	3.37	3.30	3.43	3.35	3.37
Social and Behavioral Sciences	3.28	3.15	3.35	3.29	3.28
Humanities	3.38	3.75	3.29	3.00	3.42
All Academic Areas	3.35	3.33	3.37	3.32	3.36

Comparison between JHU and peer universities, overall statistics

	Peer Universities	JHU
Participation Rate	54%	57%
Satisfaction with opportunities	3.18	3.18
Satisfaction with research	3.41	3.35

	2016 Survey Response Rate
JHU	69%
Peers	53%

2018 Senior Survey Results - Research With Faculty

Did you participate in research with a faculty member?

Major 1	Overall			Gender						URM Status					
				Male			Female			URM **			Not URM		
	Total N*	N Research	% Research	Total N	N Research	% Research	Total N	N Research	% Research	Total N	N Research	% Research	Total N	N Research	% Research
Engineering	353	252	71%	208	152	73%	145	100	69%	62	34	55%	291	218	75%
Natural Sciences	309	222	72%	106	77	73%	203	145	71%	88	54	61%	221	168	76%
Social and Behavioral Sciences	152	62	41%	60	26	43%	92	36	39%	22	10	45%	130	52	40%
Humanities	88	24	27%	15	6	40%	73	18	25%	13	3	23%	75	21	28%
All Academic Areas	902	560	62%	389	261	67%	513	299	58%	185	101	55%	717	459	64%

*Survey respondents

**URM = Underrepresented minorities (Hispanic, Black, Native American; U.S. citizens or permanent residents only)

Thinking about your entire experience at Johns Hopkins, how satisfied are you with each of the following?

Opportunities to participate in research with a faculty member.

Major 1	Overall	Gender		URM Status	
		Male	Female	URM	Not URM
Engineering	3.40	3.49	3.28	3.29	3.42
Natural Sciences	3.32	3.38	3.30	3.23	3.36
Social and Behavioral Sciences	2.92	2.93	2.92	2.71	2.96
Humanities	2.70	3.20	2.60	2.78	2.69
All Academic Areas	3.25	3.37	3.15	3.16	3.27

4 = Very satisfied

3 = Generally satisfied

2 = Generally dissatisfied

1 = Very dissatisfied

You indicated that you participated in the following. Tell us how satisfied you are with your experience.

Research with a faculty member

Major 1	Overall	Gender		URM Status	
		Male	Female	URM	Not URM
Engineering	3.36	3.43	3.27	3.30	3.37
Natural Sciences	3.51	3.49	3.52	3.57	3.49
Social and Behavioral Sciences	3.55	3.65	3.47	3.30	3.60
Humanities	3.32	3.20	3.35	4.00	3.29
All Academic Areas	3.44	3.46	3.41	3.45	3.43

Comparison between JHU and peer universities, overall statistics

	Peer Universities	JHU
Participation Rate	54%	62%
Satisfaction with opportunities	3.18	3.25
Satisfaction with research	3.40	3.44

	2018 Survey Response Rate
JHU	77%
Peers	46%

APPENDIX I: STUDENT PARTICIPATION CLUBS AND ORGANIZATIONS BY MAJOR

Major	N Students in Major	N Students in Clubs	% Students in Clubs
Africana Studies	2	2	100%
Earth & Planetary Sciences	2	2	100%
Engineering Mechanics	1	1	100%
Film & Media Studies	3	3	100%
General Engineering	2	2	100%
German	2	2	100%
History of Art	10	10	100%
Latin American Studies	3	3	100%
Natural Sciences Area	10	10	100%
Global Environmental Change and Sustainability	15	13	87%
Political Science	19	16	84%
Computer Engineering	12	10	83%
Philosophy	6	5	83%
English	14	11	79%
International Studies	50	38	76%
Biophysics	8	6	75%
Civil Engineering	8	6	75%
History	12	9	75%
Public Health Studies	97	71	73%
Anthropology	11	8	73%
Mechanical Engineering	33	24	73%
Electrical Engineering	20	14	70%
Sociology	10	7	70%
Behavioral Biology	16	11	69%
Mat Sci & Engineering	16	11	69%
Romance Languages	16	11	69%
Classics	3	2	67%
Near Eastern Studies	3	2	67%
Writing Seminars	40	26	65%
Mathematics	16	10	63%
Psychology	45	28	62%
Economics	61	36	59%
Biomedical Engineering	84	49	58%

Major	N Students in Major	N Students in Clubs	% Students in Clubs
Archaeology	7	4	57%
Environmental Engineering	9	5	56%
Chemical & Biomolecular Engineering	34	18	53%
Biology	25	13	52%
Chemistry	8	4	50%
Interdisciplinary Studies	2	1	50%
Applied Mathematics and Statistics	39	19	49%
Cognitive Science	27	13	48%
Computer Science	28	13	46%
Physics	13	6	46%
Molecular & Cellular Biology	45	19	42%
Neuroscience	13	4	31%
East Asian Studies	7	2	29%

APPENDIX J: PEER INSTITUTION TEACHING AND LEARNING CENTERS

Yale Center for Teaching and Learning – <https://ctl.yale.edu/>

Formed in 2014 by merging multiple teaching-support and student-support centers into one large organization. The JHU Center for Educational Resources is currently working with the Yale CTL on an NSF Improving Undergraduate STEM Education grant.

Executive Director: Jenny Frederick

Staff Listed: 61

Services: teaching consultations, educational technology support, education research, graduate student professional development, student tutoring services, STEM and Faculty Teaching Initiatives (instructional design project work), online course support, media production services

Wisconsin Center for Educational Research – <https://www.wcer.wisc.edu/>

This is a large, diverse unit associated with the Education School but works across several academic divisions. It has become a leader in STEM education research and graduate student professional development. The mission focuses more on research/innovation than teaching support. JHU's Teaching Academy staff work closely with several of WCER's staff/faculty.

Executive Director: Bob Mathieu

Staff: 400+ (but this includes most of the Education School faculty)

Services: education research, graduate student professional development, course development projects, media production services, minor educational technology support

Harvard Bok Center for Teaching and Learning – <https://bokcenter.harvard.edu>

The Bok Center was opened in 2008. It is the teaching and learning support center for the College of Arts and Sciences.

Executive Director: Robert Lue

Staff Listed: 27

Services: course development projects, teaching consultations, graduate student professional development, student support

Harvard Teaching and Learning Lab – <https://tll.gse.harvard.edu/>

The Teaching and Learning Center that supports the Harvard School of Education. This group focuses on educational innovation more than the Bok Center. The JHU CER regularly engages this team on exchanging teaching best practices.

Executive Director: William Wisser

Staff Listed: 17

Services: course development projects, teaching consultations, graduate student professional development, student support course development, educational technology support, online course support

Columbia Center for Teaching and Learning – <https://ctl.columbia.edu>

This group was a powerhouse of educational innovations when it was led by Frank Moretti in the 1990s and early 2000s. After his passing, the Center for New Media in Teaching and Learning (which Frank led) was combined with a traditional teaching support team.

Executive Director: Catherine Ross

Staff Listed: 44

Services: teaching consultations, educational technology support, education research, course development projects, online course support, media production services

Georgetown University Center for New Design in Learning and Scholarship – <https://cndls.georgetown.edu>

The most unique characteristic of this group is that they partner with faculty from other universities for 1-2 year projects. Currently they have 11 faculty fellows including Josh Kim, a widely read columnist in Inside Higher Education and the Director of Digital Learning Initiatives at the Dartmouth Center for the Advancement of Learning.

Executive Director: Edward Maloney

Staff: 38 + 11 Faculty Fellows from multiple universities

Services: educational research, workshops, ed tech support, assessment services

University of Texas Faculty Innovation Center – <https://facultyinnovate.utexas.edu/>

Established in 2016 from the former Center for Teaching and Learning. This team leads instructional innovation along with basic teaching support for faculty and graduate students.

Executive Director: Hilary Hart

Staff: 11

Services: teaching consultations, educational technology support, graduate student professional development, course development projects

Princeton McGraw Center for Teaching and Learning – <https://mcgraw.princeton.edu/>

This team oversees classroom tech, online course development, grad student professional development, and some ed outreach initiatives.

Executive Director: Kate Stanton (interim)

Staff: 20

Services: teaching consultations, online course development, education research, graduate student professional development, teaching workshops, educational technology support, community outreach initiatives

Vanderbilt Center for Teaching – <https://cft.vanderbilt.edu/>

This group oversees graduate student professional development, teaching workshops, and ed tech support. They also produce a number of useful resources on teaching strategies that other schools use.

Executive Director: Derek Bruff

Staff: 12 +

Services: teaching consultations, education research, graduate student professional development, teaching workshops

George Mason U Roy Rosenweig Center for History & New Media – <https://rrchnm.org/>

A unique center that focuses on academic technology application in a specific discipline.

Executive Director: Stephen Roberson

Staff: 32 + 6 faculty associates

Services: “Create websites and open-source digital tools to preserve and present the past, transform scholarship across the humanities, advance history education and historical understanding, and encourage popular participation in the practice of history.”

Stanford has a collection of centers that do complementary work to support teaching.
(<https://vptl.stanford.edu/centers-partners>)

MIT has multiple centers that do complementary work (Office of Digital Learning, Office of Open Learning, Teaching and Learning Lab, etc.)