Enhancing Student Success and Building Inclusive Classrooms at UCLA
Report to the Executive Vice Chancellor and Provost
December 2015

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Executive Summary

The University of California Los Angeles (UCLA) faces a number of external pressures that require a renewed commitment to excellence and diversity in undergraduate education. For example, California Governor Brown has urged campuses to decrease the overall time-to-degree attainment and explore how undergraduates may complete the baccalaureate in three years. Businesses and government agencies also are calling for college graduates with skills to function in a more diverse workforce. In the wake of the Moreno Report, which was commissioned by Chancellor Gene Block and found faculty discrimination and bias in academic units, California Attorney General Harris has asked the campus to address the climate for diversity and disparities in completion rates for underrepresented groups within a specified time frame. In comparison with other national universities, UCLA has yet to adopt inclusive excellence initiatives that make use of many advances in teaching, student learning, and assessment. Further, UCLA needs to focus more efforts on transforming education in science, technology, engineering and math (STEM) fields to meet national goals (PCAST, 2012). If UCLA is committed to providing *all* students an equitable and inclusive learning experience in every discipline, it is important to address these issues, especially in light of increased undergraduate enrollments (~600-700) in the near future. At the request of Executive Vice Chancellor and Provost Scott Waugh, a working group was tasked to identify areas of attention where UCLA could start to make changes that would have an immediate impact on improving the success of all students in the classroom. This self-study report and its recommendations are a first step towards building inclusive classrooms so that each student has an equal opportunity to succeed at UCLA.

UCLA is characterized as one of the most selective public universities in the U.S., with a 20% acceptance rate. The mean high school grade point average (GPA) for first-year students entering in Fall 2014 was 4.3 and all demonstrate exemplary personal accomplishments and/or significant motivation to overcome obstacles. Suffice it to say that we have the most highly qualified and uniquely talented students we have had in the history of the University. The changing demography of the state and the unequal opportunity for high quality education in K-12 schools has created a context where the demographics of the California population, the UCLA undergraduate student body, and the faculty who teach them are highly discrepant. In particular, the UCLA faculty is majority male (65%) with only 11% underrepresented minorities (URMs), while the student body is 56% female with 24% URM. This discrepancy and underrepresentation exacerbates the impact of implicit biases[1] in the classroom based on racial/ethnic/gender/economic differences and the stereotype threat[2] experienced by students when they are in the minority in classroom settings. These potential problems can only be avoided by utilizing effective teaching practices now being implemented at major universities throughout the country.

This report of the working group has two main objectives, which focus on the teaching component of student success in the classroom. First, our goal was to identify obstacles that are

[1] *Implicit bias* "refers to the attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner." In the classroom, unconscious attitudes and stereotypes may affect an instructor's understanding of student behavior and result in an unfavorable assessment or disrespect. Stereotyping is more prevalent in environments where students are underrepresented (Staats et al. 2015)

[2] *Identity or stereotype threat* refers to being at risk of confirming, as self-characteristic, a negative stereotype about one's identity group such as race, gender or socioeconomic status, which has been shown to affect achievement (Steele and Aronson, 1995).

hampering students' progress towards a bachelor's degree, with an emphasis on the achievement gap among groups of students, specifically URMs *versus* other students, students with Pell Grants *versus* non-Pell students, and between male and female students. Second, we were asked to make recommendations that could have early beneficial impacts on student success that could be directed to the EVC, deans, department chairs, and course instructors.

Given the size of the UCLA student body and that 81% of UCLA students had more than half their course schedules filled with large classes, we focused on courses with 50 or more students. To describe patterns of student success, we utilized the campus database of course grades to analyze grading patterns for the last two years for all course offerings with at least five URMs (N=2,689 courses). To gain more insight about departmental and course practices associated with those grading patterns, we conducted a short survey distributed to department chairs and faculty teaching those courses. Recent student and faculty surveys also were analyzed to further explore classroom experiences. Finally, to understand factors contributing to uneven student success, we met with selected groups with different perspectives: individuals working on intervention programs to enhance student success, academic advisors, and associate deans or deans' designees from every school or division.

There are several key assumptions of this report. First, courses are offered so that all students can learn, and UCLA is committed to offering a high quality educational experience with faculty who are outstanding educators and world-renowned scholars. Second, UCLA is a learning organization that can benefit from regular self-study as well as knowledge about the latest advances in teaching and learning. Carl Wieman (2015), recipient of the Nobel Prize in Physics, states "all the research in the past few decades has established strong correlations between the type of STEM teaching practices used and both the amount of student learning achieved and course completion rates. These correlations have been shown to hold across a large range of different instructors and institutions." In short, *high fail rates at UCLA in specific courses indicate low levels of student learning, which could be improved with more effective teaching practices*. The key findings follow:

- Overall fail rates: Despite the high achieving nature of our student body and faculty, UCLA has a large number of course offerings (34.2%) where 5% or more of the class receives a non-passing grade of a D or F. This finding is based on analyses of courses with enrollments of over 50 students offered during the last two academic years. In this group, many courses had No-Pass rates exceeding 10% and some as high as 35%. Analyses show that courses with high fail rates are distributed across upper and lower division courses, departments, and schools and divisions. Courses with particularly high fail rates deserve attention because they extend time to degree for many students and raise concerns about the effectiveness of teaching.
- In investigating disparities in the distribution of passing grades, we found that URM and Pell Grant recipients were more likely to receive a non-passing grade. However, multivariate analyses show that the strongest predictor of the URM failure rate in a course is the failure rate of non-URMs, indicating an issue with teaching and assessment practices that affect *all* students in a given classroom. The disparity in achievement between groups is particularly high in specific classes that are outliers compared with the campus norm, and is significantly higher in classes taught by non-ladder faculty versus ladder faculty, although this pattern varies across disciplines. While we identified courses of concern in specific units and campus-wide, there appear to be no systematic methods to monitor

student progress nor are there departmental strategies to address these courses and improve low levels of student learning.

- Findings from the chairs' questionnaire indicate professors and lecturers receive few incentives and limited opportunities to improve teaching methods and little feedback on effectiveness, except course evaluations or occasional peer-review. Graduate teaching assistants receive little preparation on how to teach their discussion sections or what to teach so that their efforts complement course goals. Compared with many other campuses, very few efforts are in effect to help course instructors become more aware of factors that have an impact on inclusive classroom environments, such as dealing with diversity in the classroom, implicit bias, stereotype threat, and micro-aggressions.
- The grading practices in courses were associated with disparities in failure rates between student comparison groups. The analysis of the patterns of grade assignments across the selected courses resulted in several clusters of different kinds of grade distributions. Some grading patterns were associated with smaller disparities between categories of students, but other grading patterns were associated with fewer A's and B's and more non-passing grades between: URM versus non-URM students, Pell Grant recipients versus non-Pell Grant recipients, and males versus females.
- Findings from the course surveys suggest that some faculty are grading according to criteria of concept mastery, which aligns grades to student learning, while at the other end of the continuum, faculty assign grades based on the class distribution (called norm-referenced grading or "grading on a curve"). It is this latter practice that is associated with the greatest disparities across groups in course performance.
- Campus-wide surveys offered further insight: There are significant group differences in whether students think course instructors were able to determine their level of understanding of course material, and less than half of all students felt that their contributions were valued in class. Males, non-URMs, and students in higher socioeconomic (SES) groups were more likely to report a higher comfort level with classroom climate than females, URM and low-income students. Asian and African Americans were least likely to feel that their contributions were valued in class, although they were somewhat more positive about the level of faculty concern for their progress. Faculty and student survey data also revealed different opinions regarding the level of classroom competition. Further research is necessary to understand variation in classroom climate in course offerings at UCLA, as current data reveal only general perceptions.

Many selective universities have achieved national recognition for their work in promoting teaching excellence and addressing diversity in the classroom as integral to their initiatives. For example, the Center for Research on Teaching and Learning (CRTL) at the University of Michigan is the source of the most widely used book on *Teaching Tips* in higher education. The CRTL trains instructors/faculty about diversity in the classroom and administers student evaluations that include questions about diversity. They encourage the use of a variety of effective teaching practices and promote the scholarship of teaching. UC Berkeley offers diversity coaching and consultations through its Multicultural Education Program in the division of Equity, Inclusion, and Diversity. Cornell University's Center for Teaching Excellence offers extensive online resources and tips for inclusive teaching strategies, attending to classroom climate, and improving students' active learning in large classes. The University of Wisconsin-Madison has integrated inclusive excellence goals in all of its academic and administrative units. It hosts online learning communities via the Center for the Integration of Research, Teaching and

Learning (CIRTL) that focuses on building a national network of faculty at 21 universities committed to advancing effective teaching practices for diverse learners. Moreover, many institutions are using advanced data analytics and dashboard systems to monitor student progress, identify "bottleneck" courses for supplemental instruction, and use technology to provide timely information to improve advising and advance students more quickly to degree completion. *UCLA should optimize use of technology and research on teaching to advance a comprehensive strategy for improving inclusive excellence in teaching and learning.*

RECOMMENDATIONS

Recommendation #1: Adopt a technology-supported dashboard system to monitor student progress, identify courses with high fail rates, and target responses to improve student success. At the current time, data are stored and show great potential to be mined for improving practice; however, it is not possible for deans, chairs, and course instructors or advisors to easily identify courses of concern where student performance is within the campus-wide range of performance or is an outlier with high fail rates. The campus should immediately adopt a data inquiry tool for deans and chairs that will be useful in identifying courses of concern within their units for review with respect to student progress, teaching quality, instructional and grading practices, discussion size, credit hours, instructor/teaching assistant (TA) preparedness, and other factors, to see whether improvements could be implemented to advance student success. Such a tool is intended to provide timely information needed within each unit for the dean or chair to assist faculty in improving student learning, and for advisors to advance students towards the finish line. An additional benefit of this tool is that it will provide initial evidence for exploring courses and disciplines where UCLA can focus its effort to improve the effectiveness of pedagogical approaches. Students could benefit from an advanced tool that provides accurate course information and advances academic planning. For example, before they register they could review course evaluations, number of times the course is offered each year, the proportion of majors that take the course, and estimate time-to-degree.

Recommendation #2: Create a campus-wide awareness of evidence-based pedagogy and implement effective pedagogy in undergraduate courses at UCLA. Evidence-based pedagogical practices are empirically linked with student success and completion. One of the current problems is that there is no repository of information on evidence-based teaching practices or ongoing discussions on what works to improve student learning, making it difficult to identify areas of faculty innovation in teaching and learning across campus. There are a variety of learner-centered approaches, backed by research, that can be incorporated in course design, implementation, and assessment that focus on improving the success of all students. For example, "backward design" aligns assignments and content, basing grades on goals/competencies set for student mastery and course objectives. Deans and department chairs should encourage faculty to document their teaching practices in review and promotion materials as an example of impact, make their teaching practices public in the same ways that scholarship is made public, and/or share how they advance student learning in the classroom.

Recommendation #3: Develop a campus-wide strategy to support faculty development and teaching assistant training for teaching in diverse classrooms. An inclusive education is one that is based on the principles of equity and inclusion of all students, differences are acknowledged as contributions in the classroom, and individuals are respected for their beliefs and cultural practices. To provide students an inclusive education, UCLA faculty must be made aware of those instructional practices that deter student success in ways that

disproportionately affect individuals who identify with traditionally underrepresented groups in higher education or who are beset by socioeconomic challenges that can differ from their peers who have never encountered these challenges. If diversity is a core value at UCLA then all faculty and instructors should learn how to create the optimal conditions for a dynamic, diverse learning environment. The EVC, Vice Provost/Dean for Undergraduate Education, Vice Chancellor for Equity, Diversity and Inclusion and academic deans need to mount a coordinated effort to develop an effective and sustained strategy for campus-wide diversity education and the adoption of inclusive excellence goals across all units.

Recommendation #4: Engage in a campus-wide dialogue about methods of student assessment and grading practices for effective student learning. The analyses of grading patterns in this report show the relationship between grading practices and student success and also reveal that certain grading patterns are associated with disparities across groups. Some of the patterns are consistent with a criterion-referenced grading practice where students achieve grades based on their mastery of course learning objectives. Other grading patterns are consistent with a practice where grades are assigned based on the normative class performance (i.e. class ranking and grade quotas). This latter approach is associated with higher fail rates and disparities across groups. One problem with the latter approach is that how a student earns a grade is not transparent; his/her grade depends on how the whole class has performed rather than what a student has learned. Developing a set of guidelines on best practices for grading could improve student success and level the playing field for all students. Faculty and department chairs should make grading practices transparent in all course syllabi and adopt grading and assessment practices that help students achieve course learning goals.

Recommendation #5: Explore further ways to enhance active learning in large classes and improve discussion and laboratory sections so that they also incorporate practices for inclusive education. We analyzed large classes to determine factors that contribute to student performance outcomes. While the overall model indicated that not all large classes were a problem, the separate models comparing student groups identified secondary section size as associated with higher No-Pass rates. More importantly, when we analyzed the factors associated with the achievement gap between URM and non-URM students or Pell Award recipients and non-recipients, course size was a significant factor in disparity ratios. Given the considerable number of classes with large enrollment, how we teach these courses will make a big difference in student learning. Through the questionnaires, we learned that many classes do not develop a pedagogical approach for discussion sections, that course instructors often do not meet with TA's, and that TA's lack critical training in effective and inclusive teaching methods. Further research should explore how lecture and discussion/laboratory material could be integrated to enhance student learning. Deans and chairs need to work together with faculty to assess problems associated with discussion or laboratory sections that also affect student success. Central teaching excellence initiatives should consistently deal with pedagogies for active learning and offer tips for instructors of large classes. The Chancellor's Office may need to provide additional resources for more teaching assistants or undergraduate learning assistants to assist active learning activities.

Recommendation #6: Improve accountability and recognition for good teaching. The Academic Senate should consider new approaches and policies to improve the assessment of teaching on campus, hold faculty and department chairs accountable for the quality of their courses in departmental reviews, and reward improvement as part of the academic personnel process.

One way to improve accountability is to develop new criteria for assessing teaching performance. Rather than rely on student and peer evaluations, both of which yield limited assessment of student learning[3], contributions toward teaching should include practices that result in desired student outcomes. For example, assessment of the relationship of learning objectives to the content of syllabi and concepts in examinations, papers or other assignments, as well as transparency of grading practices should be part of the evaluation system. Another example is the effective use of teaching observation protocols by trained individuals that are used widely elsewhere and are now being tested on campus and rather than unstructured observations by peers. The Academic Senate also should consider rewarding faculty who engage in activities to improve their teaching, scholarship on teaching, and mentoring activities to promote student success.

Recommendation #7: Advance a center for teaching excellence that will provide ongoing/coordinated professional development opportunities and resources to learn best practices in teaching and inclusive education. Timely and regular information should be provided to faculty to initiate the implementation of effective teaching techniques. This information could be delivered through online resources, workshops on campus, faculty learning communities focused on a technique or disciplinary advances in teaching, and symposia to learn best practices for inclusive education. Such practices include: aligning course assessments and learning activities with student learning objectives; interactive classrooms; practices to avoid implicit biases in teaching and to reduce stereotype threat among students; skills to handle micro-aggressions and conflict in the classroom; and development of transparent grading practices. The initial focus may be on recently hired assistant professors, lecturers, teaching assistants, and instructors of large gateway[4] courses or courses with high fail rates. The implementation for this recommendation will require collaboration between the EVC, deans and faculty to establish a vision of a center that can coordinate and disseminate resources, discipline-based activities, and ways to incentivize participation of faculty, non-tenure track instructors and teaching assistants.

The focus of this report is to identify areas for improving student success in the classroom, faculty teaching practices, and classroom climate. We assume that UCLA will continue to invest in student interventions that address issues confronted by first generation college students, especially those coming from secondary schools where the quality of education and availability of advanced courses are less than what is offered at enriched, high-performing secondary schools. We also assume that academic advisors will continue to strive to ensure that students have the appropriate background and prerequisites for the courses and majors they select, and we encourage further efforts to improve the effectiveness of advising to enhance student success. However, this study did not fully address this area. We hope this report will be widely shared and that the campus uses these findings and recommendations to stimulate campus-wide discussion and exchange among deans, chairs, Academic Senate members, and class instructors.

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[3] Clayton's (2009) meta-analysis reports that the correlation between measures of student learning and student course evaluations has decreased over recent years and is very low. Peer evaluations have been quite variable, and unsystematic in implementation within and across units and divisions and are not linked with student performance at UCLA. Nor do these forms of evaluation of teaching quality provide information on inclusive teaching practices.

[4] A ***gateway course*** is defined as a course that is used as a prerequisite for a major that must be passed before a student can continue to meet the requirements for a major. Any gateway course with a high fail rate can hamper progress towards degree because students who do not pass the course must retake it before they can continue in major. If a student switches majors, then students often have to take new prerequisites.

I. Introduction

National and economic concerns have focused on improving college attainments among an increasingly diverse student population, shortening time to degree to reduce college costs, and restoring America's international competitiveness in STEM and a wide range of fields, as evidenced by national consensus panels and reports (PCAST, 2012). Businesses and government agencies are also calling for college graduates with skills to function in a more diverse workforce. Not surprisingly, many federal and private funding opportunities have arisen to support the implementation of evidence-based practice to increase student learning and degree attainments. These competitions for funds to support undergraduate education that holds promise in diversifying the workforce have raised the bar for institutions to demonstrate significant campus-wide transformation in educational practices to achieve student learning goals and close attainment gaps. The Association of American Colleges and Universities has long supported campuses in advancing student learning to meet 21st Century learning goals, encouraging institutions to embark on inclusive excellence initiatives that "require we uncover inequities in student success, identify effective educational practices, and build such practices organically for sustained institutional change."[5] Faculty, deans and department chairs are central to this work, and there is a concerted effort to adopt a learner-centered paradigm on college and university campuses for increasing academic excellence.[6]

On a more local level, UCLA faces a number of external pressures that require a renewed commitment to excellence and diversity in undergraduate education. For example, Governor Brown has urged campuses to decrease overall time-to-degree attainment and to explore how undergraduates may complete the baccalaureate in three years. In the wake of the Moreno Report, which identified faculty discrimination and bias in academic units, California Attorney General Harris has asked the campus to address the climate for diversity and disparities in completion rates for underrepresented groups. Adding to this mix, UCLA is expecting to increase resident undergraduate enrollments (~600-700) in the near future. In comparison with other national universities, UCLA has yet to adopt inclusive excellence initiatives or utilize advances in teaching, student learning, and assessment. Recent success in large grant competitions for transforming education in STEM fields should help UCLA meet national goals, but the expectations of external funders are that these efforts will be institutionalized. If UCLA is committed to providing *all* students an equitable and inclusive learning experience in every discipline and at every level of their college education, we need to address these issues.

The commitment towards increasing student success must include fostering a culture throughout the institution that supports students traditionally underserved, often ignored, marginalized, or even "weeded out" of the postsecondary education system. Such students may originate from low-income families, whose socioeconomic challenges impede their access to enriched, high-performing secondary schools. Others identify with race/ethnicity groups traditionally underrepresented in higher education (Garrison 2013, National Academies 2011). The success of these students is undermined by stereotype threat and the unconscious biases of peers and instructors who inadvertently affirm their undeserved exclusion from academically successful tiers of the learning community (Ganley *et al.* 2013, Moss-Racusin *et al.* 2012, Miyake *et al.* 2010, Steele and Aronson 1995, Covington 1992). This disparity is often attributed to poor

[5] www.aacu.org/programs-partnerhips/making-excellence-inclusive

[6] See examples for universities focused on learner-centered teaching at fod.msu.edu/oir/learner-centered-teaching and cet.usc.edu/resources/teaching_learning/docs/LearnerCentered_Resource_final.pdf.

preparation of students, but considering that UCLA students came from a highly competitive applicant pool where students have performed at the highest level in their schools and demonstrated outstanding commitment and discipline in education, our focus is to identify ways to enhance faculty teaching and the student classroom experience to increase student learning and persistence in achieving their intended degree.

Specifically, UCLA is committed to improving student academic success, reducing time-to-degree and increasing graduation rates. The classroom experience is at the heart of this endeavor for UCLA undergraduates. Given disparities among students in academic attainment and in their sense of belonging to UCLA, the Executive Vice Chancellor and Provost called for an examination of the factors affecting student success with a particular focus on examining the classroom environment as a first step towards establishing a positive climate for diversity that is sensitive to and supportive of the diverse backgrounds of the entire student body (see **Appendix A**. Charge Letter). He tasked a working group to come up with recommendations that could be immediately implemented. In particular, the goal was to understand the extent to which there are disparities between students from underrepresented minorities (URMs) in the university and those who are not (non-URMs), between male and female students, and between students of different socioeconomic backgrounds. The latter category was analyzed through a comparison of students with Pell Grants, which are federal grants that are awarded to college students based solely on financial need, and those who do not receive Pell Grants.

To investigate factors that contribute to the disparate patterns of student success, we first conducted a statistical analysis of the pass/No-Pass rates awarded in courses taught within the last two years and the patterns of grade assignments for those courses. We followed that statistical analysis by surveying departments on details of how faculty and graduate student teaching assistants are trained in classroom teaching practices, how teaching quality is reviewed by department chairs, the size of discussion/laboratory sections associated with large courses, and departmental grading practices. Given the time frame for this study, we did not conduct extensive interviews or consultations. To discuss factors affecting student success, we met with representatives of units responsible for student intervention activities (e.g., AAP), we met with academic advisors at the department and college levels, and we met with associate deans and deans' designees who are responsible for undergraduate education to discuss factors affecting student success. We also met with a selected group of department chairs. This report presents relevant findings from existing surveys[7], analysis of institutional data (**Appendix B-D**), departmental questionnaires (**Appendix E and F**), consultation meetings (**Appendix G**), and campus-wide surveys of students and faculty (**Appendix H**).

Finally, we want to emphasize that the goal of the study was to identify key factors that appear to influence the success of students in UCLA classrooms campus-wide and to make recommendations designed to address the barriers to student academic success at UCLA. The report does not comment on ways to improve academic advising for student success nor on the importance of internally and externally funded intervention programs such as AAP, PEERS, Engineering programs, or peer tutoring. While these interventions help individual students overcome obstacles to success, we focus on processes and structures that are attuned to organizational change literature (Fairweather 2008, Austin 2011, and Henderson et al. 2011) and can be scaled to impact the entire campus. The report also does not summarize the examples of

[7] UC Climate Survey (2012), Diverse Learning Environment Survey (2011), UCLA Senior Survey (2012-2014)

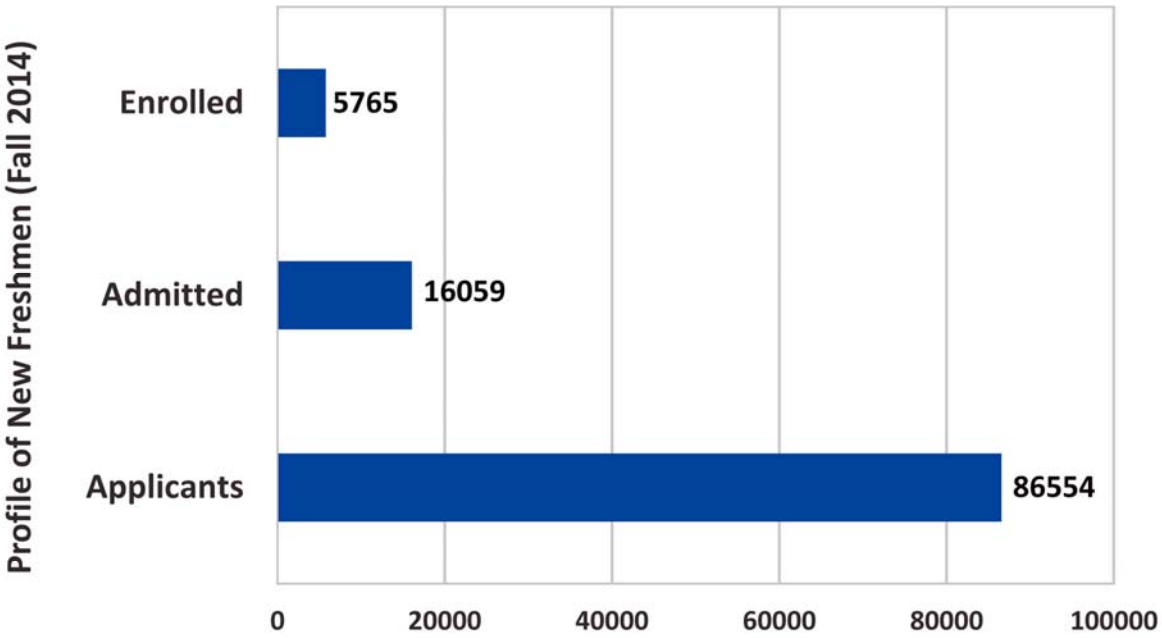
the evidenced-based practices, such as flipped-classrooms, interactive teaching, or learning communities—all of which should be encouraged because they can enhance student success. However, there is no comprehensive data source documenting the innovative teaching practices of faculty on this campus. Instead, this report focuses on identifying the areas of major obstacles to equitable student success in the classroom based on available campus data and make recommendations for building more inclusive classrooms at UCLA.

II. The UCLA Landscape – Who Are Our Students?

UCLA had 86,554 freshmen applicants for fall quarter 2014 (see **Figure II-1A**). Of these, approximately 19% (16,059 students) were admitted to UCLA, and only 5,765 students (7% of all who applied) enrolled in the fall term. By accepting less than 20% of all applicants who apply, UCLA is characterized as one of the most selective public universities in the U.S.[8]

College selectivity is a measure of admissions relative to the number of applicants. The lower the percentage, the more selective or difficult it is to gain admission to the school. Most U.S. colleges admit over half of their applicants, with the average acceptance rate across all four-year colleges at 64.7% according to the National Association for College Admissions Counseling (2014)[9]. Selectivity is also based on the average qualifications of admitted students, including a threshold of high school grades and standardized test scores (SAT, ACT) and personal accomplishments that the vast majority of applicants must surpass to gain admission. As of fall 2014, the average weighted GPA[10] for enrolled students was 4.3, with less than 1% of students entering UCLA with a GPA below 3.0 (**Figure II-1B**). With respect to standardized admissions tests, the majority of enrolled freshmen in fall 2014 (orange dots) scored in the 25th percentile[11] or higher, meaning they earned a composite SAT score (or converted ACT score[12]) of 1,700 or higher. Over one-third of all enrolled freshmen scored in the 75th percentile or higher, corresponding to a SAT score (or converted ACT score) of 2,150 or higher. The Carnegie Classification[13] places UCLA among the top fifth of baccalaureate institutions based on first-year student test scores. These admissions statistics highlight one very important fact: students admitted to UCLA have earned their place in the university based on a highly competitive academic portfolio. *As a hallmark of the value UCLA places on academic excellence, as expressed through its core mission[14], it becomes the responsibility of the institution, once students enroll, to ensure their college journey is a success.*

[8] U.S. *News and World Report* College Rankings: http://colleges.usnews.rankingsandreviews.com/best-colleges
[9] http://www.nacacnet.org/research/PublicationsResources/Marketplace/research/Pages/StateofCollegeAdmission.aspx
[10] This GPA, in which the maximum possible value is 5.00, includes an extra grade point for UC-approved honors courses (e.g., AP, IB, school-based honors, and transferable college courses in which a grade of C or higher is earned).
[11] Percentile ranks used in the reporting of SAT scores: the 25th percentile, also known as the first quartile, refers to the SAT score in which 75% of all other test-takers earned a higher score; the 75th percentile, also known as the third quartile, refers to the SAT score in which only 25% of all other test-takers earned a higher score.
[12] Because the SAT and ACT norm-based tests use different scoring systems, ACT scores are converted into SAT scores to allow comparisons between students on the same scale. An ACT score of 24 or 25 corresponds approximately to an SAT score of 1700 (first quartile). An ACT score of at 31-32 corresponds approximately to an SAT score of 2,150 (third quartile).
[13] Carnegie Classification: http://carnegieclassifications.iu.edu/
[14] UCLA Mission and Values: http://www.ucla.edu/about/mission-and-values



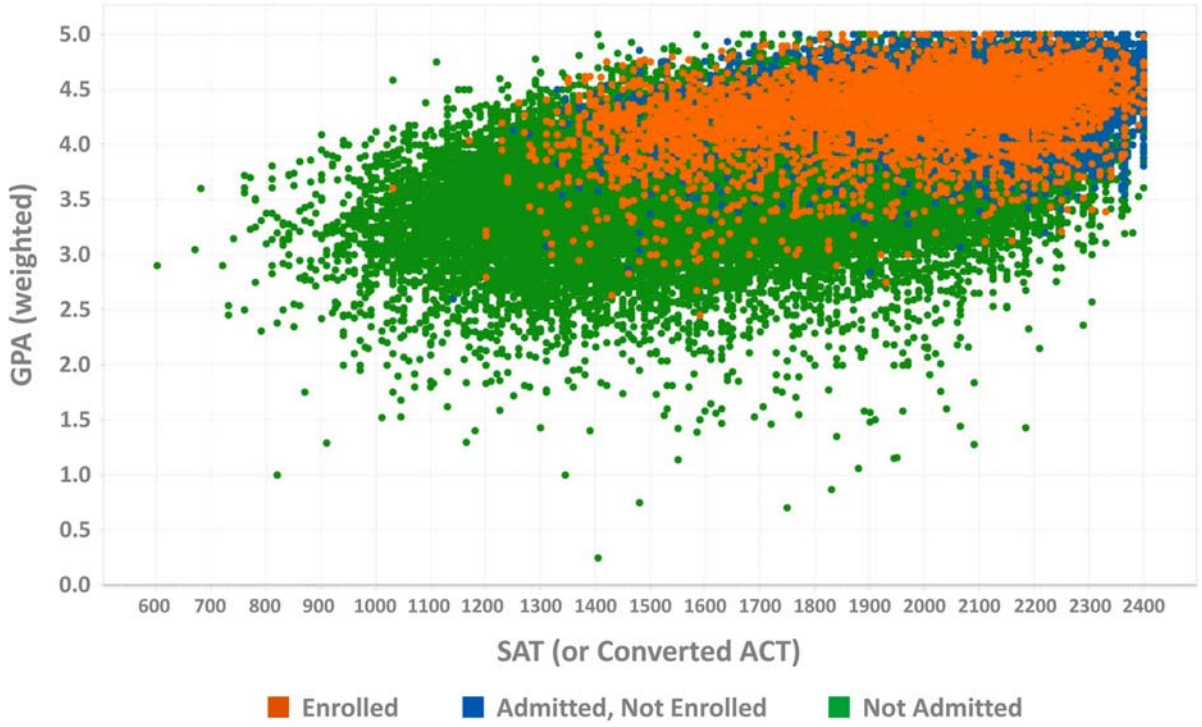


Figure II-1. Admission Statistics for UCLA Freshmen, Fall 2014. (**A)** UCLA is a most selective institution. Source for data: http://www.admissions.ucla.edu/Prospect/Adm_fr/Frosh_Prof14.htm. (**B**) Freshmen admissions outcomes by GPA and test scores. Source for data: UCLA Office of Academic Planning and Budget (APB).

Of the 29,521 undergraduates enrolled at UCLA as of fall 2014 (**Figure II-2**), the majority is female (56%) and almost a quarter of students (24%) identify as underrepresented minorities (URMs[15]). By comparison, the majority of UCLA faculty with responsibilities in undergraduate instruction is male (65%), with an even smaller representation identifying as URMs (11%). These data demonstrate how the demography of the undergraduate population at UCLA is not reflected in the demography of the professoriate,[16] which comprises 2,443 UCLA faculty members, the majority of whom (73%) are ladder-ranked.

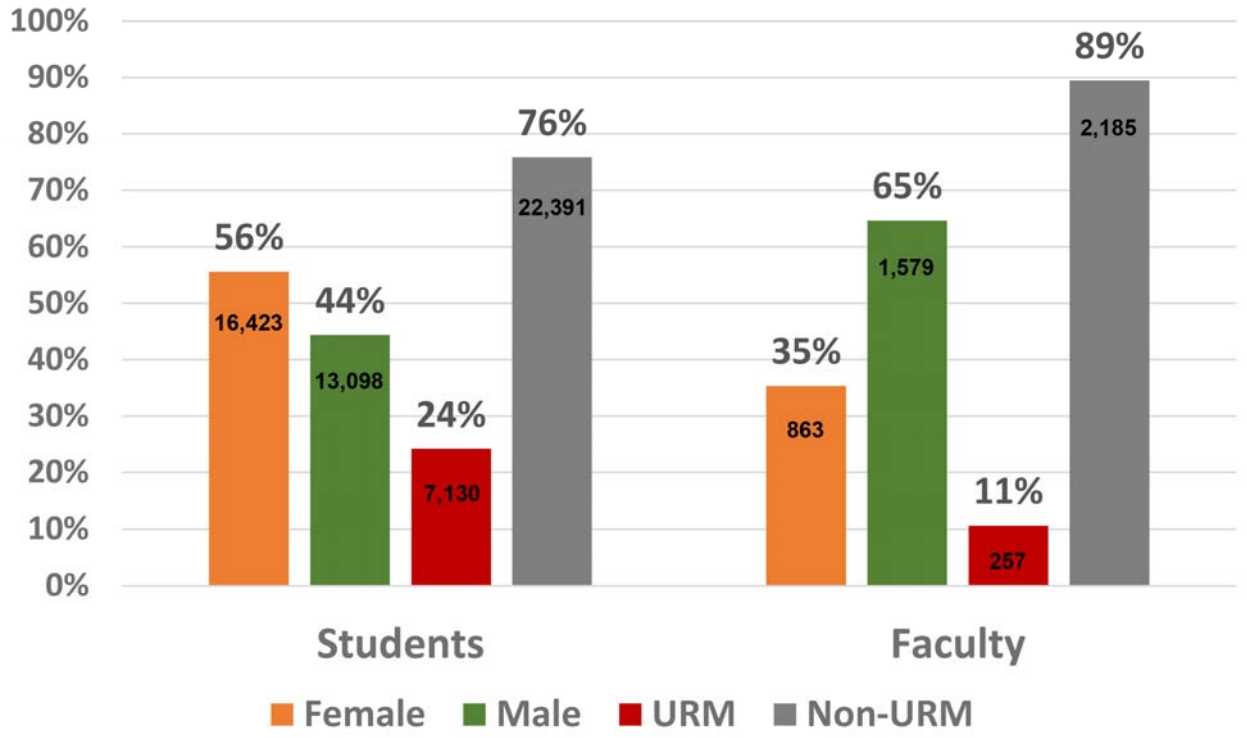


Figure II-2. UCLA Demographics by Gender and Ethnicity/Race for Undergraduate Students and Faculty. Sources: UCLA Office of Academic Planning and Budget (APB, 5/20/15) and AAAP 2014-15 Utilization Tables of Faculty by Rank, Gender, and Race/Ethnicity.

The Undergraduate Landscape by Discipline. Matriculated UCLA students, consisting of those who entered UCLA as freshmen and community college transfer students, are split almost evenly between humanities, arts, and social sciences (hereafter referred to collectively as HASS) and science, technology, engineering, and mathematics (hereafter denoted as STEM). As of fall

[15] Ethnicity/race for URM classification includes Black/African American, Hispanic, and American Indian/Alaskan Native

[16] Census data excludes School of Medicine faculty (except MIMG), College of Letters and Science researchers and post-docs, professional school and health science researchers and post-docs, and academic librarians. Ladder-ranked includes academic deans, and tenured and untenured faculty. Non-ladder ranked includes lecturers, academic administrators, and other non-ladder categories (academic coordinators, adjunct faculty, etc.). URMs (underrepresented minorities) include faculty who identify as Black/African American (3% of all faculty), Hispanic (7%), or American Indian/Alaskan Native (1%). Non-URMs include those faculty members who identify as White or Asian/Pacific Islander, or unknown ethnicity/race (<1% of all faculty).

2014, 48% of all students were enrolled in HASS majors and 52% in STEM majors (**Figure II-3**), with proportionally fewer URM students in STEM majors compared to HASS majors.

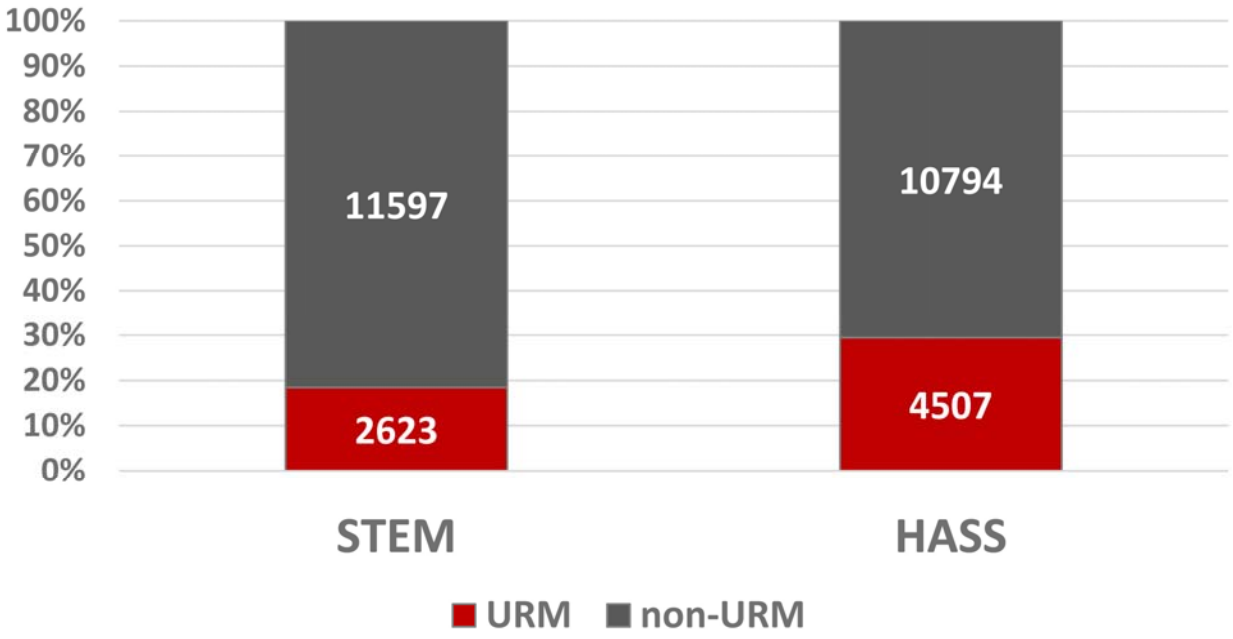


Figure II-3. Demographic distribution of underrepresented minority students in STEM majors compared to HASS majors. Source: UCLA Office of and Academic Planning and Budget (APB), Fall 2014.

At UCLA, the graduation rates for underrepresented minority students (URMs) are lower than that of non-underrepresented students (non-URMs), particularly evident in the STEM disciplines (**Figure II-4**). Existing programs offered through the Division of Undergraduate Education, other College divisions, and professional schools (**Appendix I**) offer support for student academic success campus-wide; however, existing interventions are insufficient to retain URM students in STEM majors as evidenced by the disproportionate graduation rates in **Figure II-4**, which show a 30% difference for STEM. Changing majors is often a result of low grades and poor teaching during early coursework experiences or finding a better fit in another discipline **(**Seymour and Hewitt 1997; and **Appendix H)**. Improving STEM retention is a path toward achieving academic excellence.

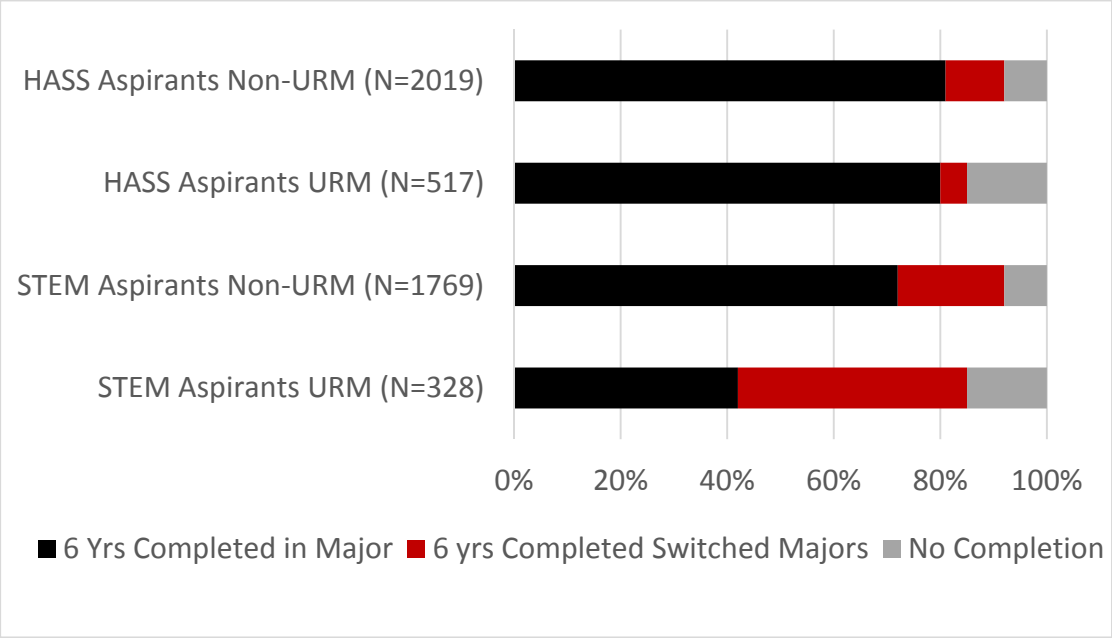


Figure II-4. Averaged across four freshmen cohorts entering UCLA in fall 2005 to 2008 for majors in (A) Science, Technology, Engineering, and Mathematics (STEM) and (B) Humanities, Arts and Social Sciences (HASS). Source: UCLA Office of Academic Planning and Budget (APB), fall 2014.

Time-to-Degree (TTD). The ideal timeline of matriculation at UCLA is for students who enter as Freshmen to graduate in four years and for Transfer students to graduate in two years after entering. However, several factors can affect TTD, such as enrolling in less than 15 credits on average per quarter, lack of availability of required courses, or retaking courses. To ensure that students have every opportunity to learn, students are allowed to retake classes in which they fail or achieve a C- or less and replace this grade with the new grade. Highly motivated students are most interested in improving their performance outcomes. These course retakes can result in extending time to degree for both freshmen and transfer students **(Figure II-5**). When examining the count of students graduating on the intended timeline, it is clear that retaking courses is not uncommon (**Figure II-6).** However, an analysis of the percent of degree earners who repeat courses once, twice or more (**Figure II-6**) illustrates that the more courses are retaken, the longer the TTD, which motivates an exploration of the reasons for lack of success in this area.

We conducted multiple regression models for students who start as freshmen and as transfer students to assess the factors that might contribute to longer TTD (**Appendix B, Tables B-1 and B-2**). In both models, lower UC GPA was the factor that best predicts extended time to degree, suggesting that students who are not performing as well in the classes also take more time to graduate. The second most important factor was retaking or repeating courses. Having more than one major predicted longer TTD, as did completing degree programs in the Henry Samueli School of Engineering and Applied Science (HSSEAS) or the Division of Physical Sciences. Once these factors were taken into account, Pell Grant recipients tend to have longer TTD rates in both models, which could be due to economic factors affecting their course load or success in courses given that our data show that No-Pass rates are also higher for Pell Award Recipients (**Appendix B, Figure B-3**). In the Transfer student model only, URMs were also more likely to extend time to degree. The combined analysis of disparities among groups in No-Pass rates and

the regression models indicating that TTD is longer for URMs and Pell Recipients (**Appendix B**) motivate the need for future analyses to look at other factors, such as AP credits and high school course work in creating disparities in student success of these groups.

An additional factor that might be addressed in the future are withdrawal patterns or the drop rates for specific classes. We did not statistically model these data but overall drop rates vary across divisions with higher rates for URM students, Pell Recipients, and males versus their respective counterparts and with the disparities in drop rates also varying across divisions, which may be more prevalent in specific course offerings that may contribute to time-to-degree.

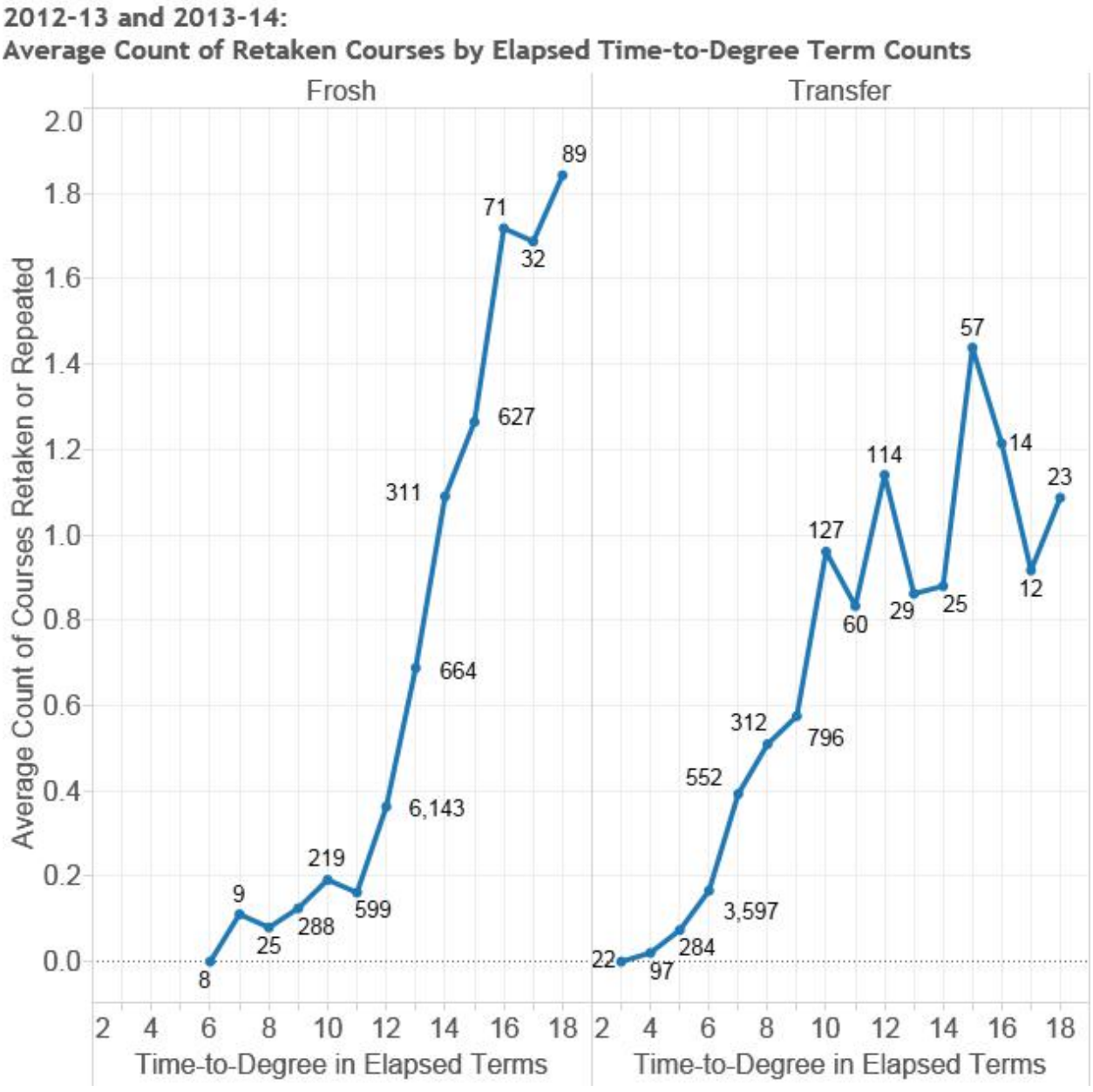


Figure II-5. Average Count of Retaken Courses for Degree Earners in 2012-13 and 2013-14 by Elapsed Time-to-Degree for Students Who Began UCLA as First Year (left panel) and Transfer Students (right panel).

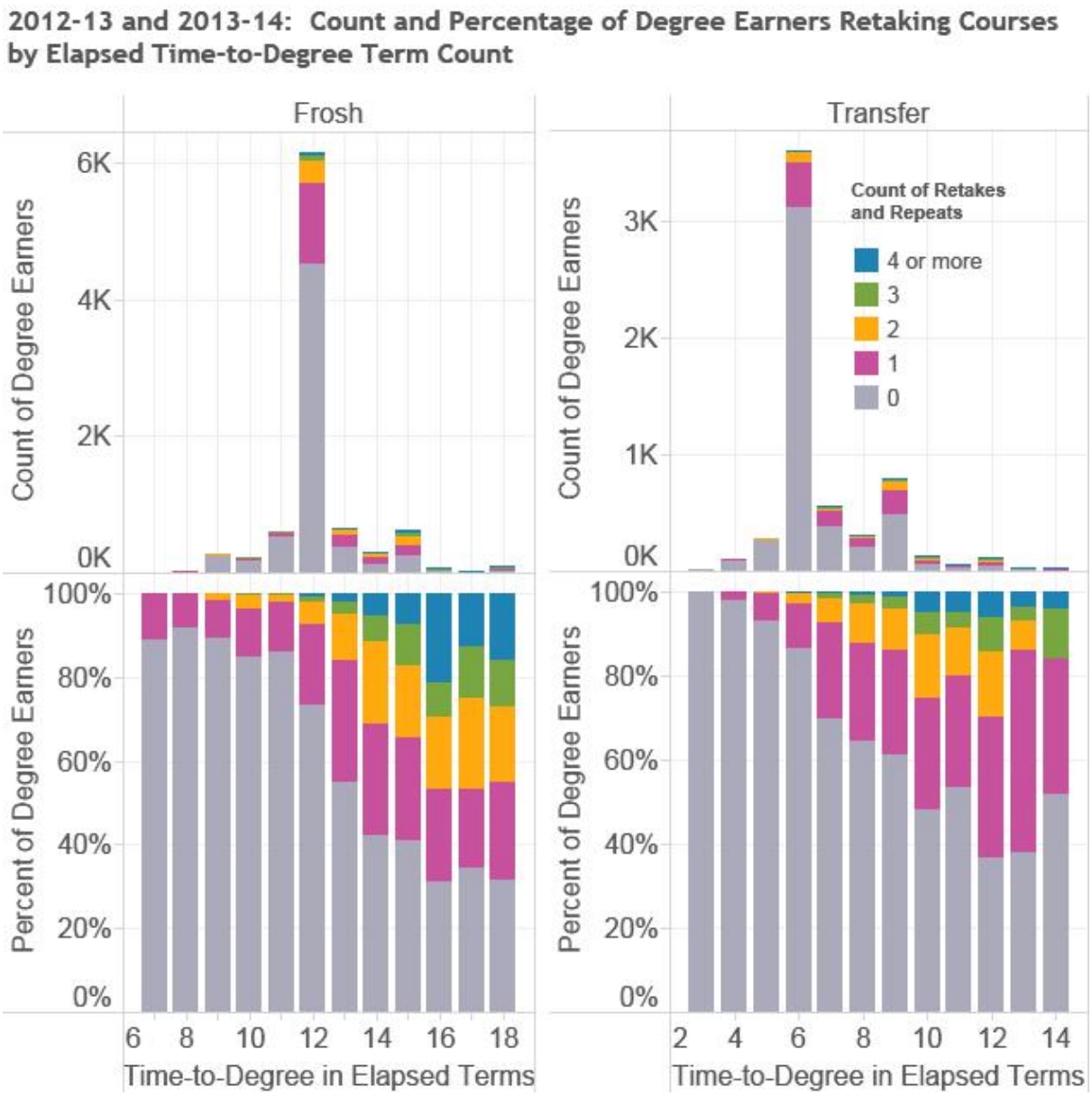


Figure II-6. Count and Percent of Degree Earners among Freshmen (left panel) and Transfers (right panel) Retaking Courses at UCLA by Time to Degree**.**

In sum, this descriptive information provides a starting point for delving deeper into understanding dynamics in classrooms that contribute to disparities. UCLA students are high achievers in high school who come from a diverse set of high school experiences, socio-economic statuses, racial/ethnic groups, and backgrounds. Student backgrounds do not proportionately match faculty demographic backgrounds and this creates the potential for a lack of knowledge about diverse learners, implicit bias, even microagressions when students are underrepresented in classrooms. The graduation rates for URMs are lower than those for non-underrepresented students (non-URMs), which is particularly evident in the STEM disciplines. Many students entering as Freshmen complete in the four-year time frame, and most Transfer students also finish on time, but many students repeat courses, and that extends their time to degree. Faculty teaching and assessment practices actually determine student performance, which is a major topic of this report.

III. Findings—Fail Rates: Patterns and Factors Associated with Fail Rates

III-A. What are the patterns of No-Pass rates?

The first type of information needed for our study is the level and pattern of No-Pass rates across our UCLA undergraduate courses. Pass rates for UCLA courses are a major concern because each time a student fails a class, it hampers his/her progress towards a bachelor's degree, may cause a change of major, or may jeopardize confidence towards future academic success. For this analysis, we defined "No-Pass" as a D, F, NP (No-Pass), or U (Unsatisfactory) grade. The No-Pass rate is sum of No-Pass grades divided by the sum of grades awarded in all offerings combined. During the 2012-13 and 2013-14 academic years, UCLA offered 2,964 undergraduate courses with 50 or more enrolled students. Overall, we found that 34.2% of these offerings have a No-Pass rate of 5% or higher, with many over 10% (see **Figure III-1**).

To identify key variables affecting the No-Pass rate, we conducted a regression analysis of overall pass rates (**Table III-1**). Included in the model were: class size, secondary section size, whether taught by ladder or non-ladder faculty, upper versus lower division course status, and school/division. The model indicated that higher than average No-Pass rates were associated with classes in selected divisions/schools (particularly Physical Sciences, HSSEAS, Management, and to a lesser extent Social Sciences), while lower than average No-Pass rates were associated with classes offered by Undergraduate Education and Theater, Film, and Television (TFT), classes among upper division offerings, and larger classes. The finding that larger class size is correlated with lower No-Pass rates is initially paradoxical except to draw attention that to the finding that class size per se does not determine overall student success.

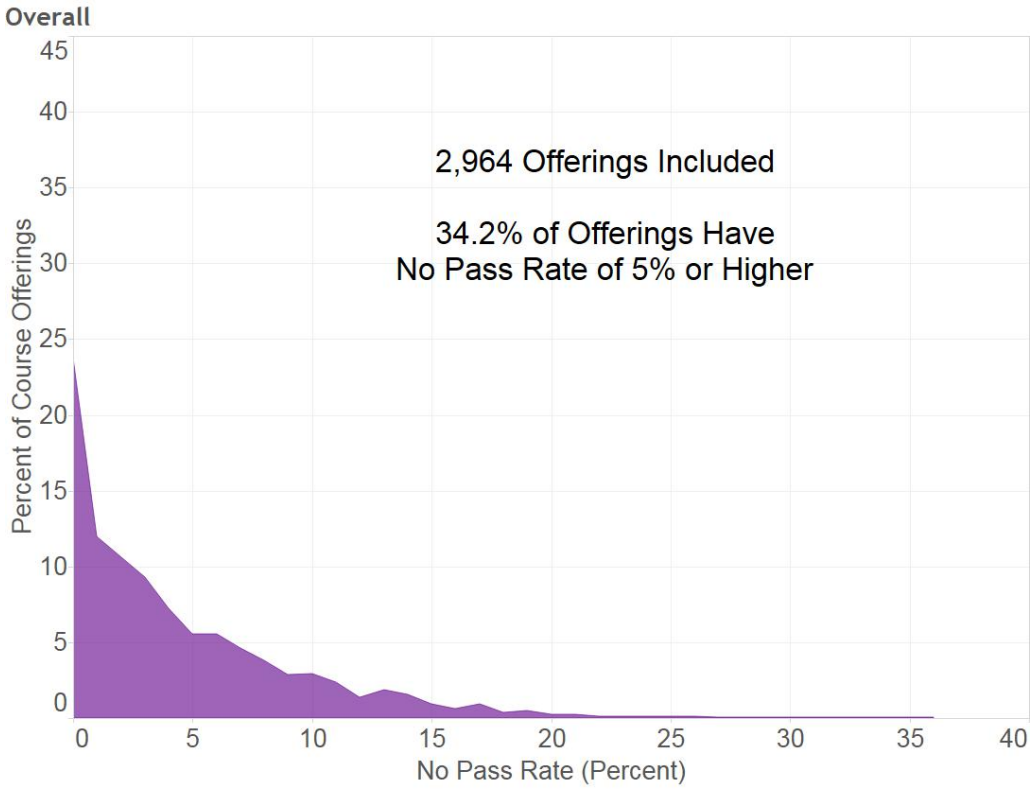


Figure III-1. Overall No-Pass rates by percent of course offerings

Table III-1. Summary Multiple Regression Results Predicting Overall No-Pass Rates associated with Schools, Divisions, Level of course, and class size.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.418	.027		-52.351	0.000
Physical Sciences	.210	.023	.253	9.261	<<0.0001
HSSEAS	.226	.030	.206	7.583	<<0.0001
Management	.570	.088	.148	6.444	<<0.0001
Social Sciences	.096	.026	.099	3.758	.000
Theater, Film, and Television	-.203	.079	-.059	-2.559	.011
UG Education	-.220	.069	-.074	-3.166	.002
Upper division course	-.071	.021	-.090	-3.356	.001
Class size	-.153	.058	-.066	-2.654	.008

Note: A positive Beta sign indicates variables associated with higher No-Pass rates.

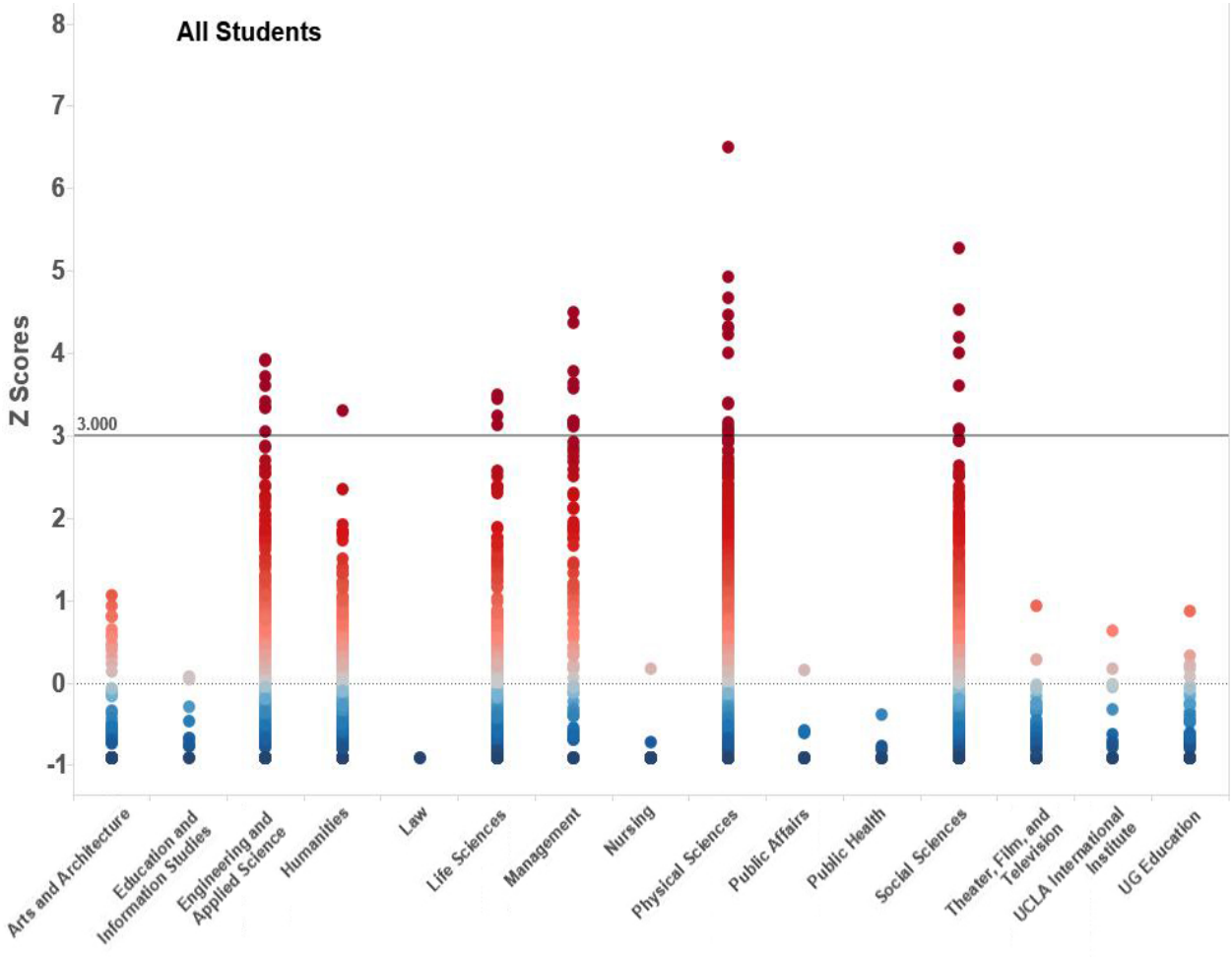


Figure III-2. Z-scores of individual course offerings relative to overall mean.

Because school or division is such an important factor in the regression model, we conducted an outlier analysis for courses across this factor by plotting the Z-scores of every course offering's No-Pass rate relative to the overall mean No-Pass rate. This analysis shows that six schools and divisions had course offerings more than three standard deviations (Z-scores) from the mean, and the patterns illustrate why four of those divisions were identified in the regression model. In **Figure III-2**, each dot represents a specific course offering, and the outliers can be identified as courses of concern (dark red) because of the high No-Pass rate and suggested low levels of student learning. Course offerings at or below zero indicate that their No-Pass rate is at or below the campus average (shades of blue).

In brief, one third of UCLA's course offerings across the campus give No-Pass grades to 5% or more of the students. These No-Pass rates differ significantly by discipline, suggesting that solutions will have to be local. Nonetheless, it is possible to identify the severe outliers within each division to identify courses of concern where administrators and instructors might explore pedagogical approaches to improve student success.

III-B. *What is the range of disparity among student categories*?

To evaluate the extent of an achievement gap between student groups, we conducted three analyses. First, we examined distribution of the No-Pass rates separately for each focal group (URMs versus non-URMs; Pell recipients versus non-recipients, and female versus male students). Second, we conducted separate regression models for each of the three student focal groups. Third, we analyzed the disparity ratios in the No-Pass rates for each group.

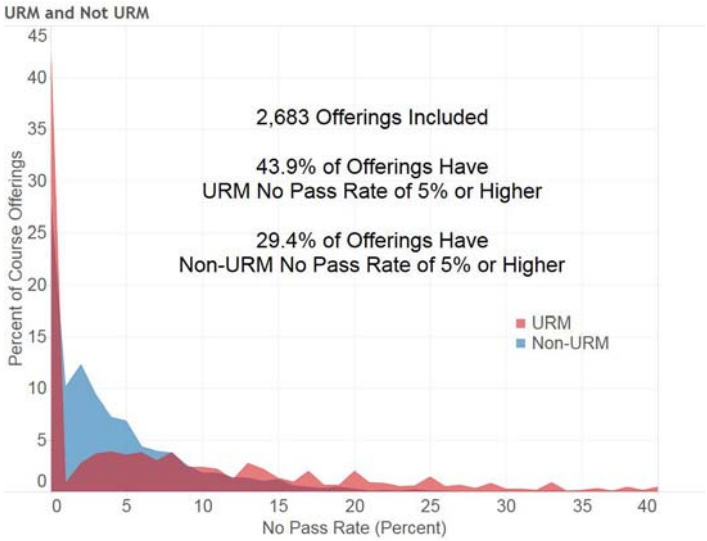
Comparison of Frequency Distributions of No-Pass Rates

An achievement gap is illustrated in our comparison of the frequency distribution of No-Pass rates between focal groups. The frequency distribution of the No-Pass rates for each group and its comparison is illustrated in **Figures III-3 A, B** and **C**. Specifically, 43.9% of course offerings had a URM No-Pass rate of 5% or higher while 29.4% of course offerings demonstrated this No-Pass rate for non-URM students. A similar trend is evident for Pell Grant recipients, which served as a proxy for socioeconomic status (SES) for this report (**Figure III-3B**). Males had slightly higher No-Pass rates than females **(Figure III-3C)**.

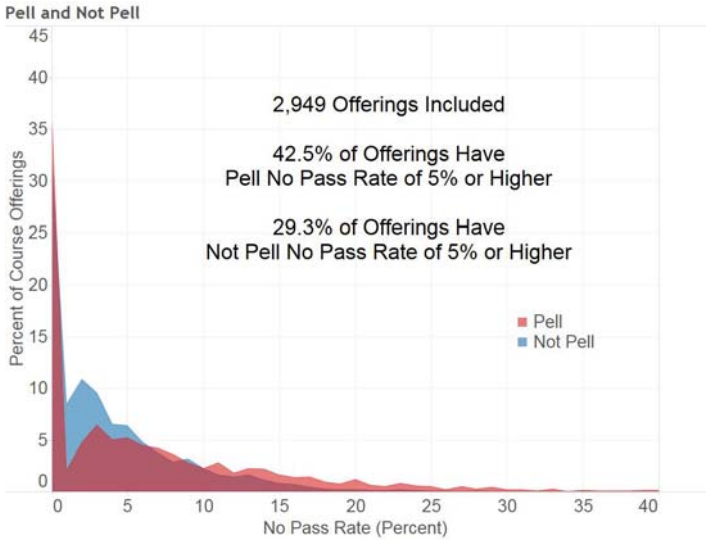
To understand some of the factors contributing to these disparities, we conducted separate multiple regression models for each student focal group, and the models reveal a more complex story (**Table III-2**). To build each model, we used a stepwise procedure, considering the following variables for inclusion in all models created: the No-Pass rate of the focal group's complement; regular Senate rank faculty member or other; course offering size (as a percentage of the largest course offering in the dataset); lower division or upper division status; dummy variables for academic discipline; and size of average secondary section (i.e., laboratory or discussion section). First, the models for each group indicate that the No-Pass rates of focal student groups are significantly and strongly associated with the No-Pass rates of their comparison groups. In other words, the targeted groups are doing poorly in the same courses where their comparison groups (e.g. non-URMs, non-recipients of Pell Grants) do poorly. *A main finding, then, is that particular courses have overall low rates of student success, which indicates low levels of student learning that are likely a consequence of teaching and/or assessment practices.* Second, the results shows that URM students, Pell Grant recipients, and females have higher No-Pass rates in courses offered by specific divisions/schools, especially the Physical Sciences, HSSEAS, and Management.

To gain better insight about the impact of course characteristics associated with high No-Pass rates, we conducted a series of additional linear regression models (see **Appendix C)**. Regression models yield different insights depending on disciplinary area modeled and which courses are included in the analysis (e.g., those with or without secondary sections) (**See Appendix C, Table C-1 through C-8**). The performance of the comparison group is an indicator of the success of the focal group in every model regressing one group's performance with that of its complement. In addition, other course characteristics are significant, but they vary depending on the discipline, courses included, and whether models are separate for focal groups. Given the variation across all the models presented in **Appendix C**, with so many course characteristics considered such as class size, size of secondary sections, or type of faculty member teaching the course, it seems that course characteristics alone are not good predictors of disparities in student success.

A.



B.



C.

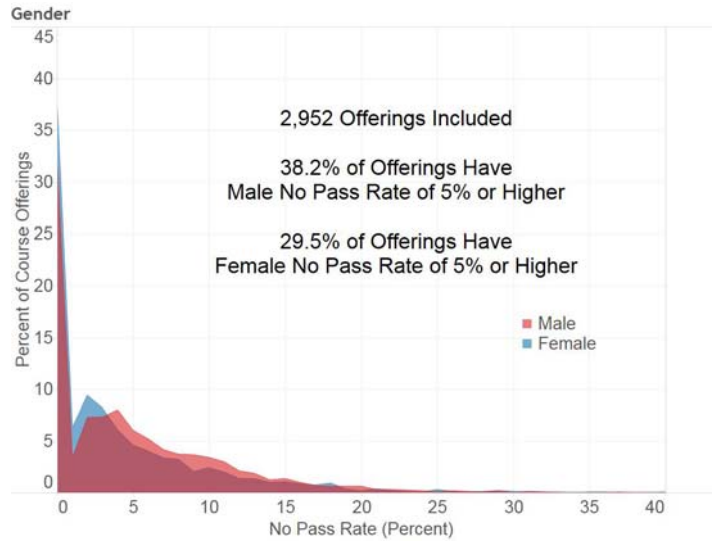


Figure III-3. Analysis of No-Pass Rates for: (A) URM versus non-URM Students; (B) Pell versus non Pell Grant Recipients; and (C) Male versus Female Students. (Taken from **Appendix B, Figures B-2, B-3, B-4**).

Table III-2. Predicting No-Pass Rates: Separate Regression Models for URM, Pell Grant Recipient, and Females. (See **Table III-3** for data on No-Pass rates across student categories and divisions/schools.)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
A. URM					
(Constant)	-.487	.038		-12.945	5.424E-36
Non-URM No-Pass rate	.349	.018	.477	19.842	4.289E-76
Physical Sciences	.187	.019	.249	9.625	3.521E-21
HSSEAS	.197	.035	.140	5.617	2.401E-08
Management	.289	.070	.096	4.153	.000
Class size	-.286	.053	-.134	-5.357	1.013E-07
Life Sciences	.101	.028	.090	3.651	.000
Upper division course	-.063	.020	-.081	-3.107	.002
B. Pell Recipients					
(Constant)	-.567	.032		-17.754	4.984E-64
Non-Pell No-Pass rate	.338	.014	.504	23.459	1.380E-103
Physical Sciences	.128	.017	.171	7.658	3.412E-14
Class size	-.311	.047	-.148	-6.601	5.675E-11
Management	.308	.067	.095	4.569	.000
Theater, Film, and Television	-.226	.066	-.072	-3.450	.001
HSSEAS	.112	.026	.100	4.333	.000
Upper division course	-.061	.017	-.082	-3.469	.001
C. Females					
(Constant)	-.983	.045		-21.622	5.615E-88
Male No-Pass rate	.415	.029	.373	14.419	1.266E-43
Physical Sciences	.199	.025	.206	7.959	3.951E-15
Management	.345	.099	.089	3.484	.001
Class size	.167	.070	.061	2.378	.018

When we examine the data on which these models are based, for each comparison group separately (**Table III-3A-C**), the variation across disciplines is extremely apparent. Average No-Pass rates are particularly high in Management and Physical Sciences for URM students (**Table III-3A**), Pell Grant recipients (**Table III-B**) and to a lesser extent for males. It is of specific concern that URMs or Pell Award Recipients taking courses in specific schools or divisions with high average No-Pass rates may face more obstacles to success or time-to-degree.

Our final analysis of No-Pass rates focuses on the identification of individual outlier courses. When we examine visually the outlier course offerings separately for URM, Pell Grant recipients and female students, we see high variation across divisions as to which course offerings have higher No-Pass rates than the mean (**Figure III-4A, B, C**). Many course offerings range from a zero No-Pass rate to the campus average No-Pass rate, which is a Z score of zero (blue tones), while other offerings have particularly high Z scores, exceeding the norm in the division and also campus-wide (red tones). This analysis reveals courses of concern that warrant review by instructors, chairs, and deans.

Table III-3. Offering Counts and No-Pass Rates for Large Undergraduate Course Offerings for Comparison Groups and Target Groups: **A.** Underrepresented Minority Students; B: Pell Grant Recipients; and C: Female and Male Students. (See also **Appendix C**). *Note: Each target group has minimum of 5 students of both considered groups in each course offering.

A. Comparison of non-URM versus URM undergraduates	Count of Offerings	Total Enrollments	Overall No-Pass Rate	Non-URM Enrollments	Non-URM No-Pass Rate	URM Enrollments	URM No-Pass Rate
Arts and Architecture	96	11,743	1.6%	9,307	1.1%	2,436	3.5%
Education and Information Studies	12	1,629	2.0%	826	1.5%	803	2.6%
Engineering and Applied Science	221	22,353	5.4%	20,324	5.3%	2,029	6.6%
Law	4	1,186	0.0%	1,029	0.0%	157	0.0%
Management	53	6,211	10.9%	5,633	10.0%	578	20.6%
Nursing	34	2,090	0.2%	1,601	0.2%	489	0.2%
Public Affairs	16	1,546	0.5%	1,110	0.5%	436	0.5%
Public Health	21	2,419	0.2%	1,966	0.2%	453	0.4%
Theater, Film, and Television	87	10,312	0.9%	8,551	0.9%	1,761	1.3%
College of Letters and Science	2,139	312,773	5.1%	245,706	4.3%	67,067	8.0%
Humanities	355	41,339	3.5%	31,021	2.8%	10,318	5.3%
Life Sciences	331	62,703	4.1%	50,557	3.2%	12,146	7.6%
Physical Sciences	617	100,147	7.0%	82,854	5.7%	17,293	13.2%
Social Sciences	775	100,347	4.8%	75,175	4.4%	25,172	6.2%
UCLA International Institute	15	1,983	2.0%	1,551	2.3%	432	1.2%
Undergraduate Education	46	6,254	1.8%	4,548	1.0%	1,706	3.8%
All Offerings*	2,683	372,262	4.9%	296,053	4.2%	76,209	7.6%

Table III-3. Continued.

B. Comparison of non-Pell recipients versus Pell Recipients	Count of Offerings	Total Enrollments	Overall No-Pass Rate	Non-Pell Enrollments	Non-Pell No- Pass Rate	Pell Enrollments	Pell No-Pass Rate
Arts and Architecture	105	12,272	1.6%	8,605	1.1%	3,667	2.6%
Education and Information Studies	12	1,629	2.0%	728	2.1%	901	2.0%
Engineering and Applied Science	322	29,825	5.6%	23,650	5.3%	6,175	6.5%
Law	0	0	0.0%	0	0.0%	0	0.0%
Management	94	9,346	8.9%	7,145	7.8%	2,201	12.6%
Nursing	31	1,888	0.2%	1,305	0.1%	583	0.5%
Public Affairs	16	1,546	0.5%	883	0.1%	663	0.9%
Public Health	17	2,107	0.2%	1,605	0.2%	502	0.2%
Theater, Film, and Television	88	10,397	0.9%	7,167	0.9%	3,230	1.1%
College of Letters and Science	2,202	313,464	5.1%	209,311	4.2%	104,153	6.9%
Humanities	392	44,028	3.4%	28,857	2.8%	15,171	4.4%
Life Sciences	337	63,035	4.1%	40,799	3.0%	22,236	5.9%
Physical Sciences	638	101,569	6.9%	70,845	5.5%	30,724	10.3%
Social Sciences	835	104,832	4.7%	68,810	4.1%	36,022	5.7%
UCLA International Institute	16	2,034	2.0%	1,412	2.0%	622	1.9%
Undergraduate Education	46	6,254	1.8%	4,144	1.0%	2,110	3.3%
All Offerings*	2,949	390,762	4.9%	265,955	4.1%	124,807	6.5%

Table III-3. (Continued)

C. Comparison of male versus female undergraduates	Count of Offerings	Total Enrollments	Overall No-Pass Rate	Male Enrollments	Male No-Pass Rate	Female Enrollments	Female No-Pass Rate
Arts and Architecture	105	12,272	1.6%	5,321	2.0%	6,951	1.3%
Education and Information Studies	12	1,629	2.0%	454	3.1%	1,175	1.6%
Engineering and Applied Science	316	29,509	5.6%	23,323	5.8%	6,186	4.6%
Law	4	1,186	0.0%	610	0.0%	576	0.0%
Management	94	9,346	8.9%	5,131	9.2%	4,215	8.5%
Nursing	34	2,090	0.2%	268	0.0%	1,822	0.2%
Public Affairs	16	1,546	0.5%	612	0.5%	934	0.4%
Public Health	21	2,419	0.2%	720	0.0%	1,699	0.3%
Theater, Film, and Television	88	10,397	0.9%	4,550	1.2%	5,847	0.7%
College of Letters and Science	2,200	313,359	5.1%	136,136	5.6%	177,223	4.7%
Humanities	392	44,028	3.4%	17,992	4.2%	26,036	2.8%
Life Sciences	337	63,035	4.1%	22,241	4.3%	40,794	3.9%
Physical Sciences	636	101,457	7.0%	49,743	6.9%	51,714	7.0%
Social Sciences	835	104,839	4.7%	46,160	5.5%	58,679	4.1%
UCLA International Institute	16	2,034	2.0%	622	4.3%	1,412	0.9%
Undergraduate Education	46	6,254	1.8%	2,294	1.8%	3,960	1.7%
All Offerings*	2,952	392,041	4.8%	180,041	5.4%	212,000	4.4%

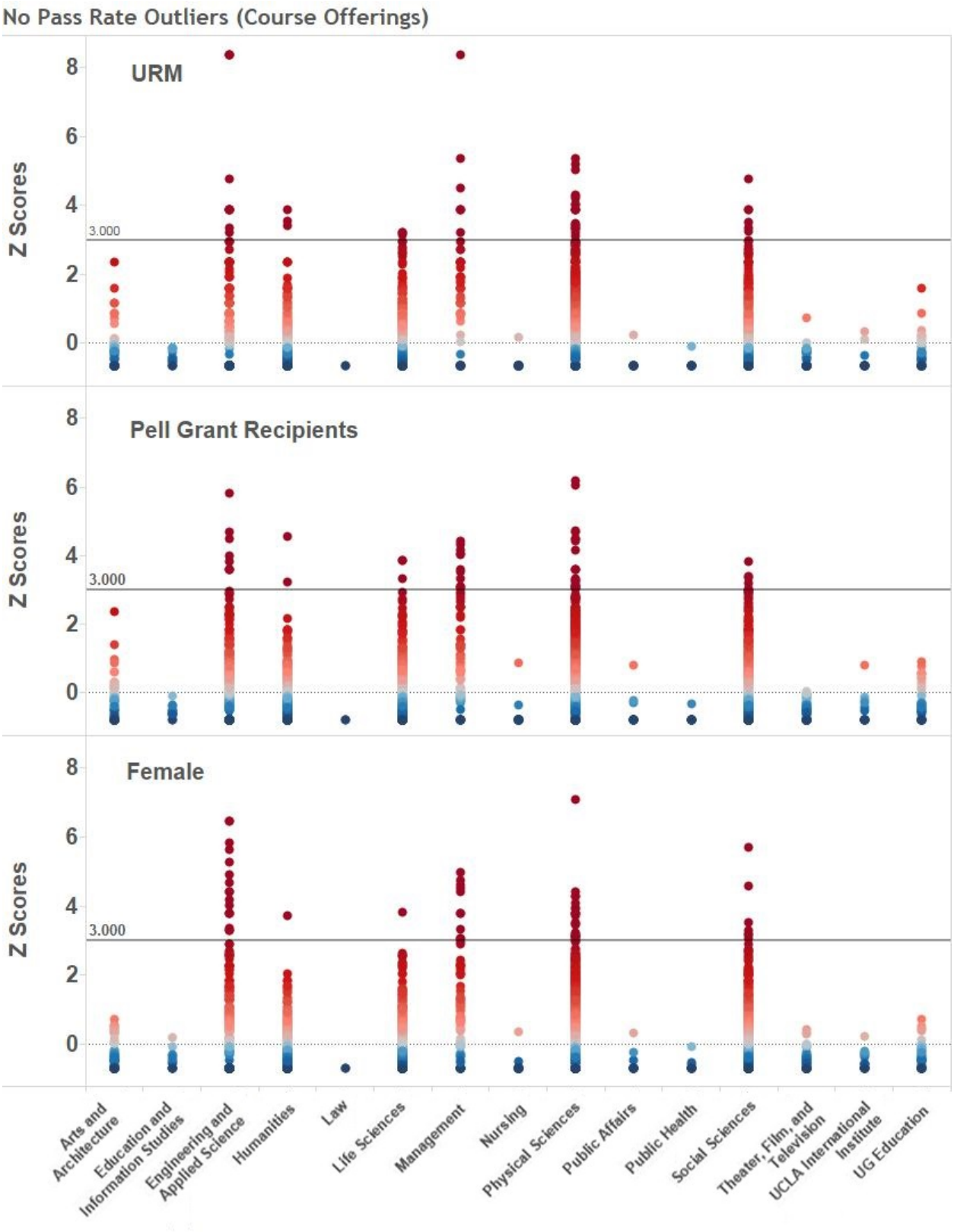


Figure III-4. Outliers based on count of standard deviations (Z score) from the Mean (0) No-Pass Rate

Analysis of Disparity in Success among Student Groups

An important objective of this self-study is to understand the achievement gap between groups. This prompted an examination of the data to determine the ratio of No-Pass rates between focal and comparison groups, a measurement we refer to as the **disparity ratio**. Again, we conducted separate stepwise linear regressions for each focal group's disparity ratio (**Table III-4)**. Results indicate that lower division courses have higher disparity ratios than upper division courses for URM and Pell Grant recipients, but this is not the case for female students (variables that are not significant in the models are excluded from the table). All focal groups were less likely to experience higher disparity ratios in HSSEAS compared to other divisions. In contrast to earlier models that showed that larger classes had lower no-pass rates, here, the larger class sizes were associated with higher disparity ratios for URM and Pell Grant recipients, and larger secondary section size was associated with a higher URM disparity ratio. The disparity ratios for male and female students were also higher in Physical Sciences, Life Sciences, and Undergraduate (UG) Education course offerings, with lower disparity ratios in HSSEAS course offerings.

Table III-4. Predicting Disparity Ratios: Regression models for each focal group

	Unstandardized Coefficients		Standardized Coefficients		
A. URM /Non-URM Disparity Ratio	B	Std. Error	Beta	t	Sig.
(Constant)	.201	.050		4.041	.000
Upper division course	-.256	.035	-.180	-7.401	2.015E-13
HSSEAS	-.298	.054	-.133	-5.561	3.052E-08
Course offering size	.304	.100	.072	3.043	.002
Average secondary section size	-.366	.140	-.059	-2.614	.009
B. Pell /Non-Pell Disparity Ratio					
(Constant)	.100	.034		2.940	.003
HSSEAS	-.268	.039	-.156	-6.866	8.704E-12
Course offering size	.344	.086	.093	4.008	.000
Upper division course	-.094	.029	-.076	-3.178	.002
UG Education	.192	.089	.046	2.159	.031
C. Female /Male Disparity Ratio					
(Constant)	-.154	.018		-8.700	6.592E-18
HSSEAS	-.223	.035	-.144	-6.307	3.471E-10
Physical Sciences	.118	.028	.098	4.227	.000
Life Sciences	.110	.040	.062	2.732	.006
UG Education	.178	.081	.048	2.208	.027

The outlier analysis for disparity ratios among course offerings does not show the same pattern as the No-Pass rate outlier analysis. Moreover, outlier courses for disparity ratios are not identical for each of the focal groups (See **Figure III-5**) but trends are similar across schools and divisions. **Figure III-5** shows those course offerings that are far above the average (three standard deviations) across campus and within division. These results signal particular courses that are currently most problematic for the achievement gap and warrant attention when it comes to improving student success and the use of inclusive classroom practices.

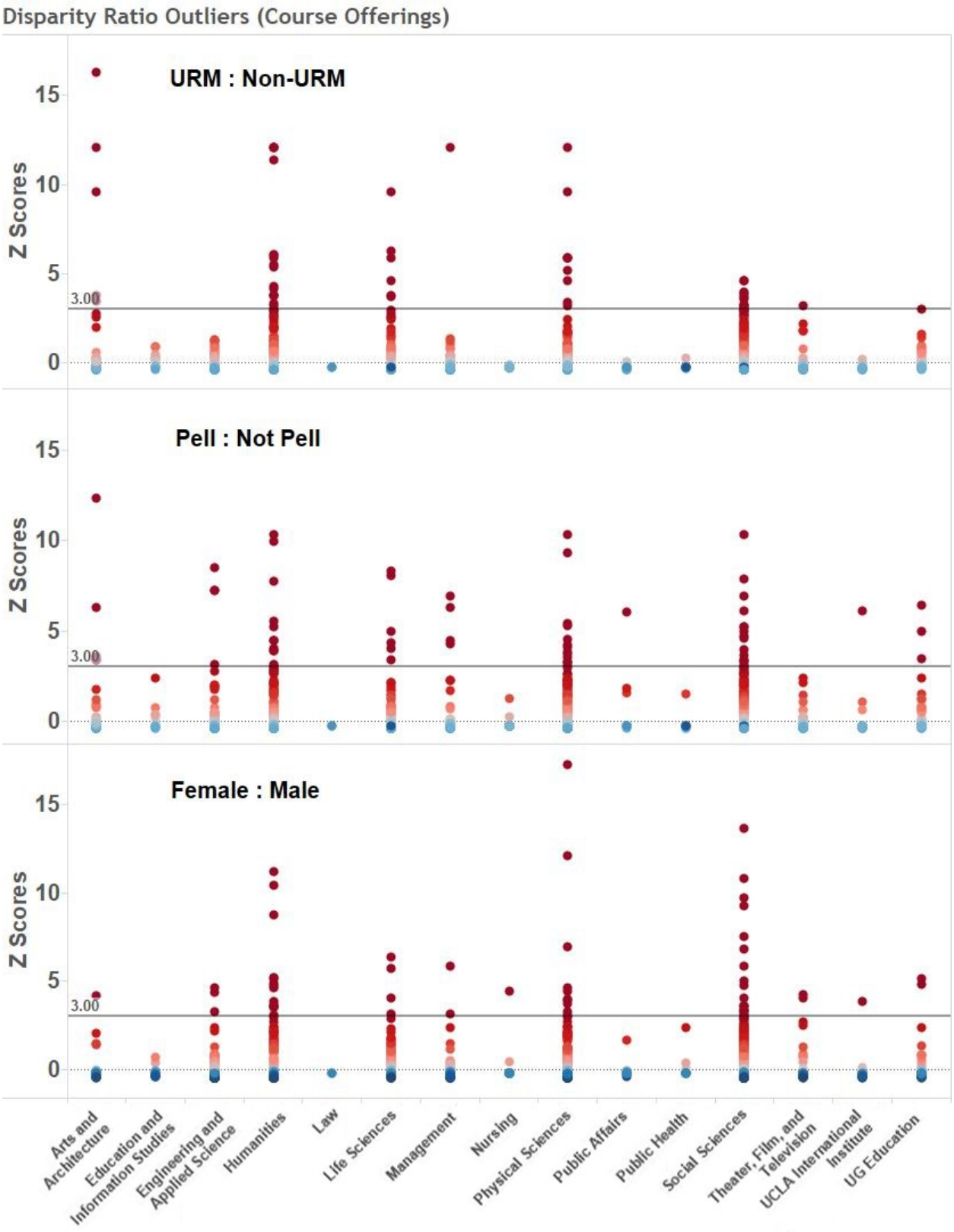


Figure III-5. Disparity ratios in course offerings by focal group and division, expressed as standard deviations from the mean (0).

III-C. Are grading patterns associated with disparities in student success?

To gain more insight about the relationship between grading practices across campus and disparities in student success reflected in the No-Pass rates, we quantified grading patterns across campus using a *k*-means cluster analysis. This methodology resulted in the formation of clusters based on the distribution of letter grades among students in course offerings enrolling 50 or more students in regular session terms of the 2012-13 and 2013-14 academic years. Courses evaluating students primarily on P/NP or S/U basis were excluded from the analysis.

To remain consistent with the previous analyses, all grades below passing (D+, D, D-, F, NP, and U) were assigned to the "Do Not Pass" grade category; both A+ and A grades were included in the A grade category; and other grade awards (such as I, R, P, and S) were excluded from the clustering. The analysis produced an initial solution of 10 clusters from the 2,882 course offerings, with the clusters based on the percentage of letter grades awarded in each course offering. Two of the largest clusters were subjected to a subsequent cluster analysis and separated into 4 and 3 cluster solutions respectively, which led to the final set of 15 cluster groups (**Appendix D**).

The cluster analysis identified a large set of clusters of courses with similar grading patterns. Here, we will focus on two clusters that illustrate contrasting patterns of grading. In Cluster 4 (**Figure III-6**), we see a range of grades skewed towards A's and A+'s with few No-Passes. This grading pattern is consistent with criterion-referenced grading, which means students are assigned grades based on pre-determined thresholds for grade cut-offs (e.g., "straight-scale"; 90-100% is an A, 80-89% is a B, 70-79% is a C, etc.) and grades are given regardless of how many students score above or below the threshold (Brookhart 2009, Reese 2012, Schinske and Tanner 2014). This grading scheme typically is applied when an individual student's performance can be evaluated and measured in relation to specified learning objectives, with a grade assigned based on their level of mastery, independent of how other students perform in the same class. With criterion-referenced grading, it is possible for *all* students to excel (e.g., earn high grades) and also perform poorly (e.g., earn low grades) if they do not meet course expectations. The highest representation of courses in this cluster came from the Humanities and Social Sciences (embedded pie chart), but also include some Life Sciences courses.

A contrasting grading pattern is shown in Cluster 12 represented mostly by science courses **(Figure III-7**), which illustrates a bell-shaped curve with a peak corresponding to B and B- grades. In this cluster group, the overall No-Pass rate was about 7%. This type of grading pattern could result from norm-referenced grading, often referred to as "curving", where students are assigned a grade based on their performance relative to the class as a whole, consequently promoting competition among students because their relative performance, or rank in the class, determines their final grade. Norm-referenced grading is employed by many UCLA faculty, as suggested by results from the HERI Faculty Survey (**Appendix H**), which indicates that about 40% of STEM respondents and 24% of HASS respondents determine course grades by comparing scores among students in a class and distributing grades along a bell curve. Departments tend to advocate using such a grading system as a way to standardize grades, ensuring the distribution of grades is comparable from year to year regardless of which faculty member teaches a course.

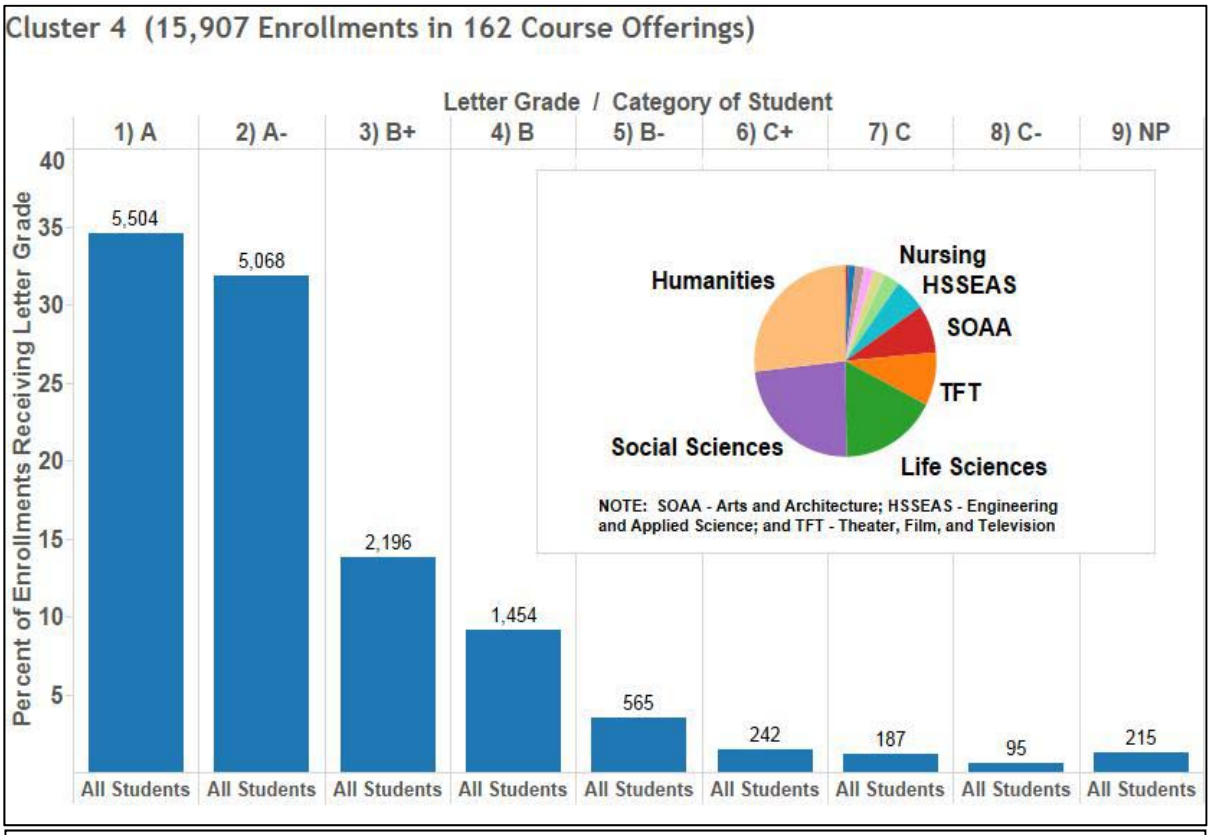


Figure III-6. Distribution of grade assignments in Cluster 4. (For details, see text and **Appendix D**)

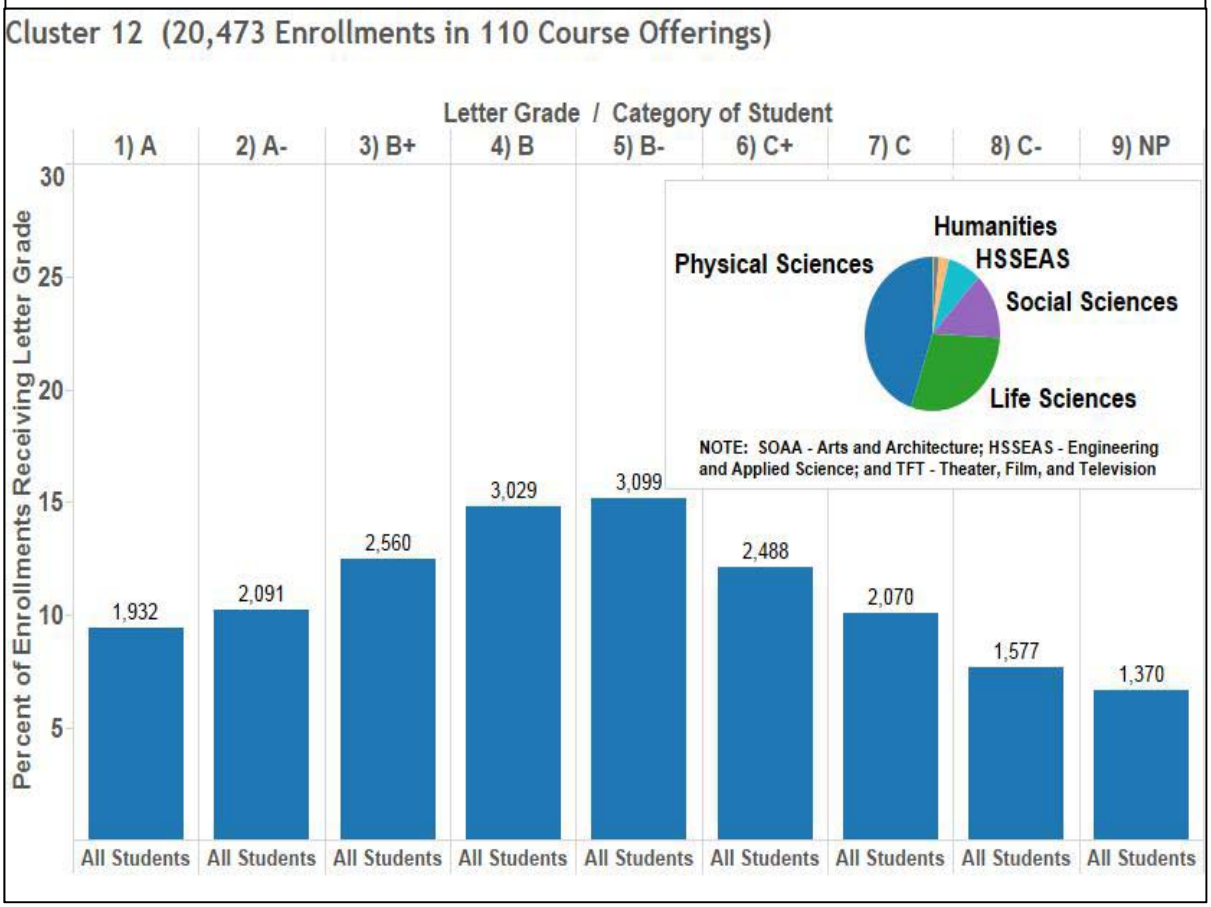


Figure III-7. Distribution of grade assignments for Cluster 12. (For details, see text and **Appendix D**)

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We cannot be sure that every course offering in Clusters 4 and 12 utilized a criterion-referenced or norm-referenced grading policy, but in separate questionnaires asking faculty to describe their grading policy (**Appendix F, Table F-2.8**), we found that courses within these two clusters tended towards the inferred grading pattern (**Appendix D, Table D-1**). Notably, there are multiple ways by which grades may be assigned within a norm-referenced system (Reese 2012), and the grading patterns associated with Clusters 10-15 (**Appendix D**) are consistent with these sub-groups. While Cluster 12 is consistent with a *bell curve* grade distribution pattern, as described above, Clusters 10-11 have patterns suggestive of *clumping*, in which natural gaps are identified within a rank-ordered distribution of students' scores, and these gaps are used to define the cut-offs for grade assignments (Reese 2012). Clusters 14-15, on the other hand, fit a pattern associated with *quota* systems, in which a fixed number of each grade is allowed. These quotas are applied after rank ordering students by their total score earned in a class (Reese 2012).

Within each of the clusters of grading patterns, student performance differs between comparison groups (URM vs. non-URM, Pell Grant recipient vs. non-recipient, male vs. female), suggesting grading practices are contributing to this disparity in performance. And grading patterns consistent with norm-referenced grading appear to exacerbate the disparity. For example, in Clusters 4 and 12, the distribution of grades shows that non-URM students were more likely to get higher grades than URM students and non-URMs are less likely to fail than URM students (**Figure III-8A and B**). The contrast in student success was even more exaggerated in Cluster 12, with many students receiving low grades and disparities found between comparison groups that were greater than those observed in Cluster 4.

Many instructors and departments favor the norm-based grading because they believe it maintains standards. Indeed, gatekeeping entities like admissions committees and licensing agencies use norm-referenced exams such as the ACT, SAT, GRE, MCAT, LSAT, etc. to make judgments about the rank or qualifications of an individual. Notably, questions for such exams undergo extensive validity and reliability testing, with multiple iterations administered and evaluated over the span of a year or more before being included in an official norm-referenced exam. Questions on course level assignments are rarely subjected to the same rigors of testing, thus calling into question the fairness of grades assigned in a course for which high-stakes assignments (e.g., midterms, finals) are weighted heavily in the determination of final grades within a norm-referenced grading scheme. Instead, it might be pedagogically more appropriate to identify course objectives and align grading criterion to those objectives. Rankings of students might be better suited to performance across a set of courses rather than trying to develop a fair and appropriate norm-based grading system that lacks timely and specific feedback for content and skill areas for learning and performance improvement

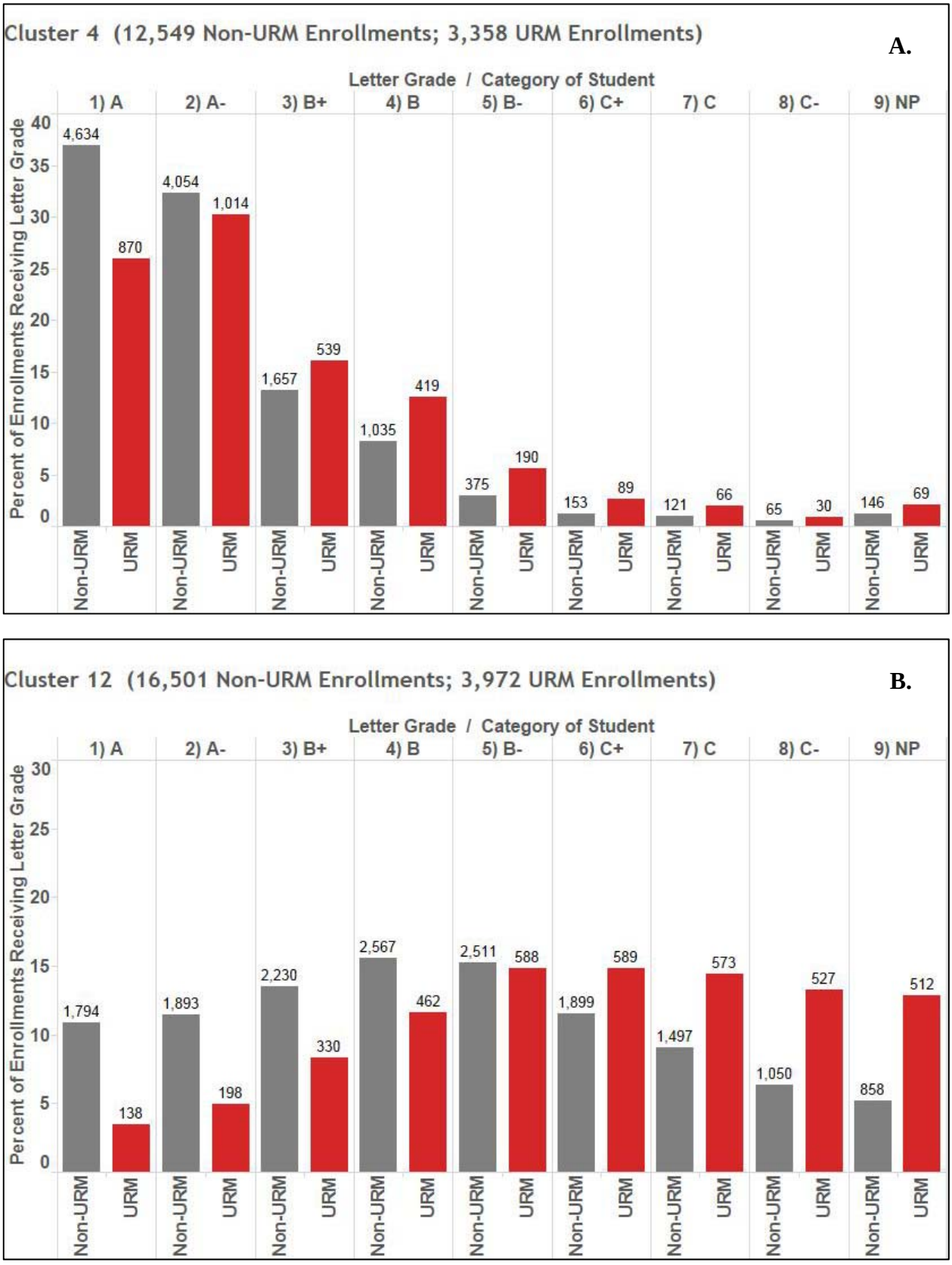

Figure III-8. Comparison of distribution of grades between Non-URM and URM students in Clusters 4 and 12.

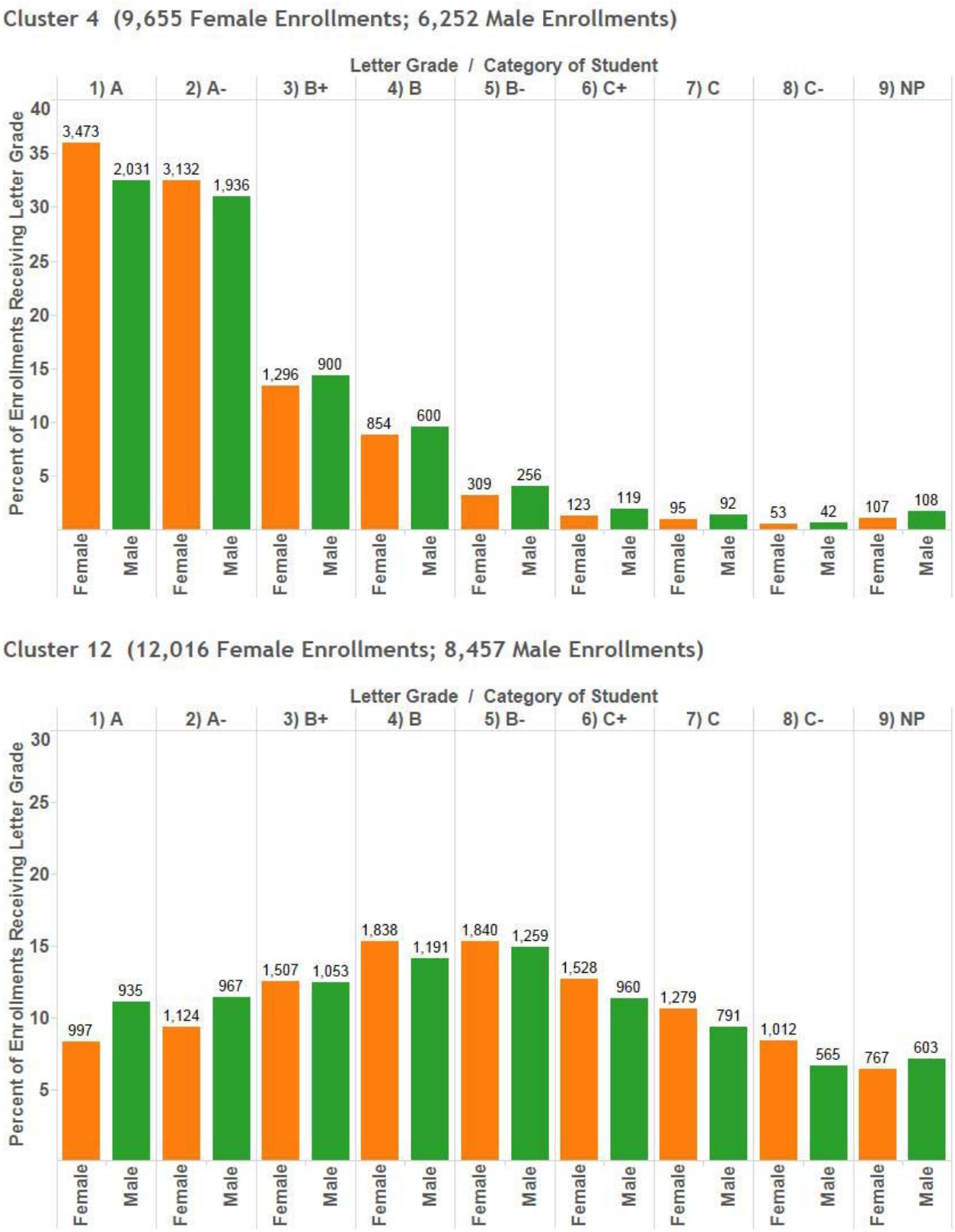

Figure III-9. Comparison of distribution of grades between female and male students in Clusters 4 and 12.

In reviewing the 15 grading clusters summarized in **Appendix D**, it is clear that the disparities in student success vary among the grading clusters. We see similar patterns between Pell Grant recipients versus non-Pell Grant recipients as those we observed with URM and non-URM students. However, we do not see the same discrepancies between male and female students (**Figure III-7A and B**). For example, in Clusters 4 and 12, males receive No-Pass grades slightly more frequently. However, females receive more A's in Cluster 4, while males receive more A grades in Cluster 12. So while disparities can be revealed by disaggregating the data by group and inspecting variations in student performance between groups, these findings do not reveal the reasons *why* particular groups perform differently depending on the grading system employed. If women's achievement is typically higher than men's, for instance, why are they not as successful as men in achieving A grades in the norm-referenced grading pattern? Research has shown that this grading pattern is associated with higher student perceptions of competition (Hughes, Hurtado and Eagan, 2014), which in turn, contributes to attrition from STEM fields for women and underrepresented groups (Shapiro and Sax, 2001; Strenta, Elliot, Adair, Matier and Scott, 1994). So it may be the impact that a grading system has on the classroom climate, which positively or negatively affects student performance. In other words, female and URM students may not react positively or be motivated to highest levels of achievement in a classroom where the grading system encourages competition (Covington 1992). Altogether, these results suggest that UCLA can advance student success by improving approaches used to assess student learning, particularly those that create a negative and inequitable classroom climate.

IV. Findings—Questionnaires: Department and IDP Chairs' Questionnaires, Course Instructor Questionnaires, Faculty and Staff Consultation Meetings, and Student Programs Inventory

IV-A. Department and IDP Chair Questionnaires

To gather further details about teaching practices across the campus, we distributed questionnaires to the chairs of departments and IDPs asking for information about practices regarding: assignment of course instructors to courses; whether chairs routinely reviewed student and peer evaluations and made adjustments accordingly; and expectations and oversight of Teaching Assistants (See **Appendix E)**. We received questionnaires back from 50 department chairs, representing all divisions and schools that teach undergraduates. The questionnaires are presented in full in **Appendix E**. We had 100% participation in the return of questionnaire, but some chairs elected not to answer specific items.

An overview of the results from the chair questionnaire indicates that the practices of departments do not address the pedagogical needs of all instructors. Here we highlight some of our major findings. First, in the category of faculty development for teaching, the survey found that 64% of departments indicated that they actively supported teaching-specific faculty development opportunities (**Table E-1**), but only 16% reported that they had formal mentoring program for teaching (**Table E-2**). For departments that regularly employ lecturers or non-ladder faculty, only 14% have a formal system in place for teacher training (**Table E-6**), although 40% report that informal guidance is provided as needed. Although report findings show that grading practices are associated with student success, two thirds of chairs (66%) reported that the department neither provides formal guidelines nor communicates expectations to new instructors about grading or grade distributions for undergraduate courses (**Table E-3**). Thus, we found little evidence that instructors are receiving formal help in teaching or developing grading practices that improve student learning.

The questionnaires revealed that uneven attention is paid to course evaluations. About one third of the department chairs reviewed the course evaluations quarterly (**Table E-7**). Half of the department and IDP chairs do not regularly review teaching evaluations for each course in their department. Another 12% review them annually (presumably when it is too late to make corrections for course offerings during the year). When asked what actions the department and IDP chairs take to improve teaching in response to evaluations, most (74%) stated they work within the department to improve teaching but 28% stated that they do not (**Table E-9b**). The departments also use other types of assessment, especially peer review (62%; **Table E-10a**), but this may only be at the time of review for promotion/tenure. Peer evaluations have been quite variable and unsystematic in implementation within and across units/divisions and are not linked with student performance at UCLA.

Departmental questionnaire results concerning the training and supervision of teaching assistants (TAs) raises many concerns. Currently, 74% of departments utilize the TA training courses supported by OID as preparation for all TAs (**Table E-11**), but not all TAs are required to take these courses (departmental course 495). Moreover, 60% state that course-specific training is largely provided by the instructor (**Table E-11**) and is at the discretion of the instructor whether or not to do so. Only 28% of department chairs review course evaluations for TAs, and 72% of

departments leave reviews of TA evaluations to someone else (**Table E-12**), which presumably is the course instructor who may or may not provide feedback to their TAs. Any problems identified through evaluations are largely presumed to be resolved on their own (38%), with 36.6% indicating some verbal interventions with department leadership (**Table E-13**). Only 20% reported active retraining occurred within the department (**Table E-13**). Most actions are resolved at the individual level (56%), and 22% indicated that no actions were taken to improve TA teaching or training (**Table E-14**).

Both the questionnaires (**Table E-16.2**) and campus data indicate that TAs teach the overwhelming majority of our discussion and laboratory sections. In some departments, class instructors develop the instructional materials (**Table E-16.4**), while in others TAs individually or collectively prepare these materials (**Tables E-16.5** and **E-16.6**). The findings reveal variation across departments in terms of how much TAs meet with course instructors, whether or not they attend lectures, and the nature of their responsibilities (see **Tables E-17** and **E-18**).

Finally, to assess how much departments recognize the value of teaching, we asked whether they gave awards for exceptional teaching by their instructors and TAs. Some departments reward exceptional teaching with internal awards for instructors (36% **Table E-18**). A higher number nominate TAs for awards (**Table E-19**, 52%), some nominate TAs for external awards (16%), but almost a third (32%) do nothing to reward good teaching.

The findings from the questionnaires distributed to chairs of departments and IDPs illustrate an awareness that teaching should be an important part of our mission at UCLA, but their answers reveal that in practice do not reflect that value. Clearly, additional and more detailed questions would have provided a better picture of campus practices. Nonetheless, they also reveal uneven attention to teaching at UCLA.

IV-B. Course Data Questionnaires to Course Instructors

At the same time that we distributed questionnaires to the department and IDP chairs, we asked them to distribute spreadsheets with a list of course-specific questions to instructors of selected courses offered during the 2012-2013 and 2013-2014 academic years (**Appendix F**). To supplement the information we had on grade assignments from institutional database, the course data questionnaire (CDQ) was designed to gather preliminary information on a range of undergraduate course instructional practices, some of which might be associated with inequitable grading practices and also to identify opportunities to improve the learning experience for all students. For example, the questionnaire collected information about instructor accessibility, curriculum design, teaching assistant responsibilities, and course grading strategies. Average scores for midterm and final examinations and course grade distribution cut-offs were requested. Completion of the CDQs turned out to be more difficult than anticipated, but the findings provided an initial review of practices in the classroom.

As indicated in **Table F-1**, for the 1,478 individual courses included in the CDQ, departments returned 689 completed spreadsheets (47%), but the data were incomplete for many CDQs, thus yielding a response rate of 35%. Response patterns varied by division/school and by department, with the high response rates in Life Sciences (64%) and HSSEAS (59%), and low response rates in Physical Sciences (23%) and The Anderson School of Management (0%).

The CDQs revealed three key findings, which are discussed in more detail in **Appendix F**. First, the CDQs indicate that supervision of **Teaching Assistants** (TAs) and curriculum oversight is primarily the responsibility of course instructors. About half of the course instructors meet weekly with TAs, and another 36% met with TAs on an as-needed basis. Almost all met with TAs at the start and end of the quarter. It was highly variable whether instructors required TAs to attend lectures. The curriculum for the discussion and laboratory sections, referred to as secondary sections, was reported to be consistent across all secondary sections in almost half of the courses surveyed with the content sometimes developed solely by the instructor and sometimes in collaboration with the TAs. In many courses, the curriculum depended on the TA, which means students will get different pedagogical experiences across sections.

Second, the CDQs demonstrate that UCLA instructors employ a range of grading practices in undergraduate courses, and the prevalence of certain types of grading practices varies by school/division. The analysis of **grading practices** was based on instructor responses to three options: norm-referenced grading (referred to in the questionnaire as using a "curve" with a predetermined number of grades A-F awarded), criterion-referenced grading (referred to as straight-scale or competency-based grading in the CDQ), and other instructor-defined practices. As summarized in (**Table F-2.8**), slightly more than half of the courses polled (52%) used a criterion-referenced grading system where cut-offs for different grades are independent of the percentage of students receiving the grade. Twenty-seven percent of courses (27%) were delivered by instructors who took their own approaches to assigning grades that were neither strictly criterion-referenced nor norm-referenced. The remaining 21% followed a practice described in the questionnaire as using a "curve," a term that the research team subsequently discontinued using in favor of the term norm-referenced grading. Comparing those divisions/schools that provided data for 20 or more unique courses, the Division of Social Sciences appears to have used norm-referenced grading strategies the most (45%), followed by Life Sciences (19%). At the department level, instructors' most common approach to course grading was criterion-referenced, as evidenced by data from Humanities (74%), Life Sciences (53%), and Physical Sciences (53%). Given the incomplete rate of response, however, we encourage caution about these percentages. It is safe to say, though, that UCLA instructors take a varied approach to grading practices and it is evidenced by actual patterns identified in course outcomes.

Lastly, the CDQ was used to explore the association of grading practices with No-Pass rates. Given the observation reported in section III-D that certain grade distributions were more likely to result in **achievement gaps** between student groups, we assessed whether course instructors reporting criterion-referenced versus norm-referenced grading practices gave grades consistent with the observed patterns in the *k*-means cluster analysis that those grading practices were predicted to produce. Analysis showed that 70% of respondents prompted to describe the grading practice in courses from Clusters 1 to 6 (those suggested to have used criterion-referenced grading by the cluster analysis) indicated that a "straight- or competency-based scale, with predetermined grade cutoffs" was used. Three quarters (75%) of respondents describing courses in Clusters 12 to 15, which were identified in the cluster analysis as likely using norm-referenced grading, indicated that grades were awarded according to an instructor-determined grade distribution or the "curve, with predetermined percentage distributions." The questionnaire response rates were 14% for Clusters 1 to 6 combined and 34% for Clusters 12 to 15 combined.

Despite the limitations of the CDQ, the responses indicate that the campus needs to look more closely at the impact of grading practices on student success, practices that create disparities, and teaching strategies in large classrooms (e.g. secondary section size, use of learning assistants). Discussion sections have the potential to create more inclusive classrooms through thoughtful pedagogical approaches and sensitivity to cultural differences among students. To accomplish this, lectures and secondary sections need to be aligned in courses across campus using active learning techniques.

IV-C. Academic Advisor and Faculty Consultations

It was beyond the scope of this project to thoroughly interview all campus constituencies associated with academic success. Nonetheless, we consulted with academic advisors and Associate Deans for Undergraduate Education (or their equivalent) from all the schools and divisions to ensure we were not missing some important issues. In addition, Dean Sork met with the chairs of the Physical Sciences because they expressed concerns about the questionnaires, and we wanted to understand their perspective on barriers to student success and on possible strategies by which UCLA can address and potentially overcome challenges facing students (see **Appendix G**). Based on these consultations, we have generated a list of action items, described below, which should improve the UCLA undergraduate learning experience:

Conversations with the academic advising staff at UCLA, including college counselors, program advisors, and departmental student affairs officers (**Appendix G**) revealed a broad array of potential obstacles to student success (**Table G-1**). Many expressed concerns about faculty attitudes, expectations, accessibility, and teaching practices, echoing many of the same issues brought to light in the campus surveys and institutional data analysis. Several also provided perspective on student priorities and perceptions of the academic climate. For instance, they find students, who are accustomed to getting high grades in high school but find themselves in academic trouble, are reluctant to seek out tutoring assistance with their coursework. Students are also known to propagate misinformed messages to their peers about the "benefits of curving."

Academic advisors were cognizant of curricular, co-curricular, and non-academic challenges faced by UCLA students. Some cited a lack of flexibility in course sequencing, overloaded course schedules, and the inability to enroll in courses scheduled at off-time blocks or offered too infrequently during an academic year as accumulating factors that lead to academic failure or delay time to degree. Advisors noted that socioeconomic challenges likely contribute to the disparities in academic success across student groups, which, in turn, widens the achievement gap that already exists, and can be attributed to differential high school preparation for college coursework. Advisors also highlighted the unique challenges students face depending on the pathway by which they enter college. For instance, first generation college students may lack effective study skills leading to a shortfall in self-confidence, which may be interpreted by instructors and TAs as a deficiency of competence. Non-residential students and transfer students frequently endure long commutes that limit their access to study groups or faculty office hours.

Also emphasized in discussions with academic advisors were capacity issues and resource limitations associated with existing student services (e.g., academic planning, course tutoring). Factors contributing to inconsistencies in the advising culture include differences across departments in documentation protocols (e.g., use of Counselor Desktop) and procedures for monitoring student progress. *High-touch advising*, or the ability to track students and connect in

a timely manner with those struggling academically, is not practical for larger departments without an improved system of student monitoring. One way to maximize student success is to employ dashboard system to monitor student progress through the curriculum, identify at-risk students who appear to be underperforming in their coursework, and communicate with such students early and often, guiding them back on track by suggesting they see a departmental counselor. These high-touch advising systems are a product of an emerging 'big data' science called learning analytics, in which statistical tools and algorithms are employed to discover data patterns in student degree progress. Universities such as Georgia State[17] and the California State University system are successfully implementing high-touch advising systems to monitor and immediately engage at-risk students in existing interventions like supplemental instruction or tutoring offered through a comprehensive student learning center. Such a system at UCLA could empower students to seek out many of the existing programs already in place to promote student academic success (for a list of UCLA programs, see **Appendix I**). Training of advisors as well as an infusion of resources to expand the academic counseling staff is vital to ensure that student support is not limited by staff capacity. Mirroring recommendations made recently by a student success task force at the University of Illinois at Chicago[18], a training program should provide new advisors foundational knowledge about UCLA and its student population as well as ensure that all advisors have a comprehensive overview of student support services and resources available on campus.

A concern about instructor course evaluations that emerged during discussions with departmental and College academic advisors (**Appendix G**) was that these data were not public. Thus, students are not equipped to make mindful decisions when selecting courses, and instead are relying on unverified information available on websites like *Bruinwalk*[19] or *Rate My Professors*[20]. This issue was echoed by faculty as well as departmental administrators in almost every consultation meeting, pointing to the contribution of misinformation these websites propagate about individual instructors or courses that lead students to make poor decisions in course planning, which adversely affect their academic success. For example, in an attempt to avoid taking a course taught by a poorly rated faculty member, students may enroll in more credits than they can handle in a subsequent term, potentially dooming their ability to study adequately and learn the course material. The misrepresentation of instructors and courses on public websites like *Bruinwalk* could be avoided by releasing course evaluations into the public domain, thereby discouraging students from consulting information that is not vetted or verified.

The discussion with the associate deans and school representatives addressed issues on strategies for improving success based on our preliminary findings. They advocated making data available to deans and chairs about course No-Pass rates so that they could explore the factors associated with courses of concern through discussions with relevant instructors. They concluded that UCLA needs to start communicating "best practices" for curriculum, instruction, and evaluation more broadly (e.g., grading transparency, merits of criterion-referenced grading, impact of stereotype threat, imposter syndrome, and other psychosocial barriers to student success). There was some discussion about grading practices. Most thought maybe the campus should move toward criterion-referenced grading and away from norm-referenced or other inequitable practices, which result in high No-Pass rates and disproportionate fail rates for underrepresented

[17] http://www.eab.com/Technology/Student-Success-Collaborative/SSC-WSJ-Oct-13
[18] http://studentsuccess.uic.edu/
[19] http://www.bruinwalk.com/
[20] http://www.ratemyprofessors.com/

minority (URM) and low socio-economic status (SES) students. They believed that basing course grades on what concepts students learned and skills students mastered was perhaps more fair than pre-determined the grade distribution. Others argued that norm-referenced grading was easier to implement for large classes and that many companies seeking UCLA students as interns or alumni as employees want to see the ranking of students. Finally, the associate deans and designees agreed that the campus needs to improve the way we educate faculty about diversity issues by providing workshops on creating inclusive classrooms, raising awareness about stereotype threat, and providing faculty tools to address the classroom climate.

The discussions with the chairs of Physical Sciences clarified their apprehensions about the CDQs and also provided an opportunity to gain their insight about obstacles to student success. Their initial reaction was to emphasize the lack of preparation of UCLA students to succeed in their classes. Consequently, they focused more on ways to improve student preparation (tutoring services, more resources to decrease the size of discussion sections, improvement of academic advising, and use of technology to track and monitor students' academic progress). The impact of grading practices on student learning and success was discussed as well as ways to improve pedagogy and inclusion in the classroom. The comments expressed are likely to reflect opinions of other faculty members across campus.

IV-D. Inventory of Undergraduate Programs

The University must continue to support, sustain, and enhance successful student programs, courses, and curricula (for list, see **Appendix I**). Furthermore, resources should be invested in other high impact practices scaled to reach the large and diverse UCLA undergraduate student population. Academic advisors and faculty leaders across campus converged on the recommendation to reinstate Covell tutoring, replicating one of many services provided to students by student learning centers common to campuses nationwide, in which the goal is to promote the academic excellence of *all* students. For instance, the University of California Berkeley supports a center[21] that resides in a dedicated space with staff available to support cross-disciplinary academic and summer programs, services like tutoring and peer instruction, and even postings for job opportunities in various academic programs.

Another promising high impact practice is the establishment of student learning communities, in which cohorts of students enroll concurrently in core courses their freshman year and participate in collaborative activities designed to promote academic success and persistence within a supportive learning environment. As exemplified by the program at Purdue University[22], learning communities provide an opportunity for students to connect with peers from many different backgrounds but who share common academic interests. At UCLA, the Program for Excellence in Education and Research in the Sciences (PEERS), which is intended for first- and second-year science majors from underrepresented backgrounds, establishes learning communities around shared research and curricular experiences. Research shows that PEERS students earn higher grades and persist in a science major at higher rates than those who do not participate (Toven-Lindsey *et al*. 2015). This high impact practice could be expanded by investing staff who can assist with block scheduling, enabling large numbers of freshmen, linked by disciplinary interests, to connect and bond as they progress through their first-year curriculum.

[21] http://slc.berkeley.edu/
[22] http://www.purdue.edu/studentsuccess/orientation/learning_communities/index.html

V. Campus Surveys: Student Learning Experiences and Perceptions of Classroom Climate

Upon entering college, students should encounter inclusive teaching practices that support their intellectual growth as well as maintain sensitivity toward their diverse backgrounds and perspectives. Such practices, when adopted by instructors, include being transparent about student learning objectives, creating structured learning experiences, aligning assessments of student learning with stated objectives, and adopting criterion-referenced grading systems (Wiggins and McTighe 2005, Handelsman *et al*. 2004, Covington 1992). The aforementioned practices are founded in constructivist learning theory (NRC 2005) and reflect equity-minded principles (Witham *et al*. 2015), such as recognizing that individual students are not responsible for the unequal outcomes of groups with historically stratified access to K-12 educational opportunities. UCLA students have done much to overcome obstacles to arrive at our doorstep to learn.

The student to faculty ratio, the extent to which faculty exhibit behaviors that foster development of inclusive classrooms, and even the demography of the institution all shape the learning experience of UCLA undergraduates. Collectively, these factors appear to impact the degree to which students of different genders, diverse ethnicities/races, or dissimilar socioeconomic backgrounds develop a sense of belonging within the institution. Positive contact with faculty in the classroom who validate student contributions as learners, however, can mediate and diminish the impact of negative experiences with discrimination and bias on students' sense of belonging in college (Hurtado and Ruiz Alvarado, 2015). However, faculty may not be prepared to deal with diversity in the classroom as this section begins to illustrate using institutional data and recent faculty and student survey data (see **Appendix H**).

According to the 2014 HERI Faculty Survey results, although the majority of our faculty (over 84%) believe graduate students should spend at least one term as a teaching assistant, a smaller percentage (66.9% of HASS and 56.3% of STEM faculty) agree that graduate students receive adequate preparation to become good teachers. Given that the majority of undergraduate instruction takes place in courses with large enrollment (81% of students in last two years had course schedules in which all or at least half their classes had enrollments of 50 or more), TAs may be the only member of the instructional team with whom undergraduates interact directly during the term. Thus, the attitudes and behaviors of TAs, as well as that of the instructors, play a critical role in shaping the undergraduate learning environment at UCLA.

Perceptions of Competition. Findings from several recent campus surveys administered to faculty or students provide some insight into the nature of the learning environment that exists at UCLA. For example, results for one item on the 2014 HERI Faculty Survey indicate that most UCLA instructors, irrespective of discipline, try to dispel perceptions of competition in their classrooms (**Figure V-1, left panel**). By contrast, results for an item on the 2014 Graduating Senior Survey suggest that undergraduates sense intense competition for high grades in their majors (**Figure V-1, right panel**). Clearly, there are differences between faculty and student perceptions of the learning environment. These surveys do not specifically address which behaviors and classroom activities foster the competition that is sensed by students, although the findings in section III-C indicate that norm-referenced grading practices play a role.

Teaching Practices. The 2014 HERI Faculty Survey also suggests there is room for improving active learning and student-centered instructional practices (Kober 2015, NRC 2011), which can be characterized as equity-minded teaching strategies attuned to the diverse learning modalities

of all students. HASS faculty are more likely to report specific student-centered practices compared with STEM faculty in use of class discussions, student evaluations of each others' work, student-selected topics for course content, and reflective writing/journaling. By contrast, far more respondents appear to engage in extensive lecturing, a practice more frequently used by STEM faculty (64.6%) than HASS faculty (50.5%) in all or most of their courses. Reaching large numbers of UCLA students will require a campus-wide shift in pedagogical practices, or at the very least, elimination of the worst practices (e.g., strictly lecturing) that affect student learning (Fairweather 2008). The majority of both STEM (61.5%) and HASS (56.3%) faculty indicated they are interested in participating in a formal mentoring program for instruction. Some departments already offer such programs, with some faculty actively participating (11.9% STEM and 15.0% HASS, respectively) (see **Appendix H**). Although over 92% of faculty agree that a racially/ethnically diverse student body enhances the educational experience of all students, more than half of all faculty respondents, irrespective of discipline, do not feel prepared to handle conflicts over diversity issues in the classroom, suggesting a need for faculty training and resources. While over 89% of faculty agree strongly that they encourage all students to approach them, and although seniors are largely satisfied with faculty accessibility, the student surveys do not capture first-year student experiences in large introductory classes, in which students who rely on faculty accessibility cues may prove too intimidated to approach faculty until after the first year (Gasiewki, et al., 2012).

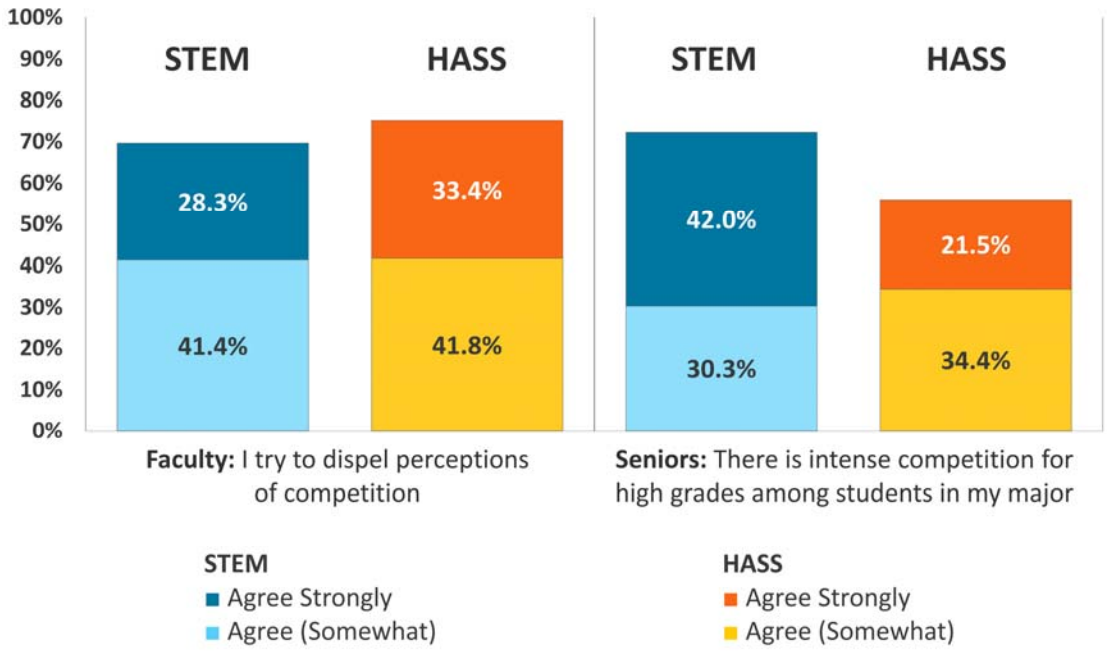

Figure V-1. Comparison of faculty and student perceptions of the learning environment at UCLA. **Left panel:** Responses for item on 2014 HERI Faculty Survey (N=307 STEM, N=711 HASS). **Right panel**: Responses for item on 2014 UCLA Graduating Senior Survey (N=4,821).

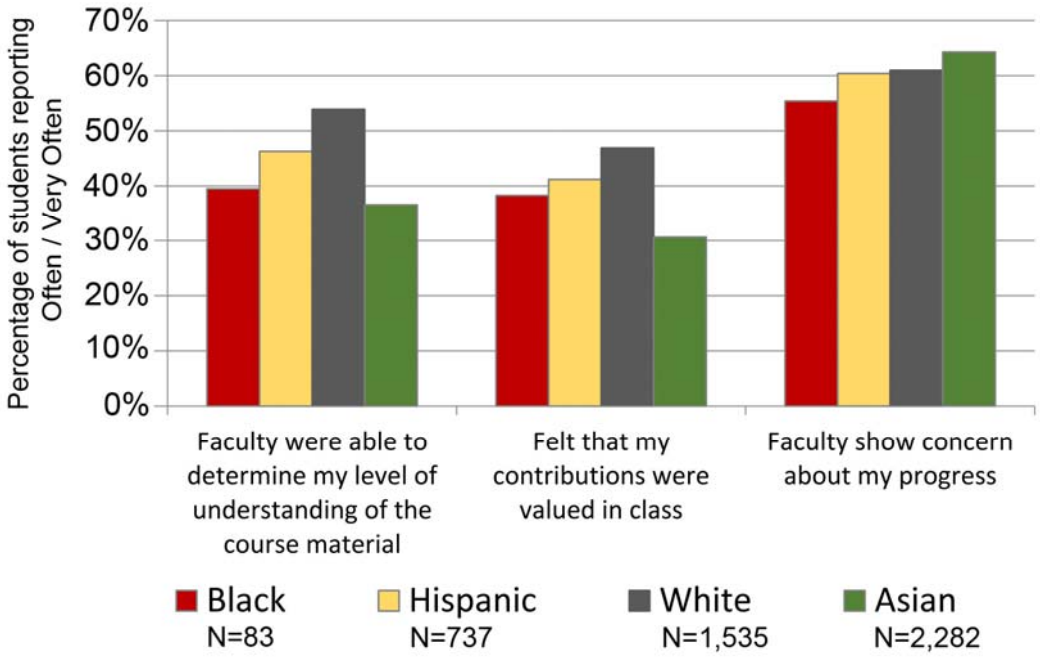

Figure V-2. Student Perceptions of Faculty Behavior in the Classroom. Source: 2011 Diverse Learning Environments Survey.

Perceptions of Classroom Climate. The 2011 Diverse Learning Environments (DLE) Survey at UCLA and the UC Climate survey provide further insight into student perceptions of faculty behavior in the classroom. As shown in **Figure V-2**, except for White students (55%), less than half of all other students felt faculty could determine their level of understanding of course material. This may be due to assessment practices that are not aligned with course learning objectives and/or lack of feedback given to students on course assignments. In terms of an important aspect of inclusive classrooms, less than half of all students felt that their contributions were valued in class. Although Asians were positive about the level of faculty concern for their progress, they were less likely to feel that their contributions were valued in class than other racial/ethnic groups. The data also show that African Americans were significantly less likely than White students to sense that faculty could determine their level of understanding of course material or felt as if their contributions were valued in class. And while the percentage of students reporting the frequency at which faculty often show concern about their progress reaches near parity across all races/ethnicities compared to the other two survey items, another 40% of students felt that faculty did not show concern for their progress.

As noted previously, the demography of the undergraduate population at UCLA is not reflected in the demography of the professoriate (see **Figure II- 2**). The distinct demography of students and faculty appears to have an impact on responses to a series of prompts on the 2012 UC Climate Survey. First, over 50% of UCLA undergraduates, irrespective of gender or race/ethnicity, reported that they do not see enough faculty or staff with whom they identify. The shortage of student role models, coupled to faculty behaviors that fail to create inclusive learning environments, likely contributes to a climate in which females or URMs are less comfortable than their male and non-URM counterparts (**Figure V-3a**). Males, non-URMs, and students in higher SES groups were more likely to report a higher comfort level with the classroom climate than females, URMs and low-income students, respectively.

The unwelcoming classroom climate also seems to hold true for students of low socioeconomic status, who find the classroom less welcoming than those students from more affluent backgrounds (**Figure V-3b**). Studies on selective campuses indicate a lack of awareness among faculty about the financial challenges many low-income students face en route to their baccalaureate degree (Hurtado, Gasiewski, and Alvarez, 2014). About 37% of UCLA undergraduate respondents to the 2012 UC Climate Survey[23] indicated they were employed either on campus or off campus. The majority of respondents who worked were males (60%). Taken together, these findings highlight a need to acknowledge the academic, social, and financial issues of our students and to devise strategies that support the success of low-income and working students. Further research is needed on the classroom climate tied to particular types of courses, structures, and traits (size, grading practices, instructor characteristics) as these data reflect students' general sense across courses they have taken at the time of the survey.

[23] http://campusclimate.ucop.edu/_common/files/pdf-climate/ucla-full-report.pdf

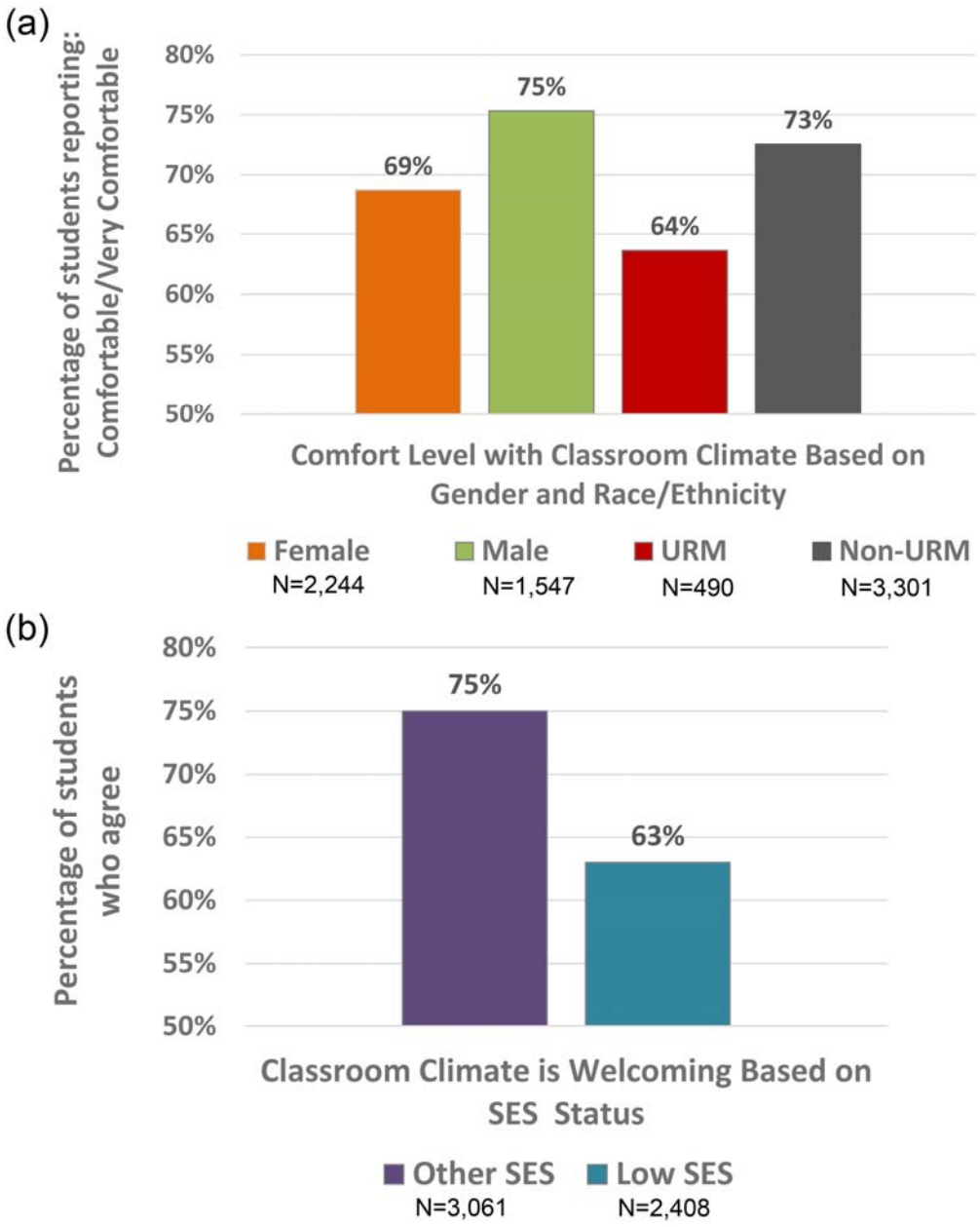

Figure V-3. Student perceptions of UCLA climate. **(a)** Classroom climate in which females and URMs are less comfortable than their male and non-URM counterparts. The non-URM category includes White, International, Multiracial, Middle Eastern/SW Asian, and Asian/Asian American. **(b)** Classroom climate for students with different socioeconomic backgrounds. SES = socioeconomic status. Source: 2012 UC Climate Survey.

VI. Recommendations

UCLA is a learning organization that can benefit from regular self-study as well as knowledge about the latest advances in teaching and learning for inclusive excellence. The findings from this study, which amounted to a campus-wide self-assessment of practices, attitudes, and perceptions of the teaching culture at UCLA, identified several factors impeding student academic success and persistence in their intended majors. The study involved the analysis of institutional data, extraction of relevant findings from existing surveys, examination of the current infrastructure supporting faculty and students, consultation meetings with several parties across campus with first-hand experience and knowledge of the institutional context in which students are acquiring their college education, and an exploration of qualitative and quantitative data provided by departments responsible for undergraduate instruction at UCLA. What follows is a series of recommendations designed to address the barriers to student success through the convergence of efforts among the dean's, department chairs, and all charged with instruction at UCLA.

Recommendation #1: Adopt a technology-supported dashboard system to monitor student progress, identify courses with high fail rates, and target responses to improve student success. At the current time, data are stored and show great potential to be mined for improving practice; however, it is not possible for deans, chairs, and course instructors or advisors to easily identify courses of concern where student performance is within the campus-wide range of performance or is an outlier with high fail rates. The campus should immediately adopt a data inquiry tool for deans and chairs that will be useful in identifying courses of concern within their units for review with respect to student progress, teaching quality, instructional and grading practices, discussion size, credit hours, instructor/teaching assistant (TA) preparedness, and other factors, to see whether improvements could be implemented to advance student success. Such a tool is intended to provide timely information needed within each unit for the dean or chair to assist faculty in improving student learning, and for advisors to advance students towards the finish line. An additional benefit of this tool is that it will provide initial evidence for exploring courses and disciplines where UCLA can focus its effort to improve the effectiveness of pedagogical approaches. Students could also benefit from an advanced tool that provides accurate course information and advances academic planning. For example, before they register they could review course evaluations, number of times the course is offered each year, the proportion of majors that take the course, and estimate time-to-degree.

The first goal of the self-study was an analysis of student performance in the classroom to identify areas for improving student success, and in particular, course offerings that create the greatest disparity for progress among student groups. Despite the fact that many on campus care about student learning, it was clear in our discussions with deans, chairs, faculty members, and advisors that there is only anecdotal information about faculty teaching practices and student performance in the classroom. Thus, the intention of this recommendation is to raise awareness with timely information on student and course performance so that all levels can focus attention on improvement.

We propose that UCLA adopt a technology-supported dashboard system that could be made available to campus deans, chairs, and advisors so that each could view the patterns of

performance data for courses in their programs of study. It is not the intention of our recommendation to publicly release these data because the interpretation of the student data must be done in the context of departmental curriculum, goals for specific courses, and a focus on instructor improvement in the use of effective classroom practices. The dashboard may provide grade distributions for each course offering (both counts and percentages of grades awarded), with the following additional features:

1) Publication by of the overall No-Pass rate per course offering (percentage of enrollments awarded any of the following: D's, F's, NP's, and U's), outlier courses in each division with high No-Pass rates, and population subgroups performance measures (e.g. Pell Grant recipients, transfer students, etc.) with disparity ratios. This information would help deans and department chairs identify problematic offerings for further investigation, determine why many students are not performing well in that course, and guide steps to be taken to make improvements.
2) Identification of grade distributions (by *k*-means cluster analysis) to offer insight into faculty grading behavior and to understand its effect on students in the courses. UC Davis, for example, has witnessed greater success for students in specific course offerings when it was taught by a different instructor using other grading methods, indicating who and how a course is taught can make a difference in student success.
3) Credits earned for each student and time-to-degree progress, including information on retake and repeat of courses. This information would help advisors identify students who need assistance across the finish line.

This project has focused on course offerings with 50 or more grades awarded per offering, but a sorting capacity for course offerings by term will enable users to identify specific courses with high disparity ratios and high No-Pass rates across all classes or by demographic group. The timely information is intended to engage faculty, advisors, chairs and deans in an effort to improve student progress and teaching as a form of academic excellence. It is important to note that many institutions are using advanced data analytics and designing dashboard systems to monitor student progress, identify courses of concern targeted for supplemental instruction, and use technology to provide timely information to improve advising to advance students more quickly to degree completion. Advances in technology, security, design, simplicity for users, and purpose of dashboard systems have already been institutionalized on many campuses (Karimi and Sullivan, 2013).

Recommendation #2: Create a campus-wide awareness of evidence-based pedagogy and implement effective pedagogy in undergraduate courses at UCLA. Evidence-based pedagogical practices are empirically linked with student success and completion. One of the current problems is that there is no repository of information on evidence-based teaching practices or ongoing discussions on what works to improve student learning, making it difficult to identify areas of faculty innovation in teaching and learning across campus. There are a variety of learner-centered approaches, backed by research, that can be incorporated in course design, implementation, and assessment that focus on improving the success of all students. For example, "backward design" aligns assignments and content, basing grades on goals/competencies set for student mastery and course objectives. Deans and department chairs should encourage faculty to document their teaching practices in review and promotion materials as an example of impact, make their teaching practices public in the same ways that scholarship is made public, and/or share how they advance student learning in the classroom.

Carl Wieman (2015), recipient of the Nobel Prize in Physics states that "all the research in the past few decades has established strong correlations between the type of STEM teaching practices used and both the amount of student learning achieved and course completion rates. These correlations have been shown to hold across a large range of different instructors and institutions." Therefore, Wieman contends that using evidence-based teaching practices as a proxy for the desired student outcomes is similar to using indicators of research for impact in the field (i.e. using grants and publications as indicators do not guarantee substantial research contributions but they tend to be well-correlated). Similarly, there are particular teaching techniques with a strong research base. Self-reports of these practices can be correlated with student success that would allow comparing faculty using various techniques and ultimate student performance. In addition, the use of particular techniques (e.g. rubrics with tasks and concepts) are excellent feedback mechanisms that help students understand the expected learning objectives and evaluate their progress toward achieving them before the end of the term. An inventory of other practices is also useful to document what UCLA does to ensure student success, including the training and guidance of TAs to ensure that their efforts are coordinated with other aspects of the course. Further, online discussions or blogs can be helpful tools in sharing practices, successes, and getting advice on attempting new practices. If UCLA is committed to academic excellence, providing more venues for information about evidence-based teaching practices and their implementation across campus will establish evidence of the quality of education all students receive.

Recommendation #3. Develop a campus-wide strategy to support faculty development and teaching assistant training for teaching in diverse classrooms. An inclusive education is one that is based on the principles of equity and inclusion of all students, differences are acknowledged as contributions in the classroom, and individuals are respected for their beliefs and cultural practices. To provide students an inclusive education, UCLA faculty must be made aware of those instructional practices that deter student success in ways that disproportionately affect individuals who identify with traditionally underrepresented groups in higher education or are beset by socioeconomic challenges that can differ from their more affluent peers who have never encountered these challenges. If diversity is a core value at UCLA then all faculty and instructors should learn how to create the optimal conditions for a dynamic, diverse learning environment. The EVC, Vice Provost/Dean for Undergraduate Education, Vice Chancellor for Equity, Diversity and Inclusion and academic deans would need to mount a coordinated effort to develop an effective and sustained strategy for campus-wide diversity education and the adoption of inclusive excellence goals across all units.

A majority of UCLA course instructors strongly support diversity in the classroom as essential to the educational experience, but survey results indicate that they are not prepared to deal with diversity conflicts when information about addressing diversity in the classroom has been offered for the first time in occasional seminars on campus in recent years. For example, the Center for Education Innovation and Learning in the Sciences (CEILS) includes such information in their faculty teaching workshops. The introduction of the new diversity requirement provides an opportunity to begin regular discussions and ongoing training activities across campus that include information about the demographics of our students, attention to classroom climate, stereotype threat, implicit bias, and strategies for handling micro-aggressions when they occur in the classroom. Opportunities to learn should be available throughout the institution and offered in several venues across campus (online resources, central workshops, and discipline-specific meetings about teaching). The campus dialogue program offered in Student Affairs has ongoing

skill training of peer facilitators that can enhance classroom discussion about controversial diversity topics. The departments of Community Health Sciences and Education (in collaboration with Student Affairs) have offered training and course sections to engage students in dialogues about diversity. However, such efforts need to be expanded not only to provide students with skills for engaging in difficult dialogues and conflict management but also to provide faculty, instructors, and teaching assistants with these skills in all course offerings.

Many selective universities have achieved national recognition for their work in promoting teaching excellence, and addressing diversity in the classroom as integral to that enterprise. For example, the CRLT at the University of Michigan, which is the source of the most widely used book on *Teaching Tips* in higher education, trains instructors/faculty about diversity in the classroom, and administers student evaluations that include a bank of questions about diversity in the classroom that faculty may opt to include or departments can require. Michigan has a national model on intergroup dialogue, a collaboration of Academic and Student Affairs) that has been replicated in classrooms across several universities. UC Berkeley offers coaching and consultations for faculty through its Multicultural Education Program office in the division of Equity, Inclusion and Diversity. Cornell University's Center for Teaching Excellence offers extensive online resources and tips for inclusive teaching strategies, attending to classroom climate, and improving students' active learning in large classes. The University of Wisconsin-Madison has integrated inclusive excellence goals across all of its academic and administrative units. It hosts online learning communities via the Center for the Integration of Research, Teaching and Learning (CIRTL) that focus on building a national network of faculty at 21 universities committed to advancing effective teaching practices for diverse learners. UCLA should become a national leader due to its location in Los Angeles, research foci, and faculty expertise in the area of diversity, but it lacks a coordinated and sustained effort to promote inclusive educational practices for a diverse learning environment.

Recommendation #4: Engage in a campus-wide dialogue about methods of student assessment and grading practices for effective student learning. The analyses of grading patterns in this report show the relationship between grading practices and student success and also reveal that certain grading patterns are associated with disparities across groups. Some of the patterns are consistent with a criterion-referenced grading practice where students achieve grades based on their mastery of course learning objectives. Other grading patterns are consistent with a practice where grades are assigned based on the normative class performance (i.e. class ranking and grade quotas). This latter approach is associated with higher fail rates and disparities across groups. One problem with the latter approach is that how a student earns a grade is not transparent; his/her grade depends on how the whole class has performed rather than what a student has learned. Developing a set of guidelines on best practices for grading could improve student success and level the playing field for all students. Faculty and department chairs should make grading practices transparent in all course syllabi and adopt grading and assessment practices that help students achieve course learning goals.

Often times course instructors are left to their own devices when making decisions about their grading procedures. Other times departmental policies dictate the way in which student grades are assigned in courses, leaving individual instructors little incentive to experiment using student-centered pedagogies that rely on collaboration, not competition, as a motivational factor (Humphreys et al. 1982, Schinske and Tanner 2014). The lack of uniformity observed in grading schemes across the disciplines speaks to an immediate need to improve communication about

grading procedures to new instructors and encouraging them to seek out expert advice about this issue from experienced and knowledgeable education leaders on campus.

A particularly alarming finding from this project is the achievement gap associated with grading practices when considering the performance of URM students, Pell Grant recipients (a proxy for low socioeconomic status), and students by gender in the assignment of A grades as well as No-Pass grades. The widely used grading practice known as "curving" and limiting the number of A's awarded (i.e., imposing quotas) fosters competition between students that some course instructors believe motivates students to study harder and take their coursework more seriously. Research has shown, however, that the impact of creating classroom competition for high grades, while perhaps well intended, is more harmful to academic motivation than helpful (Covington 1992). In such classrooms, failure to earn high grades is likely to be interpreted by students as a personal shortcoming in ability affecting their self-worth. Such beliefs, in turn, create a sense of self-loathing in students who were previously high in self-perceived academic ability. Naturally then, in a competitive learning environment, students are only going to strive for high grades as long as they remain successful in attaining high grades. This situation is further complicated for URMs who, may reject competitiveness as an academic motivator, and instead drawing strength in peer acceptance, nurturance, and cooperation (Hare 1985). This self-distancing process is a type of coping mechanism, permitting individuals to devalue those things (i.e., academic performance as the sole measure of ability) that are likely to trigger feelings of shame and self-recrimination and thus threaten their sense of well-being (Steele 1988). An inadvertent consequence of norm-referenced grading on undergraduate classroom culture is the promotion of "pitting students against one another" and alienating certain groups of students as opposed to nurturing a collaborative and inclusive learning environment (Covington 1992, Schinske and Tanner 2014 and references therein).

One other potentially high impact practice that could emerge from broad adoption of criterion-referenced grading systems is the implementation of mid-course student progress reports. The purpose is to provide students with formative feedback in regards to their course grade mid-way through a 10-week term, enabling students to make informed decisions about their progress learning the course material and seek out assistance as needed to improve their performance. This also helps faculty identify those students who are performing significantly below where they should be at the current time point in the course. Notably, shifting to criterion-referenced grading in the undergraduate curriculum at UCLA would lend itself readily to adoption of this feedback process, an effective means to be transparent about the grades assigned to students.

Many universities have stated policies that require all course instructors to explain point systems associated with each assignment and to include grading criteria on course syllabi, and universities in the other public system in California (e.g. California State Universities) require instructors additionally to specify learning objectives. Some universities are so transparent that they provide grading information to the students to help them make better course selections. For example, the Indiana University the Office of the Registrar provides students a Grade Distribution Report[24] for all credit-bearing classes. Some elements in these reports include term, instructor, GPAs of students who enrolled in the course, distribution of majors in the course, percentage of each grade category, and the total number of grades given in the course. Taken together, their goal is to create complete transparency in informing students about the teaching, learning objectives, and grading practices exercised by faculty at these institutions.

[24] http://gradedistribution.registrar.indiana.edu/info.php

Recommendation #5: Explore further ways to enhance active learning in large classes and improve discussion and laboratory sections so that they also incorporate practices for inclusive education. We analyzed large classes to determine factors that contribute to student performance outcomes. While the overall model indicated that not all large classes were a problem, the separate models comparing student groups identified the secondary section size as associated with higher No-Pass rates. More importantly, when we analyzed the factors associated with the achievement gap between URM and non-URM students or Pell Award recipients and non-recipients, course size was a significant factor in disparity ratios. Given the considerable number of classes with large enrollment, how we teach these courses will make a big difference in student learning. Through the questionnaires, we learned that many classes do not develop a pedagogical approach for discussion sections, that course instructors often do not meet with TA's, and that TA's lack critical training in effective and inclusive teaching methods. Further research should explore how lecture and discussion/laboratory material could be integrated to enhance student learning. Deans and chairs need to work together with faculty to assess problems associated with discussion or laboratory sections that also affect student success. Central teaching excellence initiatives should consistently deal with pedagogies for active learning and offer tips for instructors of large classes. The Chancellor's Office may need to provide additional resources for more teaching assistants or undergraduate learning assistants to help with active learning activities.

Further research should explore how lecture and discussion/laboratory material are integrated in a manner to enhance student learning. Faculty teaching workshops can provide individual faculty with the tools to improve large classes and their associated laboratory/discussion sections, to enhance learning and build inclusive classrooms that could reduce the achievement gap. In addition, deans and chairs need to work together to examine the departmental curriculum as a whole. Central teaching excellence initiatives should consistently reinforce active learning techniques and offer tips for instructors of large classes.

Many universities have ongoing initiatives and offer tips and strategies to deal with large classes so that students get the feedback they need and also are consistently engaged in class activities. Among promising practices that have been shown to support learning of all students are undergraduate Learning Assistant (LA) programs. As typified by the LA program at the University of Colorado at Boulder[25], undergraduates with a broad interest in teaching are recruited to facilitate interactive classroom environments. Research shows that student enrolled in courses with LAs score better on conceptual tests as compared to courses without LAs (Otero *et al*. 2010). Some UCLA departments currently support local LA programs, in which advanced undergraduate students enroll in a supervised practicum that provides pedagogical training in preparation for their instructional role as peer learning facilitators in the classroom[26]. Given the prevalence of high enrollment courses at UCLA, the LA program could be expanded not only to help TAs with delivery of instruction in secondary sections (e.g., discussions, laboratories), but also to support instructor-initiated pedagogical improvements and other interactive activities in primary sections. Many of these interventions and initiatives focus on instructors and what they do in classroom. A key factor in reducing the achievement gap is to address UCLA instruction and use of research on evidence-based practices, as many prominent universities have done, so that all students are able to achieve their major and career goals.

[25] http://serc.carleton.edu/sp/library/learning_assistants/index.html
[26] https://www.lscore.ucla.edu/opsnew.php

Recommendation #6: Improve accountability and recognition for good teaching. The Academic Senate should consider new approaches and policies to improve the assessment of teaching on campus, hold faculty and department chairs accountable for the quality of their courses in departmental reviews, and reward improvement in teaching as part of the academic personnel process. One way to improve accountability is to develop new criteria for evaluating teaching performance. Rather than rely on student and peer evaluations, both of which yield limited assessment of student learning[3], contributions toward teaching should include practices that result in desired student outcomes. For example, assessment of the relationship between learning objectives and the content of syllabi and concepts or applications in examinations, papers or other assignments, as well as transparency of grading practices should be part of the evaluation process. Another example is the effective use of teaching observation protocols by trained individuals that are used widely elsewhere and are now being tested on campus and rather than unstructured observations by peers. The Academic Senate also should consider rewarding faculty who engage in activities to improve their teaching, scholarship on teaching, and mentoring activities to promote student success.

Responses to questions on the Chair's questionnaire (**Appendix E**) about mechanisms by which faculty and TAs are recognized and rewarded for good teaching indicate most departments support faculty by occasionally nominating laudable candidates for external awards as well as the campus-wide UCLA Distinguished Teaching Awards[27] mentioned in the previous section. Nominees include ladder faculty, lecturers, and teaching assistants. Six awards are given each year and presented to awardees at an annual event, the Andrea L. Rich Night to Honor Teaching. Several discipline-specific awards related to teaching effectiveness and educational innovation are supported at the division or department levels for faculty and TAs nominated by colleagues. However, it is surprising how little evidence is used to make these selections, where the outcomes can be based more on popularity ascertained from student course evaluations or lobbying by senior colleagues than on documented teaching effectiveness.

Rewarding effective teaching necessitates improvement in the accountability measures and benchmarks used by departments. Currently, most department chairs rely heavily on self-reported student data gathered in end-of-term course evaluations as a proxy for teaching effectiveness or relative course value and difficulty. Responses to questions on the Chair's survey (**Appendix E**) pertaining to the frequency and quality of monitoring course evaluations for faculty and TAs varies widely across the campus. Chairs also apply the criteria for merit advancement and promotion to ladder faculty as described in Appendix 3 of The CALL[28] in which evidence of teaching ability can be obtained not only from students but also from peer evaluation of instruction. Because The CALL does not prescribe a standard regimen for peer evaluation, the specifications for the review process vary by department but typically involve input from the Chair, faculty colleagues, and other evidence provided by the faculty member her/himself. The UCLA Academic Personnel Office (APO) is encouraging departments to re-evaluate their processes for peer evaluation of instruction.[29] An example of one promising and feasible practice incorporated into its peer review process by Community Health Sciences (CHS) is the requirement of "Data on Teaching" beyond those listed in The CALL. Specifically, course syllabi are evaluated, and comments are incorporated from classroom observations based on one

[27] http://www.oid.ucla.edu/grants/awards
[28] https://www.apo.ucla.edu/policies/the-call/appendices-1/appendix-3-guide-to-the-documentation-of-effective-teaching
[29] https://www.apo.ucla.edu/initiatives/peer-evaluation

to three classes given by the faculty member. CHS also supplies a process for reviewing part-time faculty. Several other departments mirror these or similar procedures in their own guidelines for their peer review process, often times involving either an ad hoc or formally appointed committee on Teaching/Curriculum and Instruction; however, we also learned anecdotally of departments who inconsistently conduct peer evaluations, and when they do, the evaluation lacks criteria to judge effectiveness.

Education researchers and faculty development experts have engaged in systematic efforts to identify tools and techniques that can be used to document and describe "best teaching practices" (AAAS 2013). Four measurement techniques have been identified including surveys, interviews, observations, and portfolios. If the goal is to improve teaching practices across all disciplines, and thus improve student learning and persistence, one practical way to facilitate productive discussions between chairs and faculty about teaching is to consider an assortment of "Data on Teaching" that goes beyond course evaluations and (frequently) unstructured classroom observations, instead incorporating other types of descriptive analyses that can relate student outcomes to evidence-based practices. This mixed-methods approach is especially important in tenure decisions, to consider different forms of evidence of impact.

The iAMSTEM Hub at the University of California Davis is a campus-wide STEM education group that has developed and is now sharing an analytics tool called GORP[30] (General Observation and Reflection Tool), which has an architecture designed to facilitate classroom observations using Carl Wieman's STEM-specific classroom observation protocol COPUS (Classroom Observation Protocol for Undergraduate STEM; Smith *et al.* 2013). COPUS was developed based on RTOP (Reformed Teaching Observation Protocol; Sawada *et al.* 2002). Conducting classroom observations with technology like the GORP tool streamlines the data collection and analysis process. Furthermore, using a well-defined, validated protocol captures what happens in the classroom without requiring observers to make judgments of teaching quality. Adoption of the GORP tool is recommended for testing, adaptation for various disciplines, and ease of facilitation by deans and chairs campus-wide.

UCLA should consider strategies by which to improve existing course evaluations administered to students via the OID Evaluation of Instruction Program (EIP). Questions should be added that ask students to consider diversity and pedagogy issues in the classroom (e.g., rate instructor's level of respect and concern for students, ability to facilitate and moderate discussions where differences are evident, etc.). Given that UCLA course evaluations are now being conducted online, the collection and analysis of data could be easily displayed on a public dashboard, similar to that used by other institutions. For instance, the University of Florida[31] maintains an online, central repository for information regarding faculty course evaluations, enabling students to search both by faculty name and course ID. Reports include the response rate, frequency, mean, and standard deviation for a subset of questions students answer using a 5-pt scale (1=poor, 5=excellent), similar to the quantitative components of existing EIP surveys. The public display of select items from instructor course evaluations has the added benefit of helping students making mindful decisions during course planning, as opposed to relying on unverified information available on public websites like *Bruinwalk*.

In summary, promoting and sustaining changes in the institutional teaching culture necessitate

[30] http://iamstem.ucdavis.edu/tools/; see also Wieman and Gilbert (2014).
[31] http://tss.it.ufl.edu/evals/home

changes to the recognition and rewards system. The campus might consider publishing course evaluations and grading practices, rather than have students learn about instructors through *Bruinwalk*. Departmental chairs should more regularly review teaching effectiveness at intervals more frequent than consideration of academic personnel cases. Research indicates that faculty members need incentives to justify the time and resource investments necessary to build a strong teaching portfolio (Fairweather 2008, Anderson *et al*. 2011, Henderson *et al.* 2011). Thus, motivating faculty to engage in practices that promote teaching excellence, drive curricular innovation, and, in some cases, result in scholarly contributions to education research will require campus leadership, in concert with the Academic Senate, to discuss and consider enactment of campus policies that support this effort.

Recommendation #7. Advance a center for teaching excellence that will provide ongoing/coordinated professional development opportunities and resources for learning best practices in teaching and inclusive education. Timely and regular information should be provided to the UCLA faculty to sustain interest in teaching and secure the implementation of effective teaching methods. Support could come in the form of online resources, workshops on campus, faculty learning communities focused on a technique or disciplinary advances in teaching, and attendance at meetings to learn best practices for inclusive education. Such practices include: teaching with learning objectives and evaluating students' abilities to accomplish them; interactive classrooms; practices to avoid implicit biases in teaching, reduce stereotype threat among students; skills to handle micro-aggressions and conflict in the classroom; and development of transparent and equitable grading practices. The initial focus may be on recently hired assistant professors, lecturers, teaching assistants, and instructors of large gateway[4] courses or courses with high fail rates. The implementation for this recommendation would require collaboration between the EVC and deans to provide workshops, to identify responsibility for coordination and dissemination of resources, and to incentivize participation.

Centers for Teaching and Learning (CTLs) can play an important role in leveraging campus-level changes and improvements to the teaching enterprise. CTLs have a range of missions, functions and organizational structures on different campuses, incorporating research, outreach, professional development opportunities, and other activities related to the transformation of undergraduate instruction. In the last two decades, hundreds of post-secondary institutions across the U.S. have answered the national call to establish CTLs (NRC 1999, NRC 2003) as campus venues that foster and support faculty-inspired changes to the undergraduate curriculum. One example of a campus-wide CTL is the Center for Research on Learning and Teaching (CRLT) at the University of Michigan[32], which in 1962 was the first CTL founded in the U.S. The CRLT offers both cross-disciplinary and discipline-specific programs, the latter being customized to the individual needs of departments, divisions, and schools. The Center for Teaching and Learning at the University of Washington[33] is another example of a campus-wide CTL. Like the CRLT, its mission is on creating a cohesive network of individuals and groups on campus (i.e., a learning community). This community approach supports student learning by disseminating "best practices" and sharing education research with campus partners, proactively promoting changes in the institutional teaching culture.

At many universities, CTLs provide services, programs, and values at the core of successful

[32] http://www.crlt.umich.edu/
[33] http://www.washington.edu/teaching/

teaching, including: 1) the latest research on teaching and learning information, 2) event coordination and expertise sharing such as teaching and learning workshops, new faculty orientations, diversity-oriented retreats, topical seminars and journal clubs focused on evidence-based practices, and customized symposia, 3) prestigious fellowships that financially compensate new assistant professors, lecturers, and future academics (graduate students and post-docs) for their participation in a mentoring program that prepares and supports awardees in their teaching over an extended duration of time, and 4) support for members of a learning community that actively pursue and are recognized for contributions to the scholarship of teaching and learning.

UCLA's Office of Instructional Development (OID) is a campus unit that formed in 1978. OID offers services that overlap with campus-wide CTLs such as those mentioned above. These services include providing UCLA faculty assistance implementing emerging instructional technology for in-person and online modalities as well as conducting assessments aligned with instructional improvement efforts at the course and program levels. OID partners with the UCLA Academic Senate Committee on Teaching to evaluate nominees for the annual Distinguished Teaching Awards. OID is also responsible for all Teaching Assistant training across campus, audio/visual services, and instructor/TA course evaluations. One important program that OID administers is the Instructional Improvement Program (IIP) grants. These grants fund initiatives with budgets ranging from $5K to $40K and are designed to support faculty, department, and college-initiated curriculum improvement or assessment projects. The IIP grants encourage faculty and departments to experiment with curriculum development, piloting and evaluating materials and pedagogy demonstrated to improve undergraduate instruction. Each year, OID allocates ~$200,000 to $250,000 to fund these types of projects, with proposals reviewed by committee members three times per academic year. Given that the scope and organization of OID is currently being reviewed by a campus taskforce, it is timely to consider how this unit could be restructured to meet a broader set of the teaching and learning needs of our course instructors and students. Becoming a fully dimensional CTL that is designed to serve as a learning community with a mission that embraces values such as being proactive, innovative, scholarly/evidence-based, and diversity-minded about undergraduate instruction.

It would be tremendously beneficial to have a CTL as a centralized resource for promoting effective teaching and assessment efforts across campus and supporting departments through a pedagogical transition from which student-centered, inclusive classrooms emerge as a campus-wide cultural norm. By investing in the coordinated efforts of a CTL, the institution can directly reflect the value it places on teaching and learning. CTLs are critical to building a campus culture around assessment and evidence-based teaching practices that promote classroom diversity and inclusion. However, professional development that is targeted at reformed educational practices must span the continuum of instructional team members, "from future faculty to new faculty to veteran faculty" (NRC 2011). By inference, a CTL becomes the ideal locus for the training of Teaching Assistants in inclusive pedagogy and other issues of diversity as an extension of the services and resources offered to UCLA faculty. Furthermore, a centralized CTL should be equipped to identify the necessary internal and external expertise and resources required to support the components of professional development associated with changes in practice (Fairweather 2008). In short, most major research universities now have outstanding centers of teaching excellence that convey the value of this central faculty role with support, expertise, and resources (online and otherwise). These centers provide the infrastructure and leadership necessary to sustain changes in practice that will advance student learning and promote inclusion in classrooms.

A centralized CTL also can serve as a hub for discipline-specific Centers that arise on campus, such as Center for Education Innovation and Learning in the Sciences, which provides discipline-based workshops and supports curriculum transformations through external funding. This model for supporting the professional development of faculty members with unique disciplinary interests has been particularly successful in the STEM fields. More than 150 STEM Education Centers have been identified nationwide through a project[34] launched by the Association of Public and Land-Grant Universities (APLU) and supported by the Sloan Foundation. These discipline-specific centers have diverse structures, audiences, and goals (see Riordan 2014 for summary). The Yale Center for Scientific Teaching[35], founded by Jo Handelsman, who is currently appointed as the Associate Director for Science at the White House Office of Science and Technology Policy, is an example of a highly successful discipline-specific center supporting the transformation of classroom teaching in science and engineering. Support from the Howard Hughes Medical Institute and the National Academies resulted in the launch of week-long Summer Institutes, faculty development workshops in biology education that have reached over 1,000 science faculty since 2004 (including 15 UCLA instructors and counting). The Yale Center plays a central role in organizing the workshops and disseminating the instructional materials[36] developed by faculty participants.

In sum, we strongly recommend that UCLA develop a campus vision for undergraduate education that promotes best practices in teaching and learning, improvements in campus climate to promote inclusive classrooms, and the development of benchmarks and assessment to ensure we are meeting these goals.

VII. Concluding Remarks

No student should be excluded from the opportunity to engage in high-quality learning experiences and earn grades based on their individual performance in relation to specified learning objectives. Matriculated UCLA students, including those traditionally underserved in higher education, are highly motivated, disciplined, and unquestionably capable of academic success. Students enter UCLA on the heels of their academic success in high school or community college, and transition as freshmen or transfer students who expect their legacy of success to continue. It is the job of educators across the institution to nurture student success from the first day they set foot on this campus until the day their degree is conferred.

This report synthesizes relevant findings from departmental questionnaires, consultation meetings, prior survey research, and analysis of institutional data pertaining to the undergraduate learning experience at UCLA. The objective of this study was to determine factors contributing both to student success and failure in our classrooms. Several factors emerged as obstacles to student success, and several recommendations have been made to address these barriers. With the intent to overcome obstacles to student success, the recommendations collectively call for the engagement of UCLA faculty and administrators in discussions about teaching practices and policies that contribute to the systemic inequities of the education system experienced by UCLA students. Implementation of these recommendations will require every instructor to practice behaviors and incorporate classroom activities and practices that promote the lasting creation of inclusive, equity-minded learning experiences for UCLA undergraduates campus-wide.

[34] http://serc.carleton.edu/StemEdCenters/index.html
[35] http://cst.yale.edu/
[36] http://cst.yale.edu/teachable-tidbit-general-categories

VIII. References

AAAS (2013) *Describing and Measuring Undergraduate STEM Teaching Practices.* A Report from a National Meeting on the Measurement of Undergraduate Science, Technology, Engineering, and Mathematics (STEM) Teaching. Hosted by the American Association for the Advancement of Science with support from the National Science Foundation. Washington, DC.

Anderson WA, Banerjee U, Drennan CL, Elgin SCR, Epstein IR, Handelsman J, Hatfull GF, Losick R, O'Dowd DK, Olivera BM, Strobel SA, Walker GC, and Warner IM (2011) Changing the culture of science education at research universities. Science Education Forum, *Science* 331: 152-153.

Binder M, Chermak J, Krause K, and Thacher J (2012) The teaching penalty in higher education: Evidence from a public research university. *Economic Letters* 117: 39-41.

Brookhart SM (2009) *Grading*, 2nd Ed. Pearson/Merrill/Prentice Hall, Upper Saddle River, NJ.

Covington MV (1992) *Making the Grade: A Self-Worth Perspective on Motivation and School Reform*. Cambridge University Press, New York NY.

Fairweather JS (2005) Beyond the rhetoric: Trends in the relative value of teaching and research in faculty salaries. *The Journal of Higher Education* 76(4): 401-422.

Fairweather JS (2008) *Linking evidence and promising practices in Science, Technology, Engineering, and Mathematics (STEM) Education: A Status Report*. Commissioned paper presented at NRC workshop on Evidence on Selected Promising Practices in Undergraduate Science, Technology, Engineering, and Mathematics (STEM) Education, Washington, DC.

Ganley CM, Mingle LA, Ryan AM, Ryan K, Vasilyeva M, and Perry M (2013) An examination of stereotype threat effects on girls' mathematics performance. *Developmental Psychology* 49: 1886.

Garrison H (2013) Underrepresentation by Race-Ethnicity Across Stages of U.S. Science and Engineering Education. *CBE-Life Sci Educ*. 12: 357-363.

Handelsman J, Ebert-May D, Beichner R, Bruns P, Chang A, DeHaan R, Gentile J, Lauffer S, Stewart J, Tilghman SM, and Wood WB (2004) Scientific Teaching. *Science* 304: 521-522.

Hare B (1985) Stability and change in self-perception and achievement among black adolescents: A longitudinal study. *The Journal of Black Psychology* 11: 29-42.

Henderson C, Beach A, and Finkelstein N (2011) Facilitating change in undergraduate STEM instructional practices: An analytic review of the literature. *Journal of Research in Science Teaching* 48(8): 952-984.

Hughes, B. E., Hurtado, S., and Eagan, M.E. (2014). Driving up or dialing down competition in introductory STEM Courses: Individual and classroom level factors. A paper presented at the Association of the Study of Higher Education, Washington, D.C.

Humphreys B, Johnson RT, and Johnson DW (1982) Effects of cooperative, competitive, and individualistic learning on students' achievement in science class. *J. Res. Sci. Teach.* 19: 351-356.

Jellison JM (2006) *Managing the Dynamics of Change: The Fastest Path to Creating an Engaged and Productive Workforce*. McGraw-Hill, New York, NY.

Karimi, A. and Sullivan, E. (2013). Student success dashboard at California State University, Fullerton. Proceedings 9th Annual National Symposium, University of Oklahoma, C-IDEA. www.fullteron.edu/analyticalstudies/presentations/CSRDE2013_Dash_karimi_sullivan.pdf

Kober N (2015) *Reaching Students: What Research Says About Effective Instruction in Undergraduate Science and Engineering*. Board on Science Education, Division of Behavioral and Social Sciences and Education. National Academies Press, Washington, DC.

Miyake A, Kost-Smith LE, Finkelstein ND, Pollock SJ, Cohen GL, and Ito TA (2010) Reducing the gender achievement gap in college science: A classroom study of values affirmation. *Science* 330: 1234-1237.

Moss-Racusin CA, Dovidio JF, Brescoll VL, Graham MJ, and Handelsman J (2012) Science faculty's subtle gender biases favor male students. *Proceedings of the National Academy of Sciences* 109: 16474-16479.

National Academy of Sciences, National Academy of Engineering, and Institute of Medicine of the National Academies (2011) *Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads*, National Academies Press, Washington, DC.

NRC (1999) *Transforming Undergraduate Education in Science, Mathematics, Engineering, and Technology*, National Academies Press, Washington, DC.

NRC (2003) BIO 2010: *Transforming Undergraduate Biology Education for Future Research Biologists*, National Academies Press, Washington, DC.

NRC (2005) *How Students Learn: Science in the Classroom*. Committee on How People Learn, A Targeted Report for Teachers. MS Donovan and JD Bransford, Editors. Division of Behavioral and Social Sciences and Education. National Academies Press, Washington, DC.

NRC (2011) *Promising Practices in Undergraduate Science, Technology, Engineering, and Mathematics Education: Summary of Two Workshops*. N Nielsen, Rapporteur. Planning Committee on Evidence on Selected Innovations in Undergraduate STEM Education. Board on Science Education, Division of Behavioral and Social Sciences and Education. National Academies Press, Washington, DC.

NRC (2012) *Discipline-based Education Research: Understanding and Improving Learning in Undergraduate Science and Engineering*. Committee on the Status, Contributions, and Future Directions of Discipline-based Education Research. Board on Science Education, Division of Behavioral and Social Sciences and Education. SR Singer, NR Nielsen, and HA Schweingruber, Editors. National Academies Press, Washington, DC.

Otero V, Pollock S, and Finkelstein N (2010) A Physics Department's Role in Preparing Physics Teachings: The Colorado Learning Assistant Model. *Am. J. Phys*. 78(11): 1218-1224.

PCAST (2012) *Engage to Excel: Producing One Million Additional College Graduates with Degrees in Science, Technology, Engineering, and Mathematics*, Washington DC: President's Council of Advisors on Science and Technology.

Reese MJ (2013) To Curve or Not to Curve. *The Innovative Instructor*. Accessed 6 June 2015. http://www.cer.jhu.edu/ii/

Riordan DG (2014) STEM Education Centers: A National Discussion. APLU/SMTI Paper. *The Science and Mathematics Teacher Imperative* 8: 1-20.

Sawada D, Piburn MD, Judson E, Turley J, Falconer K, Benford R, and Bloom I (2002) Measuring reform practices in science and mathematics classrooms: the Reformed Teaching Observation Protocol. *Sch Sci Math* 102: 245-253.

Schinske J and Tanner K (2014) Teaching More by Grading Less (or Differently). *CBE-Life Sciences Educ*. 13: 159-166.

Seymour E and Hewitt NM (1997) *Talking About Leaving: Why Undergraduates Leave the Sciences*. Westview Press, Boulder, CO.

Shapiro, C.A. and Sax, L.J. (2011) Major selection and persistence for women in STEM. *New Directions for Institutional Research, 47* (4), 633-650.

Smith MK, Jones FHM, Gilbert SL, and Wieman CE (2013) The Classroom Observation Protocol for Undergraduate STEM (COPUS): A New Instrument to Characterize University STEM Classroom Practices. *CBE-Life Sci Educ*. 12: 618-627.

Staats C, Capatosto K, Wright RA and Contractor D (2015) *State of the Science: Implicit Bias Review 2015*. Kirwan Institute for the Study of Race and Ethnicity. The Ohio State University. Columbus, OH.

Steele CM (1988) The psychology of self-affirmation: Sustaining the integrity of the self. In L. Berkowitz (Ed.) Advances in Experimental Social Psychology. (Vol. 21: 261-302). Academies Press, New York, NY.

Steele CM and Aronson J (1995) Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology* 69: 797.

Strenta, A.C., Elliott, R., Adair, R., Matier, M. and Scott. (1994). Choosing and leaving science in highly selective institutions, *Research in Higher Education, 35* (5), 513-547.

Toven-Lindsey B, Levis-Fitzgerald M, Barber PH, and Hasson T (2015) Increasing Persistence in Undergraduate Science Majors: A Model for Institutional Support of Underrepresented Students. *CBE-Life Sci Educ*. 14: 1-12.

Wieman C (2015). A Better Way to Evaluate Undergraduate Teaching. *Change*, January-February issue. Accessed 31 October 2015. http://www.changemag.org/Archives/Back%20Issues/2015/January-February%202015/better-way-full.html.

Wieman, C. and Gilbert, S.L. (2014) The teaching practices inventory: A new tool for characterizing college and university teaching in mathematics and science. *CBE-Life Sciences Educ* 13: 552-569.

Wiggins G and McTighe J (2005) *Understanding by Design*, 2nd Ed. Association for Supervision and Curriculum Development, Alexandria, VA.

Witham K, Malcom-Piqueux LE, Dowd AC, and Bensimon EM (2015) *America's Unmet Promise: The Imperative for Equity in Higher Education.* Association of American Colleges and Universities, Washington DC.